THE OXFORD INTRODUCTION TO PROTO-INDO-EUROPEAN AND THE PROTO-INDO-EUROPEAN WORLD

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J. P. Mallory and D. Q. Adams
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List of Abbreviations and Acronyms

(All dates are approximate)

Alb = Albanian (16th century onwards).
Arm = Armenian (5th century onwards).
Av = Avestan, Iranian (1st millennium BC).
Bakhtiari = a Southwest Iranian language (modern).
Bret = Breton, Celtic (6th century AD onwards).
Bulg = Bulgarian, a south Slavic language (11th century onwards).
Corn = Cornish, Celtic language of Cornwall.
Cretan Grk = the variety of ancient Greek spoken on Crete.
Czech = Czech, a western Slavic language (11th century onwards).
Doric Grk = Doric Greek, one of the principal groups of the West Greek dialects.
Gallo-Roman = the Latin spoken in Gaul after the Roman conquest.
Gaul = Gaulish, a Continental Celtic language (3rd–1st centuries BC).
Goth = Gothic, an eastern Germanic language (4th century AD).
Grk = Greek (8th century BC onwards).
HierLuv = Hieroglyphic Luvian, an Anatolian language (1300–700 BC).
Hit = Hittite, an Anatolian language (1650–1190 BC).
Homeric Grk = the Greek dialect of the Homeric poems (800 BC).
Ibero-Celtic = the variety of Celtic spoken in Iberia (3rd–1st centuries BC).
Illyr = Illyrian.
Ishkashmi = a Southeast Iranian language (modern).
Kashmiri = Indic language of Kashmir (14th century onwards).
Khot = Khotanese, an Eastern Iranian language (5th–10th centuries AD).
Khowar = Dardic/Northwestern Indic language (modern).
Khufi = a Southeast Iranian language (modern).
Kurd = Kurdish, a North-west Iranian language (modern).
Lat = Latin (7th century BC onwards).
Latv = Latvian, Baltic (16th century onwards).
Ligurian = presumably Celtic language of north Italy.
Lith = Lithuanian, Baltic (18th century onwards).
Luv = Luvian, Anatolian language (17th–8th centuries BC).
Maced = Macedonian, a language closely related to Greek.
MDutch = West (Low) Germanic (c 1300 to 1500).
ME = Middle English, Germanic (12th–15th centuries).
Messapic = non-Italic language of southeast Italy (6th–1st centuries BC).
MHG = Middle High German (AD 1050–1500).
MIr = Middle Irish, Celtic (AD 900–1200).
Mitanni = Hurrian (non-IE) language of the upper Euphrates with elements of Indo-Aryan (15th–14th centuries BC).
MLG = Middle Low German (AD 1050–1350).
MPers = Middle Persian, Southwestern Iranian (200 BC–AD 700).
MWels = Middle Welsh, Celtic (AD 1200–1500).
Myc = Mycenaean, earliest attested Greek (16th?–13th centuries BC).
NDutch = modern Dutch, West Germanic (1500 onwards).
NE = New (Modern) English, Germanic (1500 onwards).
NHG = New High German, Germanic (1500 onwards).
NIce = New Icelandic, North Germanic language (1400 onwards).
NIr = New Irish, Celtic (1200 onwards).
Norw = Norwegian, North Germanic (1800 onwards).
NPers = New Persian, Southwestern Iranian (8th century AD onwards).
OBrit = Old British, Celtic (until 8th century AD).
OCS = Old Church Slavonic, Slavic (9th–13th centuries).
OCzech = Old Czech, West Slavic (13th–16th centuries).
OE = Old English, Germanic (800–1150).
OHG = Old High German, West Germanic (750 to 1050).
OIr = Old Irish, Celtic (600 to 900).
OLat = Old Latin (6th–2nd centuries BC).
OLith = Old Lithuanian, Baltic (16th–18th centuries).
ON = Old Norse, Germanic (1150–1550).
OPol = Old Polish, West Slavic (13th–15th centuries).
OPrus = Old Prussian, West Baltic (16th–18th centuries).
ORus = Old Russian, East Slavic (1050–1600).
Osc = Oscan, Italic (5th–1st centuries BC).
Oss = Ossetic, Northeast Iranian (modern).
OSwed = Old Swedish, North Germanic language (13th–14th centuries).
OWels = Old Welsh, Celtic (9th–12th centuries).
Pal = Palaic, Anatolian (c. 16th century BC).
Parth = Parthian, Northwest Iranian (3rd–1st centuries BC).
Pashto = Southeast Iranian (modern).
Phryg = Phrygian (8th–3rd centuries BC and 1st century AD).
PIE = Proto-Indo-European.
Pol = Polish, Western Slavic (13th century onwards).
Roshani = Southeast Iranian (modern).
Runic = language of the earliest Germanic inscriptions (3rd–6th centuries AD).
Rus = Russian, East Slavic (c. 1050 AD onwards).
RusCS = Russian variety of Old Church Slavonic.
Sanglechi = Southeast Iranian (modern).
Sarikoli = Southeast Iranian (modern).
SC = Serbo-Croatian, South Slavic (19th century onwards).
SGael = Scots Gaelic, Celtic (13th century onwards).
Scyth = Scythian, Iranian.
SerbCS = Serbian variety of Old Church Slavonic.
Shughni = Southeast Iranian (modern).
Skt = Sanskrit, Indo-Aryan (1000 BC onwards)
Slov = Slovene, South Slavic (16th century onwards).
Sogdian = Northeast Iranian (4th–8th centuries).
Swed = Swedish, North Germanic (4th–8th centuries).
Thessalian Grk = classical Greek dialect of Thessaly.
Thrac = Thracian (5th century BC).
TochA = Tocharian A (7th–10th centuries AD).
TochB = Tocharian B (5th–13th centuries AD).
Umb = Umbrian, Italic (3rd–1st centuries BC).
Waigali = Nūristāni, Indo-Iranian (modern).
NWels = New Welsh, Celtic (1500 onwards).
Introduction

The *Oxford Introduction to Proto-Indo-European and The Proto-Indo-European World* fills the need for a relatively concise introduction to the full range of reconstructed vocabulary of the language that gave rise to the world’s largest language family. It addresses two levels of readers. The first comprises general readers and students who want to know more about the Indo-Europeans and how they spoke, as well as professionals in disciplines such as archaeology who need to deal with the early Indo-Europeans. The second consists of linguists interested in refining, challenging, or adding to our understanding of Proto-Indo-European.

The book is broadly divided into two parts. The first, aimed principally at the first group of readers, gives concise introductions to: the discovery and composition of the Indo-European language family (chapters 1 and 2); the way the proto-language has been reconstructed (chapter 3); its most basic grammar (chapter 4); the interrelationships between the different language groups (chapter 5); and the temporal position of the Indo-European languages (chapter 6). Some of the difficulties involved in reconstructing a proto-language are described in chapter 7.

The second part, aimed at all readers, provides accounts by semantic field of the Proto-Indo-European lexicon. Where the evidence suggests that an item may be reconstructed to full Proto-Indo-European antiquity, we provide a summary table giving the reconstructed form, its meaning, and its cognates in English and in the three ‘classical’ languages of Latin, Greek, and Sanskrit. Our survey of semantic fields travels first into the natural world of the earth and heavens, fauna, and flora, before moving into the human realms of anatomy, kinship, architecture, clothing, material culture, food and drink, and social organization. It then looks at the more abstract notions of space, time and quantity, before turning to considerations of mind, perception, speech, activity, and finally religion. This organization reflects Carl Darling Buck’s in his *A Dictionary of Selected Synonyms in the Principal Indo-European Languages*, and we have indeed aimed to do for Proto-Indo-European something of what Buck did for the individual Indo-European languages.
The final three chapters describe some of the commonest grammatical elements of Proto-Indo-European, survey the methods used to reconstruct the mythology of the Proto-Indo-Europeans, and examine the various attempts at locating the Proto-Indo-European homeland. In addition to standard indexes, the book also contains two word lists: a Proto-Indo-European English list and a list of the Proto-Indo-European vocabulary arranged by its English meaning (which should at least facilitate those who delight in such tasks as translating Hamlet into Klingon).

Students and general readers will be able to gain a broad knowledge from this book of the ancient language that underlies all the modern Indo-European languages. We hope that the arrangement of evidence by semantic group here will also stimulate research by linguists. One cannot be confronted with a list of, say, verbal roots all with the same ‘reconstructed’ meaning without wondering how their semantic valence may have differed in the proto-language and to what extent it might be possible to recover something of their earlier nuances. Although we frequently allude to attempts to discuss the data according to some system of folk taxonomy, this is obviously another area that has been insufficiently examined in the study of Proto-Indo-European. The various regional ascriptions of cognates will doubtless be subject to further scrutiny: the discovery of an Iranian cognate, say, to a word otherwise only found in European languages would change our conception of Proto-Indo-European itself. Other areas for further investigation include quantitative approaches to the Indo-European vocabulary (for example, phoneme preferences and investigation of sound symbolism by semantic class), and the comparison of Proto-Indo-European with other reconstructed proto-languages.

The Proto-Indo-European field of study opens a window on a distant past and presents the scholar and student with many opportunities for investigation and discovery. We hope the present guide will reveal something of its vibrancy, challenge, and endless fascination.
1

Discovery

1.1 Language Relations

One of the first hurdles anyone encounters in studying a foreign language is learning a new vocabulary. Faced with a list of words in a foreign language, we instinctively scan it to see how many of the words may be like those of our own language. We can provide a practical example (Table 1.1) by surveying a list of very common words in English and their equivalents in Dutch, Czech, and Spanish.

A glance at the table suggests that some words are more similar to their English counterparts than others and that for an English speaker the easiest or at least most similar vocabulary will certainly be that of Dutch. The similarities here are so great that with the exception of the words for ‘dog’ (Dutch *hond* which compares easily with English ‘hound’) and ‘pig’ (where Dutch *zwijn* is the equivalent of English ‘swine’), there would be a nearly irresistible temptation for an English speaker to see Dutch as a bizarrely misspelled variety of English (a Dutch reader will no doubt choose to reverse the insult). When our myopic English speaker turns to the list of Czech words, he discovers to his pleasant surprise that he knows more Czech than he thought. The Czech words *bratr*, *sestra*, and *syn* are near hits of their English equivalents. Finally, he might be struck at how different the vocabulary of Spanish is (except for *madre*) although a few useful correspondences could be devised from the list, e.g. English *pork* and Spanish *puerco*.

The exercise that we have just performed must have occurred millions of times in European history as people encountered their neighbours’ languages.
The balance of comparisons was not to be equal, however, because Latin was the prestige language employed both in religious services and as an international means of communication. A medieval monk in England, employing his native Old English, or a scholar in medieval Iceland who spoke Old Norse, might exercise their ingenuity on the type of wordlist displayed in Table 1.2 where we have included the Latin equivalents.

The similarities between Latin and Old English in the words for ‘mother’, ‘father’, and ‘pig’, for example, might be explained by the learned classes in terms of the influence of Latin on the other languages of Europe. Latin, the language of the Roman Empire, had pervaded the rest of Europe’s languages, and someone writing in the Middle Ages, when Latin words were regularly being imported into native vernaculars, could hear the process happening with their own ears. The prestige of Latin, however, was overshadowed by that of Greek as even the Romans acknowledged the antiquity and superior position of ancient Greek. This veneration for Greek prompted a vaguely conceived model in which Latin had evolved as some form of degraded Greek. Literary or chronological prestige then created a sort of linguistic pecking order with Greek at the apex and most ancient, then the somewhat degenerate Latin, and then a series of debased European languages that had been influenced by Latin.

What about the similarities between Old English and Old Norse? Our English monk might note that all ten words on the list appeared to correspond with one another and in two instances the words were precisely the same (‘pig’ and ‘house’). We have no idea whether any Englishman understood why the two languages were so similar. But in the twelfth century a clever Icelandic
scholar, considering these types of similarities, concluded that Englishmen and Icelanders ‘are of one tongue, even though one of the two (tongues) has changed greatly, or both somewhat’. In a wider sense, the Icelander believed that the two languages, although they differed from one another, had ‘previously parted or branched off from one and the same tongue’. The image of a tree with a primeval language as a trunk branching out into its various daughter languages was quite deliberate—the Icelander employed the Old Norse verb greina ‘to branch’. This model of a tree of related languages would later come to dominate how we look at the evolution of the Indo-European languages (see Section 5.1).

The similarities between the languages of Europe could then be accounted for in two ways: some of the words might be explained by diffusion or borrowing, here from Latin to the other languages of Europe. Other similarities might be explained by their common genetic inheritance, i.e. there had once been a primeval language from whence the current languages had all descended and branched away. In this latter situation, we are dealing with more than similarities since the words in question correspond with one another in that they have the same origin and then, as the anonymous Icelander suggests, one or both altered through time.

Speculation as to the identity of the primeval language was largely governed by the Bible that provided a common origin for humankind. The biblical account offered three decisive linguistic events. The first, the creation of Adam and Eve, provided a single ancestral language which, given the authority and origin of the Bible, ensured that Hebrew might be widely regarded as the

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<table>
<thead>
<tr>
<th>ENGLISH</th>
<th>OLD ENGLISH</th>
<th>OLD NORSE</th>
<th>LATIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>mother</td>
<td>mōðor</td>
<td>mōðir²</td>
<td>māter</td>
</tr>
<tr>
<td>father</td>
<td>fæder</td>
<td>faðir</td>
<td>pater</td>
</tr>
<tr>
<td>brother</td>
<td>brōðor</td>
<td>brōðir</td>
<td>frāter</td>
</tr>
<tr>
<td>sister</td>
<td>sweostor</td>
<td>systir</td>
<td>soror</td>
</tr>
<tr>
<td>son</td>
<td>sunu</td>
<td>sunr</td>
<td>fīlius</td>
</tr>
<tr>
<td>daughter</td>
<td>dohtor</td>
<td>dōttir</td>
<td>fília</td>
</tr>
<tr>
<td>dog</td>
<td>hund</td>
<td>hundr</td>
<td>canis</td>
</tr>
<tr>
<td>cow</td>
<td>cāu</td>
<td>kyr</td>
<td>bōs</td>
</tr>
<tr>
<td>sheep</td>
<td>ēowu</td>
<td>ar</td>
<td>ovis</td>
</tr>
<tr>
<td>pig</td>
<td>swīn</td>
<td>svīn</td>
<td>suīnus</td>
</tr>
<tr>
<td>house</td>
<td>hūs</td>
<td>hūs</td>
<td>domus</td>
</tr>
</tbody>
</table>

² The Old English and Norse ð is equivalent to a ‘th’ in English, e.g. this.
‘original’ language from which all others had descended. Hebrew as a common language, however, did not make it past the sixth chapter of Genesis when the three sons of Noah—Shem, Ham, and Japheth—were required to repeople the world after the Flood. These provided the linguistic ancestors of three major groups—the Semites, the Hamites (Egyptians, Cushites), and the offspring of Japheth to whom Europeans looked for their own linguistic ancestry. By the eleventh chapter of Genesis the world’s linguistic diversity was re-explained as the result of divine industrial sabotage against the construction crews building the Tower of Babel.

During the sixteenth century pieces of the linguistic puzzle were beginning to fall into place. Joseph Scaliger (1540–1609), French (later Dutch) Renaissance scholar and one of the founders of literary historical criticism, who incidentally also gave astronomers their Julian Day Count, could employ the way the various languages of Europe expressed the concept of ‘god’ to divide them into separate groups (Table 1.3); in these we can see the seeds of the Romance, Germanic, and Slavic language groups. The problem was explaining the relationships between these different but transparently similar groups. The initial catalyst for this came at the end of the sixteenth century and not from a European language.

By the late sixteenth century Jesuit missionaries had begun working in India—St Francis Xavier (1506–52) is credited with supplying Europe with its first example of Sanskrit, the classical language of ancient India, in a letter written in 1544 (he cited the invocation Om Srii naraina nama). Classically trained, the Jesuits wrote home that there was an uncanny resemblance between Sanskrit and the classical languages of Europe. By 1768 Gaston Cœurdoux (1691–1777) was presenting evidence to the French Academy that Sanskrit, Latin, and Greek were extraordinarily similar to one another and probably shared a common origin. A glance at our wordlist (Table 1.4), now extended to include Greek and Sanskrit, indicates just how striking those resemblances could be.

The correspondences between the language of ancient India and those of ancient Greece and Rome were too close to be dismissed as chance and,

<table>
<thead>
<tr>
<th>Deus Group</th>
<th>Gott Group</th>
<th>Bog Group</th>
<th>Theos Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latin deus</td>
<td>German Gott</td>
<td>Russian bog</td>
<td>Greek theós</td>
</tr>
<tr>
<td>Italian dio</td>
<td>Dutch god</td>
<td>Ukrainian bog</td>
<td></td>
</tr>
<tr>
<td>Spanish dio</td>
<td>Swedish god</td>
<td>Polish bog</td>
<td></td>
</tr>
<tr>
<td>French dieu</td>
<td>English god</td>
<td>Czech buh</td>
<td></td>
</tr>
</tbody>
</table>
although similar equations had been noted previously, history generally dates the inception of the Indo-European model to 1786 when Sir William Jones (1746–94), Sanskrit scholar and jurist, delivered his address to the Asiatic Society in Calcutta and observed:

The Sanskrit language, whatever be its antiquity, is of a wonderful structure; more perfect than the Greek, more copious than the Latin, and more exquisitely refined than either, yet bearing to both of them a stronger affinity, both in the roots of the verbs and in the forms of grammar, than could possibly have been produced by accident; so strong indeed, that no philologer could examine them all three, without believing them to have sprung from some common source, which, perhaps, no longer exists: there is a similar reason, though not quite so forcible, for supposing that both the Gothic and the Celtic, though blended with a very different idiom, had the same origin with Sanskrit; and the old Persian might be added to the same family, if this were the place for discussing any question concerning the antiquities of Persia.

Jones’s remarks contain a number of important elements. First, they suggest that there is a language ‘family’ that comprises Sanskrit, Greek, Latin, Persian, Gothic (Germanic), and Celtic. All these languages or language groups are derived from a common ancestor—Jones is uncertain whether this common ancestor is still spoken somewhere. And reprising an earlier tradition, he also imagines that Germanic and Celtic are in some ways adulterated languages that sprang from the blending of the original language with other elements that made them appear less closely related to the three classical tongues.

Critical to this entire model is the actual evidence that the various languages belong to the same family. Jones did not base his conclusions on the transparent similarities found in wordlists but rather on the correspondences also found

<table>
<thead>
<tr>
<th>ENGLISH</th>
<th>LATIN</th>
<th>GREEK</th>
<th>SANSKRIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>mother</td>
<td>māter</td>
<td>métēr</td>
<td>mātār-</td>
</tr>
<tr>
<td>father</td>
<td>pater</td>
<td>pater</td>
<td>pītār-</td>
</tr>
<tr>
<td>brother</td>
<td>frāter</td>
<td>phrētēr</td>
<td>bhrātār-</td>
</tr>
<tr>
<td>sister</td>
<td>soror</td>
<td>éor</td>
<td>svāsar-</td>
</tr>
<tr>
<td>son</td>
<td>filius</td>
<td>huiūs</td>
<td>sūmī-</td>
</tr>
<tr>
<td>daughter</td>
<td>fīlia</td>
<td>thugātēr</td>
<td>duhitār-</td>
</tr>
<tr>
<td>dog</td>
<td>canis</td>
<td>kūōn</td>
<td>svān-</td>
</tr>
<tr>
<td>cow</td>
<td>bōs</td>
<td>boūs</td>
<td>gāu-</td>
</tr>
<tr>
<td>sheep</td>
<td>ovis</td>
<td>ō(w)īs</td>
<td>āvī-</td>
</tr>
<tr>
<td>pig</td>
<td>suṃus</td>
<td>hūs</td>
<td>sūkarā-</td>
</tr>
<tr>
<td>house</td>
<td>domus</td>
<td>dō</td>
<td>dām</td>
</tr>
</tbody>
</table>
in grammar (Gaston Cœurdoux also employed grammatical evidence). This was a critical insight because items of vocabulary may well be borrowed from one language to another (e.g. we have English *penicillin*, Irish *pinisilin*, Russian *penitsillin*, Turkish *penisilin*) and there is no question that Latin loanwords have indeed enriched many of the languages of Europe. But while a word may be borrowed, it is far less likely that an entire grammatical system will also be borrowed. A comparison of the present conjugation of the verb ‘carry’ in Sanskrit, Greek, and Latin indicates that systematic correspondences go beyond the similarity of the roots themselves (Table 1.5).

<table>
<thead>
<tr>
<th>Sanskrit</th>
<th>Greek</th>
<th>Latin</th>
</tr>
</thead>
<tbody>
<tr>
<td>I carry</td>
<td>bhārāmi</td>
<td>phērō</td>
</tr>
<tr>
<td>You carry</td>
<td>bhārasi</td>
<td>phēreis</td>
</tr>
<tr>
<td>He/she carries</td>
<td>bhāratī</td>
<td>phērei</td>
</tr>
<tr>
<td>We carry</td>
<td>bhārāmas</td>
<td>phēromen</td>
</tr>
<tr>
<td>You carry</td>
<td>bhāratha</td>
<td>phērete</td>
</tr>
<tr>
<td>They carry</td>
<td>bhārantī</td>
<td>phērousī</td>
</tr>
</tbody>
</table>

### 1.2 Indo-European

By 1800 a preliminary model for the relationship between many of the languages of Europe and some of those of Asia had been constructed. The language family came to be known as Indo-Germanic (so named by Conrad Malte-Brun in 1810 as it extended from India in the east to Europe whose westernmost language, Icelandic, belonged to the Germanic group of languages) or Indo-European (Thomas Young in 1813).

Where the relationships among language groups were relatively transparent, progress was rapid in the expansion of the numbers of languages assigned to the Indo-European family. Between the dates of the two early great comparative linguists, Rasmus Rask (1787–1832) and Franz Bopp (1791–1867), comparative grammars appeared that solidified the positions of Sanskrit, Iranian, Greek, Latin, Germanic, Baltic, Slavic, Albanian, and Celtic within the Indo-European family. Some entered easily while others initially proved more difficult. The Iranian languages, for example, were added when comparison between Iran’s ancient liturgical texts, the *Avesta*, was made with those in Sanskrit. The similarities between the two languages were so great that some thought that the
Avestan language was merely a dialect of Sanskrit, but by 1826 Rask demonstrated conclusively that Avestan was co-ordinate with Sanskrit and not derived from it. He also showed that it was an earlier relative of the modern Persian language. The Celtic languages, which displayed many peculiarities not found in the classical languages, required a greater scholarly effort to see their full incorporation into the Indo-European scheme. Albanian had absorbed so many loanwords from Latin, Greek, Slavic, and Turkish that it required far more effort to discern its Indo-European core vocabulary that set it off as an independent language.

After this initial phase, which saw nine major language groups entered into the Indo-European fold, progress was more difficult. Armenian was the next major language to see full incorporation. It was correctly identified as an independent Indo-European language by Rask but he then changed his mind and joined the many who regarded it as a variety of Iranian. This reticence in seeing Armenian as an independent branch of Indo-European was due to the massive borrowing from Iranian languages, and here the identification of Armenian’s original Indo-European core vocabulary did not really emerge until about 1875.

The last two major Indo-European groups to be discovered were products of archaeological research of the late nineteenth and early twentieth centuries. Western expeditions to oasis sites of the Silk Road in Xinjiang, the westernmost province of China, uncovered an enormous quantity of manuscripts in the first decades of the twentieth century. Many of these were written in Indic or Iranian but there were also remains of two other languages which are now known as Tocharian and by 1908 they had been definitely shown to represent an independent group of the Indo-European family. It was archaeological excavations in Anatolia that uncovered cuneiform tablets which were tentatively attributed to Indo-European as early as 1902 but were not solidly demonstrated to be so until 1915, when Hittite was accepted into the Indo-European fold. Other Indo-European languages, poorly attested in inscriptions, glosses in Greek or other sources, or personal and place names in classical sources, have also entered the Indo-European family. The more important are Lusatian in Iberia, Venetic and Messapic in Italy, Illyrian in the west Balkans, Dacian and Thracian in the east Balkans, and Phrygian in central Anatolia.

If we prepare a map of Eurasia and depict on it the various major groups of Indo-European languages (Map 1.1), we find that they extend from the Atlantic to western China and eastern India; from northernmost Scandinavia south to the Mediterranean and the Indian Ocean. The family consists of languages or language groups from varying periods. As we are currently painting our Indo-European world with a broad brush, we can divide the Indo-European groups into those in which there are languages still spoken today and those that
are extinct (Table 1.6). In some cases the relationship between an ancient language such as Illyrian and its possible modern representative, Albanian, is uncertain.

The map of the surviving Indo-European groups (Map 1.2) masks the many changes that have affected the distribution of the various language groups. Celtic and Baltic, for example, once occupied territories vastly greater than their attenuated status today and Iranian has seen much of its earlier territory eroded by the influx of other languages.

The map of the Indo-European languages is not entirely continuous as there are traces of non-Indo-European languages in Europe as well (Map 1.3). Even before a model of the Indo-European family was being constructed, scholars had begun observing that another major linguistic family occupied Europe. Before 1800 the Hungarian linguist S. Gyármathi (1751–1830) had demonstrated that Hungarian, a linguistic island surrounded by a sea of Indo-European languages, was related to Finnish (Hungarian did not take up its historical seat until the Middle Ages). He accomplished this primarily on the basis of grammatical elements, rightly realizing that vocabulary offers the least trustworthy evidence because it may be so easily borrowed. Linguists, including the irrepressible Rask, established the constituent elements of the Uralic

Map 1.1. Map of the Indo-European world
language family. In Europe this comprises Finnish, Karelian, Lapp (Saami), Estonian, Hungarian, and a number of languages spoken immediately to the west of the Urals such as Mordvin and Mari. Its speakers also occupy a broad region east of the Urals and include the second major Uralic branch, the Samoyedic languages.

<table>
<thead>
<tr>
<th>SURVIVING GROUPS</th>
<th>EXTINCT GROUPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celtic</td>
<td>Anatolian</td>
</tr>
<tr>
<td>Italic</td>
<td>Tocharian</td>
</tr>
<tr>
<td>Germanic</td>
<td>Phrygian</td>
</tr>
<tr>
<td>Baltic</td>
<td>Thracian</td>
</tr>
<tr>
<td>Slavic</td>
<td>Dacian</td>
</tr>
<tr>
<td>Albanian</td>
<td>Messapic</td>
</tr>
<tr>
<td>Greek</td>
<td>Venetic</td>
</tr>
<tr>
<td>Armenian</td>
<td>Illyrian(?)</td>
</tr>
<tr>
<td>Iranian</td>
<td></td>
</tr>
<tr>
<td>Indic</td>
<td></td>
</tr>
</tbody>
</table>

Table 1.6. Status of Indo-European groups

Map 1.2. Surviving Indo-European groups
The Caucasus has yielded a series of non-Indo-European languages that are grouped into several major families. Kartvelian, which includes Georgian in the south and two northern varieties, Northern and North-Eastern Caucasian, both of which may derive from a common ancestor. What has not been demonstrated is a common ancestor for all the Caucasian languages.

In Anatolia and South-West Asia Indo-Europeans came into contact with many of the early non-Indo-European civilizations, including Hattic and Hurrian in Anatolia, the large group of Semitic languages to the south, and Elamite in southern Iran. The Indo-Aryans shared the Indian subcontinent with two other language families, most importantly the Dravidian family.

The major surviving non-Indo-European language of western Europe is Basque, which occupies northern Spain and southern France. The other spoken non-Indo-European languages of Europe are more recent imports such as Maltese whose origins lie in the expansion of Arabic. There are also poorly attested extinct languages that cannot be (confidently) assigned to the Indo-European family and are generally regarded as non-Indo-European. These would include Iberian in the Iberian peninsula and Etruscan in north-central Italy.

We have seen that speculations concerning the similarities between languages led to the concept of an Indo-European family of languages comprised of
twelve main groups and a number of poorly attested extinct groups. This language family was established on the basis of systematic correspondence in grammar and vocabulary among its constituent members. The similarities were explained as the result of the dispersal or dissolution of a single ancestral language that devolved into its various daughter groups, languages, and dialects. We call this ancestral language Proto-Indo-European.

Further Reading

For the history of language studies see Robins (1997). The history of the development of Indo-European is covered in Delbruck (1882) and Pedersen (1931). The spread of knowledge of Sanskrit to the West and the precursors to Jones’s observations can be found in Amaladass (1992).
The Elements

2.1 The Indo-European Languages

We have seen how the Indo-European language family is comprised of twelve major groups and a number of languages, attested in antiquity, whose relationship to the major groups is uncertain or whose own evidence is quite meagre. All the groups are listed in Table 2.1 in very approximate geographical order, reading west to east (Map 1.1; Table 2.1).

The present geographical distribution of the languages, although it highlights some of the potential developmental history and interrelationships between the different groups, is not the way historical linguists might choose to order their material. As we have already seen, in some cases we are dealing with the limited survival of language groups that once enjoyed vastly larger distributions, e.g. Celtic, which was once known over most of western and much of central Europe but is now limited to the fringes of Great Britain, Ireland, and Brittany, or we find the more recent historical expansion of languages, e.g. Germanic and Slavic, once far more confined in space. While there are linguists who are interested in the interactions between current IE languages, e.g. French loanwords in English, the primary interest of the Indo-Europeanist concerns the origins of the Indo-European proto-language and its
evolution into the different Indo-European languages. This means that an Indo-Europeanist will focus on the earliest attested Indo-European languages as a source closer in time and more valuable in content to the main research agenda. One might then rearrange the list in terms of the antiquity of each group’s earliest (usually inscriptions) attestations (Table 2.2).

The antiquity of attestation is at best only a very rough guide to the value of each language group to the Indo-Europeanist. A handful of inscriptions may be useful but often the main body of textual evidence must be drawn from periods long after the earliest attestation, e.g. the earliest evidence of Celtic dates to c. 600 BC but most of our Celtic textual evidence dates to the Middle Ages, some 1,300 years later. In Indo-European studies, the comparative linguist will generally focus on the earliest well-attested stage of a language, e.g. Old English (c. AD 700–100), and only move into increasingly more recent forms of the language (Middle English at c.1100–1450 or New English c.1450–) when and if the latter stages of a language contribute something that cannot be recovered from the earlier. Where a language is extraordinarily well attested in its ancient form—Latin, Greek, and Sanskrit—there is seldom cause to present the later evidence of these language groups—Italian, Modern Greek, or Hindi/Urdu. On the other hand, where the evidence for the ancient language tends to be more limited, e.g. early Iranian languages such as Avestan and Old Persian, then recourse to more recent Iranian languages can help fill in the gaps.

The antiquity of attestation or even main textual evidence, however, is not a complete guide to the utility of a language group to contribute to our understanding of the development of Indo-European. One of the most recently

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**Table 2.1. Major and minor groups of Indo-European languages**

<table>
<thead>
<tr>
<th>Major Groups</th>
<th>Minor Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celtic</td>
<td>Lusitanian</td>
</tr>
<tr>
<td>Italic</td>
<td>Rhaetic</td>
</tr>
<tr>
<td>Germanic</td>
<td>Venetic</td>
</tr>
<tr>
<td>Baltic</td>
<td>South Picene</td>
</tr>
<tr>
<td>Slavic</td>
<td>Messapic</td>
</tr>
<tr>
<td>Albanian</td>
<td>Illyrian</td>
</tr>
<tr>
<td>Greek</td>
<td>Dacian</td>
</tr>
<tr>
<td>Armenian</td>
<td>Thracian</td>
</tr>
<tr>
<td>Anatolian</td>
<td>Macedonian</td>
</tr>
<tr>
<td>Iranian</td>
<td>Phrygian</td>
</tr>
<tr>
<td>Indo-Aryan</td>
<td></td>
</tr>
<tr>
<td>Tocharian</td>
<td></td>
</tr>
</tbody>
</table>
attested Indo-European groups, Baltic, contributes far more to discussions of Indo-European than a number of the earlier attested groups. One way of measuring the contribution of each group to Indo-European studies is to measure the frequency of its citation in the modern handbooks of Indo-European culture. There are two of these: Thomas Gamkrelidze and Vyacheslav Ivanov’s *Indo-European and Indo-Europeans* (1995=G-I) and J. P. Mallory and D. Q. Adams’s *Encyclopedia of Indo-European Culture* (1997=M-A). If we take the indices of words cited by language group across both encyclopedias (Table 2.3), the results are reasonably comparable. The Germanic languages have been well studied and a variety of them are routinely employed in Indo-European studies. Nevertheless, no single Germanic language is anywhere near as important as Greek. The Baltic languages, although attested the most recently, play a major part in Indo-European linguistics as does Indo-Aryan, here overwhelmingly Sanskrit. We will examine later how each language group contributes to the reconstruction of the proto-language.

The purpose of this chapter is to provide a brief survey of what constitutes the main linguistic groups employed by Indo-European linguists in their

| Antiquity of earliest attestation (in units of 500 years) of each Indo-European group |
|---------------------------------|----------------------------------|-------------------|
| 2000–1500 BC                   | Anatolian                        | Indo-Aryan        |
| 1500–1000 BC                   | Greek                            |                   |
| 1000–500 BC                    | Iranian                          | Celtic            |
|                                |                                  | Italic            |
|                                |                                  | Phrygian          |
|                                |                                  | Illyrian          |
|                                |                                  | Messapic          |
|                                |                                  | South Picene      |
|                                |                                  | Venetic           |
| 500–1 BC                       | Thracian                         | Macedonian        |
| AD 1–500                       | Germanic                         | Armenian          |
|                                |                                  | Lusitanian        |
|                                |                                  | Tocharian         |
| AD 500–1000                    | Slavic                           | Baltic            |
| AD 1500–2000                   | Albanian                         |                   |
reconstruction of the earliest relations and culture of the Indo-European family. The evidence will be arranged here according to its approximate geographical position, west to east.

2.2 Celtic

The Celtic languages represent one of the more attenuated groups of Indo-European. In the first centuries BC Celtic languages could be found from Ireland in the west across Britain and France, south into Spain, and east into central Europe. Celtic tribes raided the Balkans, sacked Delphi in 279 BC, and some settled in Anatolia in the same century to become the Galatians. The expansion of the Roman Empire north and westwards and the later movement of the Germanic tribes southwards saw the widespread retraction of Celtic languages on the Continent.

The Celtic languages are traditionally divided into two main groups—Continental and Insular Celtic (Table 2.4; Map 2.1). The Continental Celtic languages are the earliest attested. Names are found in Greek and Roman records while inscriptions in Celtic languages are found in France, northern Italy, and

**Table 2.3. Language group citation frequency in two Indo-European encyclopedias**

<table>
<thead>
<tr>
<th>Language</th>
<th>G-I</th>
<th>M-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germanic</td>
<td>2,168</td>
<td>5,691</td>
</tr>
<tr>
<td>Greek</td>
<td>1,847</td>
<td>2,441</td>
</tr>
<tr>
<td>Baltic</td>
<td>1,019</td>
<td>2,376</td>
</tr>
<tr>
<td>Sanskrit</td>
<td>1,822</td>
<td>2,139</td>
</tr>
<tr>
<td>Italic</td>
<td>1,339</td>
<td>1,902</td>
</tr>
<tr>
<td>Celtic</td>
<td>687</td>
<td>1,823</td>
</tr>
<tr>
<td>Slavic</td>
<td>1,101</td>
<td>1,429</td>
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<tr>
<td>Iranian</td>
<td>1,122</td>
<td>1,408</td>
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<tr>
<td>Tocharian</td>
<td>377</td>
<td>1,111</td>
</tr>
<tr>
<td>Anatolian</td>
<td>1,341</td>
<td>765</td>
</tr>
<tr>
<td>Armenian</td>
<td>327</td>
<td>595</td>
</tr>
<tr>
<td>Albanian</td>
<td>163</td>
<td>445</td>
</tr>
<tr>
<td>Other</td>
<td>56</td>
<td>167</td>
</tr>
<tr>
<td>Total</td>
<td>13,369</td>
<td>22,292</td>
</tr>
</tbody>
</table>

*Note: Gamkrelidze and Ivanov 1995 = G-I; Mallory and Adams 1997 = M-A.*
Spain. The Continental evidence is usually divided into Gaulish, attested in inscriptions in both southern and central France, Lepontic, which is known from northern Italy in the vicinity of Lake Maggiore, and Ibero-Celtic or Hispano-Celtic in the north-western two-thirds of the Iberian peninsula. The inscriptions are very heavily biased toward personal names and do not present a particularly wide-ranging reservoir of the Celtic language. The earliest inscriptions are in the Lepontic language. Celtic inscriptions may be written in the Greek script, modified versions of the Etruscan script, the Roman script, or, in Iberia, in a syllabic script employed by the non-Indo-European Iberians. Where the inscriptions do have value is illustrating the earliest evidence for Celtic speech in its most primitive form. This latter point is quite significant as most of the Insular Celtic languages have suffered such a brusque restructuring that many of the original grammatical elements have either been lost or heavily altered.

Table 2.4. The evidence of Celtic

<table>
<thead>
<tr>
<th>CONTINENTAL CELTIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gaulish (c. 220–1 BC)</td>
</tr>
<tr>
<td>Lepontic (c. 600–100 BC)</td>
</tr>
<tr>
<td>Ibero-Celtic (c. 200–1 BC)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INSULAR CELTIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient British (c. AD 1–600)</td>
</tr>
<tr>
<td>Welsh</td>
</tr>
<tr>
<td>Archaic (c. AD 600–900),</td>
</tr>
<tr>
<td>Old Welsh (900–1200),</td>
</tr>
<tr>
<td>Middle Welsh (1200–1500)</td>
</tr>
<tr>
<td>Modern Welsh (1500–)</td>
</tr>
<tr>
<td>Cornish</td>
</tr>
<tr>
<td>Old Cornish (c. AD 800–1200)</td>
</tr>
<tr>
<td>Middle Cornish (1200–1575)</td>
</tr>
<tr>
<td>Late Cornish (1575–1800)</td>
</tr>
<tr>
<td>Breton</td>
</tr>
<tr>
<td>Primitive Breton (c. AD 500–600)</td>
</tr>
<tr>
<td>Old Breton (600–1000)</td>
</tr>
<tr>
<td>Middle Breton (1000–1600)</td>
</tr>
<tr>
<td>Modern Breton (1600–)</td>
</tr>
<tr>
<td>Irish</td>
</tr>
<tr>
<td>Ogam Irish (c. AD 400–700)</td>
</tr>
<tr>
<td>Old Irish (c. AD 700–900)</td>
</tr>
<tr>
<td>Middle Irish (c. AD 900–1200)</td>
</tr>
<tr>
<td>Modern Irish (1200–)</td>
</tr>
</tbody>
</table>
The Insular Celtic languages, so named because they were spoken in Britain and Ireland, are divided into two main groups—Brittonic and Goidelic. The first comprises the languages spoken or originating in Britain. The early British language of the first centuries BC, known primarily from inscriptions and Roman sources, evolved into a series of distinct languages—Welsh, Cornish, and Breton. Welsh developed a rich literary tradition during the Middle Ages and the main body of Welsh textual material derives from the Middle Welsh period. Cornish, which became extinct by the end of the 18th century, yields a much smaller volume of literature, and most of our Cornish data derives from the Middle Cornish period (which also serves as the basis of the Modern Cornish revival). Breton originated in Britain and was carried from southern Britain to Brittany during the fifth to seventh centuries where, some argue, it may have encountered remnant survivors of Gaulish.

The Goidelic languages comprise Irish and two languages derived from Irish—Scots Gaelic and Manx—that were imported into their historical positions in the early Middle Ages.

From a linguistic standpoint, the most important of the Celtic languages is Old and Middle Irish, as the quantity of output for these periods was quite large (the dictionary of early Irish runs to more than 2,500 pages). There is also
inscriptional evidence of Irish in Ireland dating to c. AD 400–700. These inscriptions are written in the Ogam script, notches made on the edges of an upright stone, hence the language of the inscriptions is termed Ogam Irish, and although they are largely confined to personal names, they do retain the fuller grammatical complement of the Continental Celtic inscriptions. Table 2.5, which presents some of the Continental and Insular inscriptional evidence compared with the equivalent words in Old Irish, indicates something of the scale of change in Old Irish compared with the earlier evidence for Continental Celtic languages.

### 2.3 Italic

Latin is the principal Italic language but it only achieved its particular prominence with the expansion of the Roman state in the first centuries BC. It is earliest attested in inscriptions that date from c. 620 BC onwards (Table 2.6; Map 2.2) and are described as Old Latin. The main source of our Latin evidence for an Indo-Europeanist derives from the more familiar Classical Latin that emerges about the first century BC. The closest linguistic relation to Latin is Faliscan, a language (or dialect) spoken about 40 km north of Rome and also attested in inscriptions from c. 600 BC until the first centuries BC when the region was assimilated entirely into the Latin language.

South of Rome lay the Samnites who employed the Oscan language, attested in inscriptions, including graffiti on the walls of the destroyed city of Pompeii, beginning about the fifth century BC. There are also about two hundred other documents, usually quite short, in the Oscan language. Oscan finds a close relation in Umbrian, which was spoken north of Rome, and, after Latin, provides the next largest corpus of Italic textual material (Table 2.7). Although
there are a number of short inscriptions, the major evidence of Umbrian derives from the Iguvine Tablets, a series of seven (of what were originally a total of nine) bronze tablets detailing Umbrian rituals and recorded between the third and first centuries BC. In addition to these major Italic languages, there are a series of inscriptions in poorly attested languages such as Sabine, Volscian, and Marsian. While these play a role in discussions of Italic languages, it is largely Latin and occasionally Oscan and Umbrian that play the greatest role in Indo-European studies.

The so-called Vulgar Latin of the late Roman Empire gradually divided into what we term the Romance languages. The earliest textual evidence for the various Romance languages begins with the ninth century for French, the tenth century for Spanish and Italian, the twelfth century for Portuguese, and the sixteenth century for Romanian. As our knowledge of Latin is so extensive, comparative linguists rarely require the evidence of the Romance languages in Indo-European research.

### 2.4 Germanic

The collapse of the Roman Empire was exacerbated by the southern and eastern expansion of Germanic tribes. The Germans first emerge in history occupying the north European plain from Flanders in the west to the Vistula river in the east; they also occupied at least southern Scandinavia.

The Germanic languages are divided into three major groups: eastern, northern, and western (Table 2.8). Eastern Germanic is attested by a single language, Gothic, the language of the Visigoths who settled in the Balkans where the Bible in the Gothic language (only portions of which survive) was prepared by the Christian missionary Wulfila. This fourth-century translation
Map 2.2. Distribution of the Italic languages and Etruscan (shaded area)
survives primarily in a manuscript dated to c. AD 500. Eighty-six words of the language of the Ostrogoths were recorded in the Crimea by Oguier de Busbecq, a western diplomat to the Ottoman Empire, in the sixteenth century. Because of its early attestation and the moderately large size of the text that it offers,

<table>
<thead>
<tr>
<th>LATIN</th>
<th>OSCAN</th>
<th>UMBRIAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>pater ‘father’</td>
<td>patir</td>
<td>pater</td>
</tr>
<tr>
<td>cánus ‘grey’</td>
<td>casnar ‘old’</td>
<td>—</td>
</tr>
<tr>
<td>lingua ‘tongue’</td>
<td>fangva-</td>
<td>—</td>
</tr>
<tr>
<td>testis ‘witnes’</td>
<td>trstus ‘third’</td>
<td>—</td>
</tr>
<tr>
<td>vir ‘man’</td>
<td>—</td>
<td>ueiro-</td>
</tr>
<tr>
<td>avis ‘bird’</td>
<td>—</td>
<td>avi-</td>
</tr>
<tr>
<td>probus ‘good’</td>
<td>—</td>
<td>prufe ‘properly’</td>
</tr>
<tr>
<td>—</td>
<td>puklum ‘son’</td>
<td>—</td>
</tr>
</tbody>
</table>

Table 2.7. Some IE cognates from the main Italic languages

Map 2.3. Distribution of the Germanic languages
Gothic plays a significant part of the Germanic set of languages in comparative linguistics.

The northern group of Germanic languages is the earliest attested because of runic inscriptions that date from c. AD 300 onwards. These present an image of Germanic so archaic that they reflect not only the state of proto-Northern Germanic but are close to the forms suggested for the ancestral language of the entire Germanic group. But the runic evidence is meagre and the major evidence for Northern Germanic is to be found in Old Norse. This comprises a vast literature, primarily centred on or composed in Iceland. The extent of Old Norse literature ensures that it is also regarded as an essential comparative component of the Germanic group. By c.1000, Old Norse was dividing into regional east and west dialects and these later provided the modern Scandinavian languages. Out of the west dialect came Icelandic, Faeroese, and Norwegian and out of East Norse came Swedish and Danish.

The main West Germanic languages were German, Frankish, Saxon, Dutch, Frisian, and English. For comparative purposes, the earliest stages of German and English are the most important. The textual sources of both German and English are such that Old High German and Old English provide the primary

<table>
<thead>
<tr>
<th>Table 2.8. The evidence of the Germanic languages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EAST GERMANIC</strong></td>
</tr>
<tr>
<td>Gothic (350–1600)</td>
</tr>
<tr>
<td><strong>NORTHERN GERMANIC</strong></td>
</tr>
<tr>
<td>Runic (c. AD 300–1700)</td>
</tr>
<tr>
<td>Norse</td>
</tr>
<tr>
<td>Primitive Norse (300–700)</td>
</tr>
<tr>
<td>Old Norse (700–1350)</td>
</tr>
<tr>
<td><strong>WEST GERMANIC</strong></td>
</tr>
<tr>
<td>German</td>
</tr>
<tr>
<td>Old High German (750–1050)</td>
</tr>
<tr>
<td>Middle High German (1050–1350)</td>
</tr>
<tr>
<td>New High German (1350–)</td>
</tr>
<tr>
<td>Dutch</td>
</tr>
<tr>
<td>Old Dutch (–1150)</td>
</tr>
<tr>
<td>Middle Dutch (1150–1500)</td>
</tr>
<tr>
<td>Modern Dutch (1500–)</td>
</tr>
<tr>
<td>English</td>
</tr>
<tr>
<td>Old English (700–1100)</td>
</tr>
<tr>
<td>Middle English (1100–1450)</td>
</tr>
<tr>
<td>New English (1450–)</td>
</tr>
</tbody>
</table>
comparative evidence for their respective languages (cf. Mallory–Adams where only 23 Middle English words contribute what could not be found among the 1,630 Old English words cited). Incidentally, the closest linguistic relative to English is Frisian followed by Dutch.

2.5 Baltic

The Baltic languages, now confined to the north-east Baltic region, once extended over an area several times larger than their present distribution indicates. The primary evidence of the Baltic languages rests with two subgroups: West Baltic attested by the extinct Old Prussian, and East Baltic which survives today as Lithuanian and Latvian (Table 2.10; Map 2.4).

The evidence for Old Prussian is limited primarily to two short religious tracts (thirty pages altogether) and two Prussian wordlists with less than a thousand words. These texts date to the sixteenth–seventeenth centuries and were written by non-native speakers of Old Prussian.

### Table 2.9. Some basic comparisons between the major early Germanic languages

<table>
<thead>
<tr>
<th>Goth</th>
<th>ON</th>
<th>OHG</th>
<th>OE</th>
<th>NE</th>
</tr>
</thead>
<tbody>
<tr>
<td>fadar</td>
<td>faðir</td>
<td>fater</td>
<td>fæder</td>
<td>father</td>
</tr>
<tr>
<td>sunus</td>
<td>sunr</td>
<td>sunu</td>
<td>sunu</td>
<td>son</td>
</tr>
<tr>
<td>daúhtar</td>
<td>döttir</td>
<td>tohter</td>
<td>dohtor</td>
<td>daughter</td>
</tr>
<tr>
<td>dags</td>
<td>dagr</td>
<td>tak</td>
<td>deg</td>
<td>day</td>
</tr>
<tr>
<td>wulfs</td>
<td>ulfr</td>
<td>wolf</td>
<td>wulf</td>
<td>wolf</td>
</tr>
<tr>
<td>sittls</td>
<td>setr</td>
<td>sezzal</td>
<td>setl</td>
<td>settle</td>
</tr>
</tbody>
</table>

*Note: Goth = Gothic, ON = Old Norse, OHG = Old High German, OE = Old English, NE = New English.*

### 2.5 Baltic

The Baltic languages, now confined to the north-east Baltic region, once extended over an area several times larger than their present distribution indicates. The primary evidence of the Baltic languages rests with two subgroups: West Baltic attested by the extinct Old Prussian, and East Baltic which survives today as Lithuanian and Latvian (Table 2.10; Map 2.4).

The evidence for Old Prussian is limited primarily to two short religious tracts (thirty pages altogether) and two Prussian wordlists with less than a thousand words. These texts date to the sixteenth–seventeenth centuries and were written by non-native speakers of Old Prussian.

### Table 2.10. The evidence of the Baltic languages

**West Baltic**

*Old Prussian (c.1545–1700)*

**East Baltic**

*Lithuanian (1515–)*

*Latvian (c.1550–)*
The evidence for the East Baltic languages is also tied to religious proselytization and it might be noted that the Lithuanians, beginning to convert to Christianity only in the fourteenth century, were among the last pagans in Europe. Unlike Old Prussian, however, both Lithuanian and Latvian survived and have full national literatures. There is considerable evidence that Latvian spread over an area earlier occupied by Uralic speakers, and within historic times an enclave of Uralic-speaking Livonians has virtually disappeared into their Latvian environment. Although attested no more recently than Albanian, the Baltic languages, especially Lithuanian, have been far more conservative and preserve many features that have disappeared from many much earlier attested Indo-European languages. For this reason, Lithuanian has always been treated as a core language in comparative Indo-European reconstruction (Table 2.11).
2.6 Slavic

In the prehistoric period the Baltic and Slavic languages were so closely related that many linguists speak of a Balto-Slavic proto-language. After the two groups had seen major division, the Slavic languages began expanding over territory previously occupied by speakers of Baltic languages. From c. AD 500 Slavic tribes also pushed south and west into the world of the Byzantine Empire to settle in the Balkans and central Europe while other tribes moved down the Dnieper river or pressed east towards the Urals and beyond (Map 2.4).

The initial evidence for the Slavic language is Old Church Slavonic which tradition relates to the Christianizing mission of Saints Cyril and Methodius in the ninth century. Their work comprises biblical translations and was directed at Slavic speakers in both Moravia and Macedonia. The language is regarded as the precursor of the earliest South Slavic languages but it also quite close to the forms reconstructed for Proto-Slavic itself. The prestige of Old Church Slavonic, so closely associated with the rituals of the Orthodox Church, ensured that it played a major role in the development of the later Slavic languages (Table 2.12).

The Slavic languages are divided into three main groups—South, East, and West Slavic. The South Slavic languages comprise Bulgarian, Macedonian, Serbo-Croatian, and Slovenian. The earliest attestations of these languages, as distinct from Old Church Slavonic, begin about AD 1000–1100.

The East Slavic languages comprise Russian, Byelorussian, and Ukrainian, and their mutual similarity to one another is closer than any other group. Here too the prestige of Old Church Slavonic was such that the three regional developments were very slow to emerge, generally not until about 1600.

The West Slavic languages were cut off from their southern neighbours by the penetration of the Hungarians into central Europe. The language that

<table>
<thead>
<tr>
<th>OPrus</th>
<th>Lith</th>
<th>Latv</th>
</tr>
</thead>
<tbody>
<tr>
<td>alu ‘mead’</td>
<td>alis ‘beer’</td>
<td>alas ‘beer’</td>
</tr>
<tr>
<td>anglis ‘charcoal’</td>
<td>linas</td>
<td>uogle</td>
</tr>
<tr>
<td>lynno ‘flax’</td>
<td>musis</td>
<td>muša</td>
</tr>
<tr>
<td>muso ‘fly’</td>
<td>šaknis</td>
<td>sakne</td>
</tr>
<tr>
<td>sagnis ‘root’</td>
<td>visas</td>
<td>viss</td>
</tr>
<tr>
<td>wissa ‘all’</td>
<td>obuolys</td>
<td>ābuol(i)s</td>
</tr>
</tbody>
</table>

Note: OPrus = Old Prussian, Lith = Lithuanian, Latv = Latvian.
Polish, Czech, and Slovak replaced was Latin, not Old Church Slavonic, which had been used in Bohemia-Moravia but was replaced very early by Latin. Unlike the case with East and South Slavic, Church Slavonicisms are almost entirely absent from West Slavic.

The abundance of Old Church Slavonic material, its conservative nature, and the fact that subsequent Slavic languages appear to evolve as later regional developments means that linguists generally find that Old Church Slavonic will suffice for Indo-European comparative studies although its evidence can be augmented by other Slavic languages (Table 2.13).

### 2.7 Albanian

The earliest reference to an Albanian language dates to the fourteenth century but it was not until 1480 that we begin to recover sentence-length texts and the first Albanian book was only published in 1555. The absorption of so many foreign words from Greek, Latin, Turkish, and Slavic has rendered Albanian only a minor player in the reconstruction of the Indo-European vocabulary.
and of the ‘major’ languages it contributes the least number of Indo-European cognates. However, Albanian does retain certain significant phonological and grammatical characteristics (Table 2.14).

Table 2.13. A comparison of some cognate terms in Old Church Slavonic (OCS) and Russian (Rus) with Lithuanian (Lith), a Baltic language

<table>
<thead>
<tr>
<th>Lith</th>
<th>OCS</th>
<th>Rus</th>
</tr>
</thead>
<tbody>
<tr>
<td>alius ‘beer’</td>
<td>olū ‘beer’</td>
<td>ol</td>
</tr>
<tr>
<td>anglis ‘charcoal’</td>
<td>oglī ‘charcoal’</td>
<td>ūgoli</td>
</tr>
<tr>
<td>linas ‘flax’</td>
<td>linēnă ‘linen’</td>
<td>len</td>
</tr>
<tr>
<td>musis ‘fly’</td>
<td>mūšica ‘gnat’</td>
<td>mōška</td>
</tr>
<tr>
<td>obuolys ‘apple’</td>
<td>(j)ablūko ‘apple’</td>
<td>jābloko</td>
</tr>
<tr>
<td>šaknis ‘root’</td>
<td>socha ‘pole’</td>
<td>sokhā ‘plough’</td>
</tr>
<tr>
<td>visas ‘all’</td>
<td>viš ‘all’</td>
<td>vesı́</td>
</tr>
</tbody>
</table>

Table 2.14. The basic Albanian numerals are cognate with other IE numbers

| One    | nji |
| Two    | dy  |
| Three  | tre |
| Four   | kater |
| Five   | pesë |
| Six    | gjashtë |
| Seven  | shtatë |
| Eight  | tetë |
| Nine   | nëndë |
| Ten    | dhjetë |

2.8 Greek

The earliest evidence for the Greek language comes from the Mycenaean palaces of mainland Greece (Mycenae, Tiryns, Pylos) and from Crete (Knossos). The texts are written in the Linear B script, a syllabary, i.e. a script whose signs indicate full syllables (ra, wa, etc.) rather than single phonemes, and are generally administrative documents relating to the palace economies of Late Bronze Age Greece (Table 2.15). With the collapse of the Mycenaean
civilization in the twelfth century BC, evidence for Greek disappears until the emergence of a new alphabetic writing system, based on that of the Phoenicians, which developed in the period c.825–750 BC. The early written evidence indicates the existence of a series of different dialects that may be assigned to Archaic Greek (Table 2.16). One of these, the Homeric dialect, employed in the Iliad and Odyssey, was an eastern dialect that grew up along the coast of Asia Minor and was widely employed in the recitation of heroic verse. The Attic dialect, spoken in Athens, became the basis of the classical standard and was also spread through the conquests of Alexander the Great. This established the line of development that saw the later emergence of Hellenistic, Byzantine, and Modern Greek.

The literary output of ancient Greece is enormous and the grammatical system of Greek is sufficiently conservative that it plays a pivotal role in Indo-European comparative studies.

Table 2.15. Linear B and Classical Greek

<table>
<thead>
<tr>
<th>MYCENAEAN</th>
<th>GREEK</th>
</tr>
</thead>
<tbody>
<tr>
<td>a-ka-so-ne ‘axle’</td>
<td>āksōn</td>
</tr>
<tr>
<td>do-e-ro ‘slave’</td>
<td>doûlos</td>
</tr>
<tr>
<td>e-re-pa ‘ivory’</td>
<td>elēphās</td>
</tr>
<tr>
<td>i-qa ‘horse’</td>
<td>hippos</td>
</tr>
<tr>
<td>pte-re-wa ‘elm’</td>
<td>pteleā</td>
</tr>
<tr>
<td>ra-wa-ke-ta ‘leader’</td>
<td>lāgētās</td>
</tr>
</tbody>
</table>

Table 2.16. The evidence of the Greek language

<table>
<thead>
<tr>
<th>Mycenaean (c. 1300–1150 BC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greek</td>
</tr>
<tr>
<td>Archaic Greek (c. 800–400 BC)</td>
</tr>
<tr>
<td>Hellenistic Greek (c. 400 BC–AD 400)</td>
</tr>
<tr>
<td>Byzantine Greek (c. AD 400–1500)</td>
</tr>
<tr>
<td>Modern Greek (1500–)</td>
</tr>
</tbody>
</table>

2.9 Anatolian

The earliest attested Indo-European languages belong to the extinct Anatolian group (Map 2.5). They first appear only as personal names mentioned in
Assyrian trading documents in the centuries around 2000 BC. By the mid-second millennium texts in Anatolian languages are found in abundance, particularly in the archives of the Hittite capital at Hattuša in central Anatolia.

The Anatolian languages are divided into two main branches: Hittite-Palaic and South/West Anatolian (Table 2.17). The first branch consists of Hittite and Palaic. Hittite is by far the best attested of the Anatolian languages. There are some 25,000 clay tablets in Hittite which deal primarily with administrative or ritual matters, also mythology. The royal archives of the Hittite capital also yielded some documents in Palaic, the language of the people of Pala to the north of the Hittite capital. These are of a ritual nature and to what extent Palaic was even spoken during the period of the Hittites is a matter of speculation. It is often assumed to have become extinct by 1300 BC if not earlier but we have no certain knowledge of when it ceased to be spoken.

In south and west Anatolia we find evidence of the other main Anatolian language, Luvian. Excepting the claim that the earliest references to Anatolians in Assyrian texts refer explicitly to Luvians, native Luvian documents begin about 1600 BC. Luvian was written in two scripts: the cuneiform which was also employed for Hittite and a hieroglyphic script created in Anatolia itself. Primarily along the south-west coast of Anatolia there was a string of lesser-known languages, many if not all believed to derive from the earlier Luvian language or, if not derived directly from attested Luvian, derived from unattested varieties of Anatolian closely related to attested Luvian. These include Lycian which is known from about 200 inscriptions on tombs, Lydian, also

Map 2.5. Distribution of the Anatolian and Phrygian (lined area) languages
known from tombs and some coins as well, Pisidian, which supplied about thirty tomb inscriptions, Sidetic about half a dozen, and Carian, which is not only found in Anatolia but also in Egypt where it occurs as graffiti left by Carian mercenaries.

Anatolian occupies a pivotal position in Indo-European studies because of its antiquity and what are perceived to be extremely archaic features of its grammar (Table 2.18); however, the tendency for Anatolian documents to include many

### Table 2.17. The evidence of the Anatolian languages

<table>
<thead>
<tr>
<th>Hittite-Palaic</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hittite</strong></td>
<td></td>
</tr>
<tr>
<td>Old Hittite (1570–1450 BC)</td>
<td></td>
</tr>
<tr>
<td>Middle Hittite (1450–1380 BC)</td>
<td></td>
</tr>
<tr>
<td>New Hittite (1380–1220 BC)</td>
<td></td>
</tr>
<tr>
<td><strong>Palaic</strong> (?–?1300 BC)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>South/West Anatolian</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Luvian</strong></td>
<td></td>
</tr>
<tr>
<td>Cuneiform Luvian (1600–1200 BC)</td>
<td></td>
</tr>
<tr>
<td>Hieroglyphic Luvian (1300–700 BC)</td>
<td></td>
</tr>
<tr>
<td><strong>Lycian</strong> (500–300 BC)</td>
<td></td>
</tr>
<tr>
<td><strong>Milyan</strong> (500–300 BC)</td>
<td></td>
</tr>
<tr>
<td><strong>Carian</strong> (500–300 BC)</td>
<td></td>
</tr>
<tr>
<td><strong>Lydian</strong> (500–300 BC)</td>
<td></td>
</tr>
<tr>
<td><strong>Sidetic</strong> (200–100 BC)</td>
<td></td>
</tr>
<tr>
<td><strong>Pisidian</strong> (AD 100–200)</td>
<td></td>
</tr>
</tbody>
</table>

### Table 2.18. Selected cognate words in Hittite (Hit), Old English (OE), and New English (NE)

<table>
<thead>
<tr>
<th>Hit</th>
<th>OE</th>
<th>NE</th>
</tr>
</thead>
<tbody>
<tr>
<td>gênu</td>
<td>cnǫ(w)</td>
<td>knee</td>
</tr>
<tr>
<td>hâras</td>
<td>earn</td>
<td>erne (eagle)</td>
</tr>
<tr>
<td>kèr</td>
<td>heorte</td>
<td>heart</td>
</tr>
<tr>
<td>nêwas</td>
<td>nîwe</td>
<td>new</td>
</tr>
<tr>
<td>târu</td>
<td>treōw</td>
<td>tree</td>
</tr>
<tr>
<td>wâtar</td>
<td>water</td>
<td>water</td>
</tr>
<tr>
<td>yukan</td>
<td>geoc</td>
<td>yoke</td>
</tr>
</tbody>
</table>
items of vocabulary from earlier written languages, in particular Sumerian and Akkadian, has militated against a comparable importance in contributing to the reconstruction of the Proto-Indo-European vocabulary. All too often we do not know the actual Hittite word for a concept because that concept is always expressed as a Sumerian or Akkadian phonogram (which the Hittite speaker would have pronounced as the proper Hittite word much in the way an English speaker says ‘pound’ when confronted with the Latin abbreviation \( lb \)).

2.10 Armenian

As with many other Indo-European languages, it was the adoption of Christianity that led to the first written records of the Armenian language. The translation of the Greek Bible into Armenian is dated by tradition to the fourth century, and by the fifth century there was a virtual explosion of Armenian literature. The earliest Armenian records are in Old or Classical Armenian which dates from the fourth to the tenth century. From the tenth to nineteenth century Middle Armenian is attested mainly among those Armenians who had migrated to Cilicia. The modern literary language dates from the early nineteenth century.

As we have seen, the Armenian vocabulary was so enriched by neighbouring Iranian languages—the Armenian-speaking area was regularly in and out of Iranian-speaking empires—that its identification as an independent Indo-European language rather than an Iranian language was not secured until the 1870s. It has been estimated that only some 450 to 500 core words of the Armenian vocabulary are not loanwords but inherited directly from the Indo-European proto-language (Table 2.19).

<table>
<thead>
<tr>
<th>ARM</th>
<th>OE</th>
<th>NE</th>
</tr>
</thead>
<tbody>
<tr>
<td>akn</td>
<td>ēage</td>
<td>eye</td>
</tr>
<tr>
<td>cuur</td>
<td>cnēo((w))</td>
<td>knee</td>
</tr>
<tr>
<td>hayr</td>
<td>fæder</td>
<td>father</td>
</tr>
<tr>
<td>kin</td>
<td>cwene</td>
<td>quean (woman)</td>
</tr>
<tr>
<td>mukan</td>
<td>mās</td>
<td>mouse</td>
</tr>
<tr>
<td>otn</td>
<td>fōt</td>
<td>foot</td>
</tr>
<tr>
<td>sirt</td>
<td>heorte</td>
<td>heart</td>
</tr>
</tbody>
</table>
The ancient Indo-European language of India is variously termed Indic, Sanskrit, or Indo-Aryan (Map 2.6). While the first name is geographically transparent (the people of the Indus river region), Sanskrit refers to the artificial codification of the Indic language about 400 BC, i.e. the language was literally ‘put together’ or ‘perfected’, i.e. *samskṛta*, a term contrasting with the popular or natural language of the people, Pārśkṛt. Indo-Aryan acknowledges that the Indo-Europeans of India designated themselves as Aryans; as the Iranians also termed themselves Aryans, the distinction here is then one of Indo-Aryans in contrast to Iranians (whose name already incorporates the word for ‘Aryan’).

The earliest certainly dated evidence for Indo-Aryan does not derive from India but rather north Syria where a list of Indo-Aryan deities is appended to a

![Map 2.6. Distribution of the Indo-Aryan (italic) and Iranian (roman) languages.](image)
treaty between the Mitanni and the Hittites. This treaty dates to c.1400–1330 BC and there is also other evidence of Indo-Aryan loanwords in Hittite documents. These remains are meagre compared with the vast religious and originally oral traditions of the Indo-Aryans. The oldest such texts are the Vedas (Skt veda ‘knowledge’), the sacred writings of the Hindu religion. The Rgveda alone is about the size of the Iliad and Odyssey combined and this single work only begins a tradition of religious literature that runs into many volumes. These religious texts, however, were not edited and written down until the early centuries BC, and dating the composition of the Vedas has been a perennial problem. Most dates for the Rgveda fall within a few centuries on either side of c.1200 BC. Because of the importance of the Vedas in Indic ritual and the attention given to the spoken word, the texts have probably not suffered much alteration over the millennia. A distinction may be made between Vedic Sanskrit, the earliest attested language, and later Classical Sanskrit of the first millennium BC and more recently. Sanskrit literature was by no means confined to religious matters but also included an enormous literary output, including drama, scientific treatises, and other works, such that the volume of Sanskrit documents probably exceeds that of ancient Greece and Rome combined.

By the middle of the first millennium BC we find evidence for the vernacular languages of India which, as we have seen above, are designated Prakrit. The earliest attested Indo-Aryan documents are in Prakrit and these provide the bases of the modern Indo-Aryan languages, e.g. Hindi-Urdu, Gujarati, Marathi, Sinhalese.

2.12 Iranian

In the first millennium BC the distribution of the Iranian languages was truly enormous and not only comprised Iran and Afghanistan but also all of central Asia and the entire Eurasian steppe from at least the Dnieper east to the Yenisei river. The Iranian languages are divided into two major groups, Eastern and Western (Map 2.6).

The Eastern branch is earliest attested in the form of Avestan, the liturgical language of the religion founded by Zarathustra, or Zoroaster as he was known to the Greeks. The Avesta is a series of hymns and related material that was recited orally and not written down prior to the fourth century AD. Unlike the Rgveda, the integrity of its oral transmission was not nearly so secure and there are many difficulties in interpreting the earlier passages of the document. These belong to the Gathas, the hymns reputedly composed by Zarathustra himself; there is also much later material in the Avesta. The dates of its earliest elements
are hotly disputed but generally fall c.1000 BC and are presumed to be roughly contemporary with the Rigveda.

Eastern Iranian offers many other more recently attested languages that belong to the Middle Iranian period. In central Asia, Bactrian, Sogdian, and Choresmian were all spoken and occasionally recorded from about the fourth century AD onwards until the Turkish conquest of the region. The European steppelands were occupied by the nomadic Scythians in the west and the Saka in the east, and what little evidence survives indicates that these all spoke an East Iranian language as well. The Saka penetrated what is now western China and settled along the southern route of the Silk Road in the oasis town of Khotan where they have left more abundant documents known as Khotanese Saka. Most of these East Iranian languages have disappeared except for those spoken by peoples who occupied mountainous regions and have survived into the New Iranian period. On the European steppe, East Iranian tribes settled in the Caucasus where they survive today as the Ossetes, and Ossetic provides a valuable source for East Iranian. Sogdian has a distant descendant in the Yaghnobi language of Tadjikistan while the remnants of the Saka languages survive in the Pamirs. The most important modern East Iranian language is Pashto, the state language of modern Afghanistan.

The West Iranian languages were carried into north-west Iran by the Persians and Medes. Old Persian is attested primarily in a series of cliff-carved inscriptions in cuneiform. This material is not particularly abundant and is often repetitively formulaic but it does offer significant additional evidence to Avestan for the early stages of Iranian. By the Middle Iranian period we find Middle Persian, markedly changed from the earlier language. After the Arab conquests of the region (and a major Arabic impact on the Persian language), New Persian arose by the tenth century.

Iranian is closely related to Indo-Aryan and because the latter is far better represented in the earliest periods, there is a greater emphasis on Indo-Aryan

### Table 2.20. Selected cognates in Sanskrit (Skt) and Avestan (Av)

<table>
<thead>
<tr>
<th>Skt</th>
<th>Av</th>
</tr>
</thead>
<tbody>
<tr>
<td>ákṣi ‘eye’</td>
<td>aṣi-</td>
</tr>
<tr>
<td>dāru ‘wood’</td>
<td>dāuru</td>
</tr>
<tr>
<td>hīd- ‘heart’</td>
<td>zōrd-</td>
</tr>
<tr>
<td>jānu ‘knee’</td>
<td>zānu-</td>
</tr>
<tr>
<td>mūs- ‘mouse’</td>
<td>NPers mūs</td>
</tr>
<tr>
<td>ójas- ‘strength’</td>
<td>aojāh-</td>
</tr>
<tr>
<td>yugām ‘yoke’</td>
<td>yugām</td>
</tr>
</tbody>
</table>
among comparativists than on Iranian (Table 2.20). Within the wider context of Iranian itself, there are far more languages than have been summarized here. Because the *Avesta* and the Old Persian documents are meagre compared to the volume of Sanskrit material, scholars often exploit the vocabularies of the Middle and even the Modern Iranian languages in order to fill out the range of Iranian vocabulary.

### 2.13 Tocharian

At the end of the nineteenth century, western expeditions to Xinjiang, the westernmost province of China, began to uncover remains of what are known as the Tocharian languages (Table 2.21). The documents date from the fifth century AD until Tocharian was replaced by Uyghur, a Turkic language, by the thirteenth century AD. There are approximately 3,600 documents in Tocharian but many of these are excruciatingly small fragments. The documents are primarily translations of Buddhist or other Indic texts, monastery financial accounts, or caravan passes. There are two Tocharian languages. Tocharian A, also known as East Tocharian or Agnean, is recovered exclusively from around Qarashahr (the ancient Agni) and Turfan and gives some the impression that it may have been a ‘dead’ liturgical language by the time it was recorded. Tocharian B, otherwise West Tocharian or Kuchean, was spoken from the oasis town of Kucha east across Tocharian A territory. It is better attested and more conservative than Tocharian A. The application of the name ‘Tocharian’ to the remains of the documents is controversial: the Tocharians of classical sources were one of the peoples who occupied Bactria, and the presumption that these were the same people (or a closely related group) as those who lived in the Tarim and Turfan basins derives from several manuscript readings which have been rejected as often as they

<table>
<thead>
<tr>
<th>TOCH B</th>
<th>OE</th>
<th>NE</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>ek</em></td>
<td>čage</td>
<td>eye</td>
</tr>
<tr>
<td><em>kāryā</em></td>
<td><em>heorte</em></td>
<td><em>heart</em></td>
</tr>
<tr>
<td><em>keni</em></td>
<td><em>cnēo(w)</em></td>
<td><em>knee</em></td>
</tr>
<tr>
<td><em>keu</em></td>
<td><em>cū</em></td>
<td><em>cow</em></td>
</tr>
<tr>
<td><em>nūwe</em></td>
<td><em>nīwe</em></td>
<td><em>new</em></td>
</tr>
<tr>
<td><em>or</em></td>
<td><em>trēow</em></td>
<td><em>tree</em></td>
</tr>
<tr>
<td><em>pācer</em></td>
<td><em>faeder</em></td>
<td><em>father</em></td>
</tr>
</tbody>
</table>
have been accepted. For convenience sake, Tocharian has remained the common designation for this group by most but not all linguists.

### 2.14 Minor Languages

The expansion of literacy (or at least inscriptions) coupled with the occasional recording of foreign words by Greek authors provides us with our evidence for a number of poorly attested languages, largely found in the periphery of the earliest literate civilizations in the Mediterranean. Dacian, for example, was spoken in the territory roughly approximating modern Romania, and the residue of its language comes to us primarily through personal and place names and a few glosses recorded in Greek; to this one might include the hunt for ‘substrate’ words in modern Romanian. About twenty to twenty-five Dacian words have had reasonable though not certain Indo-European etymologies proposed. To its south, roughly in modern Bulgaria, was the Thracian language, again attested primarily in the form of personal and place names, about thirty-odd glosses in Greek sources, and a few impenetrable inscriptions in the Greek script. Along the west Adriatic (Dalmatia, Croatia, Bosnia, Albania) lay Illyrian which is almost entirely known from personal and place names, most of which have not been easy to etymologize. That Illyrian occupied the territory in which we later find Albanian suggests that it may be a predecessor of Albanian, but the evidence for Illyrian is so meagre that this cannot be demonstrated. These three Balkan languages then are extremely minor in terms of the reconstruction of Proto-Indo-European but they were hardly minor languages during the periods when the groups speaking them were flourishing. All of them were associated with major tribal confederations and kingdoms of the Iron Age and it is only their early absorption into the Roman Empire and concomitant Latinization that accounts for why we regard them today as minor Indo-European languages.

The expansion of Latin also meant the loss of a series of languages of somewhat uncertain affiliation (although Indo-European) in Italy. In Sicily there is the barely attested Siculan. Closely related to Illyrian (it is believed) is Messapic, spoken in south-eastern Italy (Map 2.2). There are about 260 short inscriptions that date from the sixth to the first centuries BC. Northwards along the Adriatic we find Southern and Northern Picene, again languages known from some inscriptional evidence beginning in the sixth or fifth centuries BC. South Picene is definitely Italic while Northern Picene is anybody’s guess. Still further north we encounter Venetic with its two hundred inscriptions dating from the sixth to first centuries BC; some see it as a possible Italic language while
others have suggested that it occupies a more independent position. To its north lies Rhaetic, again known from a small number of inscriptions, and its linguistic position is even more insecure. In north-west Iberia we find traces of the Lusatian language, apparently an Indo-European language lying somewhere between Italic and Celtic.

Of all the minor languages, Phrygian has probably the greatest claim to consideration (Map 2.5). The Phrygians carved out a substantial kingdom in north central Anatolia by the ninth century BC, superimposing themselves on earlier Anatolian-speaking populations. The language appears in two forms: Old Phrygian, some 250 inscriptions dating from the eighth to third centuries BC, and New Phrygian, written in the Greek script, and numbering about a hundred inscriptions, dating from the first century AD.

Further Reading

Basic surveys of the Indo-European languages can be found in Lockwood (1972), Baldi (1983), Ramat and Ramat (1998), and Bader (1997), which is particularly good at covering some of the minor attested languages. There are also several general synthetic studies of Indo-European culture, e.g. Mallory (1989), Sergent (1995).

Useful, often essential, works on the various Indo-European groups are listed below by language group.


**Celtic:** Delamarre (2003), Lewis and Pedersen (1937), McKone (1996), Schrijver (1995), Vendryès and Lambert (1959–).


**Illyrian:** Katičić (1976), Krahe (1964a), Mayer (1957–9), Polomé (1982).

3

Reconstructing Proto-Indo-European

3.1 The Comparative Method

Anyone with even the sketchiest notion of phonetics who considers the alphabet of the western languages cannot but be struck by its utter randomness. Vowels are scattered here and there in no sensible order, there is little similarity of sound in respect to placement, nor is there any sense that the more useful letters are gathered together in one place. The arrangement of a Qwerty keyboard (the standard typewriter or computer keyboard, named after the order of the first half of the upper row of letters) makes more sense than the order of the alphabet. This haphazard arrangement, however, is not characteristic of the Sanskrit (or Devanāgarī) alphabet which unlike the Phoenician and Greek alphabets (and their descendants, Latin and Cyrillic) would appear to have been systematically created and arranged on the basis of a thoroughgoing analysis of the phonetics of the language for which it was intended. The Sanskrit alphabet begins with the simple vowels in series between short and long, e.g. a, ā, i, ī, then the diphthongs (e.g. āi, āu), and then the consonants which are as arranged in Table 3.1.

The consonants are arranged by place and method of articulation. First come the velars, those where the sound is made with the back of the throat, i.e. gutturals; then the palatals where the upper surface of the tongue is applied
to the hard palate; then the retroflexes, a sound made with the tip of the tongue pressed against the palate, rather than the upper surface of the tongue as in the case of the palatal series; then the dentals, the sounds made by pressing the tongue against the teeth; and finally, the labials where the lips are employed in making the sound. The consonants may be voiced, i.e. involve a vibration of the vocal cords, or unvoiced. They may also be aspirated, accompanied by a breath, or unaspirated. Finally, they have nasal equivalents.

This same exemplary rigour was applied to the analysis of words and their constituent elements. Sanskrit grammarians described in detail the root, stems, and endings of verbs or nouns and both the internal and external changes that might alter their meaning or grammatical function. When western scholars began their study of Sanskrit, they not only acquired a new language but also learned a good deal about how to undertake grammatical analysis.

The early comparative philologists, armed with their better understanding of how languages might be studied, set out to demonstrate the systematic correspondence between phonological (sound) and morphological (grammar) elements in the Indo-European languages. In so doing, they invented the techniques of the comparative method. As an introduction to the method and the problems involved, we will take three words from a series of the Indo-European groups and explore how they are related (Table 3.2).

If we take the word for ‘carry’ in the first column and examine the root of the word, we arrive at the list of correspondences given in Table 3.3.

If we wished to describe this in as general terms as possible, we would say that the common shape of this root was LABIAL + VOWEL + R.

We could now investigate how stable some of these correspondences are and note in the second column, where we can now add a Lithuanian example as well, that the correspondences for the labial sound ($b = f = ph = bh = p$) remain precisely the same in the word for ‘brother’ as they do in the word ‘I carry’. When we look to the third column we encounter two easily overcome obstacles. The word for ‘brow’ in Old Irish is obviously part of a compound word here so
we ignore the for. In Greek we see that there is an o before the labial and we may presume that this reflects a particular development in Greek. Otherwise, all other correspondences hold. Obviously, we could do the same for the r.

If the pattern is correctly identified, we expect a predictive relationship so that where we find, for example, a bh in Sanskrit, we should expect a ph in Greek. So when we look further and compare the Sanskrit and Greek words for ‘cloud’, i.e. Sanskrit nābhas- and Greek néphos, or ‘divide, share food’, i.e. Sanskrit bhājati and Greek phageīn, we are not surprised to find the same correspondences of Skt bh = Grk ph. This process provides us with our initial stage of reconstruction: we have determined a system of correspondences for one of the labial sounds across the Indo-European languages. We have also shown that irrespective of the word, the same sound correspondences are in operation between each of the languages.

We now come to the first real crunch of the comparative method: how should we represent the correspondences that we have found? It is obviously far too cumbersome to drag out a list of the sound equivalences in each language of the twelve main Indo-European groups. We could, of course, suggest a simple algebraic symbol to express the correspondence. For example, we might propose the symbol L\(^1\), i.e. labial correspondence type 1, so that we have (and here is the full series):

\[ L^1 = \text{OIr, OE, Lith, OCS, Alb, Arm, Av b = Lat f = Grk ph = Skt bh = Hit, Toch p} \]

Table 3.2. Comparison of three Indo-European words

<table>
<thead>
<tr>
<th></th>
<th>‘I CARRY’</th>
<th>‘BROTHER’</th>
<th>‘BROW’</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIr</td>
<td>beru</td>
<td>brāthair</td>
<td>forbrā</td>
</tr>
<tr>
<td>Lat</td>
<td>ferō</td>
<td>frater</td>
<td>—</td>
</tr>
<tr>
<td>OE</td>
<td>bere</td>
<td>brōdor</td>
<td>brū</td>
</tr>
<tr>
<td>Lith</td>
<td>—</td>
<td>broterēlis</td>
<td>bruvis</td>
</tr>
<tr>
<td>OCS</td>
<td>berq</td>
<td>bratrū</td>
<td>brūvĩ</td>
</tr>
<tr>
<td>Grk</td>
<td>phérō</td>
<td>phrētēr</td>
<td>ophrūs</td>
</tr>
<tr>
<td>Skt</td>
<td>bharāmi</td>
<td>bhrātar-</td>
<td>bhrā-</td>
</tr>
<tr>
<td>TochB</td>
<td>parau</td>
<td>procer</td>
<td>pārwāne</td>
</tr>
</tbody>
</table>

Table 3.3. Selected sound correspondences across the Indo-European languages

| OIr, OE, and OSC b = Lat f = Grk ph = Skt bh = TochB p |
| OIr, Lat, OE, OCS, Grk e = Skt, TochB a |
| OIr, Lat, OE, OCS, Grk, Skt, TochB all share r |
Returning to our first column and the verb ‘I carry’, we could then suggest a symbol for the corresponding vocalic set such that $V^1$, i.e. vowel correspondence type 1, would give us:

$$V^1 = \text{OIr, Lat, OE, Lith, OCS, Grk, Arm, Hit } e = \text{Alb ja/je = Av, Skt } a = \text{TochB (y)a/yā.}$$

We could then express the root of the verb to carry as $^1L^1V^1r$- but, mercifully, we do not.

The issue here is that although the relationship is abstract and can be expressed in a formula, we know that there was once a language or closely related language group that had a word ‘I carry’ which altered somewhat to give us the transparently similar words we find in all of the different Indo-European groups. It is both an uncontrollable and reasonable temptation to ‘reconstruct’ as closely as possible the original sound.

The reconstruction itself is based on a combination of common sense and observations on how sounds tend to develop in other languages. Common sense indicates that as all twelve groups demonstrate a labial, it is probable that the sound (our $L^1$) was also a labial in the proto-language. Now was it a voiced ($b/bh$) or an unvoiced ($p/ph$) labial? Eight of the twelve groups suggest that it was a voiced labial. If we look to the two languages (Hittite and Tocharian) that show an unvoiced labial ($p$), we would also discover that neither of these have a voiced labial in their respective languages to begin with, i.e. there could be no other outcome in Hittite or Tocharian for a Proto-Indo-European labial but an unvoiced one. As we also know that most of those languages that show a voiced labial also have an unvoiced labial, we can conclude that they do provide the evidence to distinguish which labial was in the proto-language, and so it appears that both Hittite and Tocharian have simplified the original sound. Can we determine this for certain?

One test would be to look for other words that show the unvoiced labial such as $p$ in Sanskrit and the other languages. When we do so, we note that Tocharian also gives a $p$, e.g. Tocharian $B$ pácer ‘father’ = Sanskrit $pítár$-, Latin $pater$, etc. So the other languages show a contrast between the voiced ($b$) and unvoiced labial ($p$) whereas Tocharian does not. Furthermore, the devoicing of consonants is a frequently observed phenomenon throughout the linguistic world.

The odds are in favour then of a voiced labial and the main question is now whether it was aspirated ($bh$) or unaspirated ($b$). Most of the evidence suggests an unaspirated labial, and if we performed a simple head count, it would be seven groups who opt for $b$ and only one, Sanskrit, with an aspirated $bh$. Numbers alone, however, do not provide a sufficient argument to conclude that the proto-form was a $b$ because all those languages with only a $b$ do not themselves possess an aspirated labial ($bh$) in the first place; this distinction is
limited to Sanskrit, and there are sound reasons to imagine that it is Sanskrit that retained the original situation while the other Indo-European stocks lost the distinction between aspiration and non-aspirates. How do we know it was not the other way round, i.e. that it was Sanskrit that split the Proto-Indo-European voiced labial into an aspirated (bh) and unaspirated (b) form?

In deciding in favour of Sanskrit linguists use the tenet of the regularity of sound change, the fundamental discovery of late nineteenth century linguists. In short it states that, if a sound in an earlier stage of a language (here say a b) changes into a different sound (bh), that change will happen to all instances of that sound, not to just a random subset of its occurrences. It is possible that a single older sound might come to be pronounced in two different ways (i.e. that a b might become a bh in some situations but a b in others), but only in predictable conditions. Such conditions, for example, can be seen in the development of Latin into Spanish, where Latin /k/ (written ‘c’) remained /k/ in Spanish before back vowels (i.e. a, o, u), e.g. in Latin cantō ‘I sing’ which became Spanish canto ‘I sing’, but became Spanish /s/ or /θ/ (depending on dialect) before front vowels (i.e. i and e), e.g. Latin centum (/kentum/) ‘hundred’ became Spanish ciento (/syento/ or /θyento/). But in the question of bh versus b, we find no evidence of any special situations obtaining where some cognates give a b in Sanskrit and others a bh; we uniformly find a Skt bh regardless of the following sound among cognate words between Sanskrit and other IE languages. When two sounds are not predictably related to one another on the basis of their (original) environments, we must assume that they are independent of one another. If these two sounds are not distinct in some related language, then that non-distinction must reflect a merger of the two originally distinct sounds. This consideration alone should alert us to the probability that it is Sanskrit that retains a distinction between b and bh which has been lost in the other IE languages. Moreover, the evidence of Greek also supports the primacy of bh in that it returns an aspirated p, i.e. ph.

Comparativists in the nineteenth century, therefore, settled on the voiced aspirate as the form to be reconstructed for the proto-language in the situation where Sanskrit had bh, Greek had ph, and Slavic had b, etc. Because this form is reconstructed and not actually attested—there is no such thing as a Proto-Indo-European document—it is preceded with an asterisk to indicate its hypothetical status, hence Proto-Indo-European *bh. We already know that the root will end in *r so we must now turn to the question of the vowel, our $V^1$.

As we have seen, the verb ‘carry’ has as its vowel -a- in Sanskrit (and Avestan) but -e- in Celtic, Latin, Germanic, Slavic, and Greek. Despite the fact that the majority of Indo-European traditions showed e here, early Indo-Europeanists tended to follow the evidence of Sanskrit and reconstruct a Proto-Indo-European *a on the presumption that Sanskrit had changed least
of all from the proto-language. The principle of the regularity of sound change, however, finally convinced linguists that this time it was Sanskrit that had changed. The problem of blindly accepting Sanskrit as the most archaic language came to a head when linguists had to sort out the PIE velars.

In the example drawn from Spanish above, the nature of the following vowel dictated how Spanish would reflect an earlier Latin c /k/. In Sanskrit cognates involving the velars that we now reconstruct as $\hat{k}$ and $k^w$ might be represented by a $k$ or a $c$ (/c/) as the first and last consonant in New English church) in Sanskrit but unlike Spanish, the following vowel was always $a$ when followed by a Proto-Indo-European front vowel, e.g. Lat *quod ‘what’ and Skt *kâd ‘what’ but Lat -que ‘and’ and Sanskrit ca ‘and’. The unchanging Sanskrit outcomes made no sense unless one compared the following vowels in Latin, Greek, and other IE languages where we would find /e/, /a/, and /o/ where Sanskrit itself made no such distinction and only gave /a/. The other languages indicated that when the word had a front vowel (e.g. /e/) then the outcome of the velar in Sanskrit was $c$, but when it was a back vowel in Greek or Latin (i.e. /a/ or /o/), then Sanskrit gave a $k$. In this case it was evident that it was Sanskrit that had merged e, a, and o in a single /a/.

Thus linguists came to understand that, in this instance at least, Sanskrit was less conservative than its sisters Greek and Latin, and by the last quarter of the nineteenth century Proto-Indo-European *e was reconstructed where Sanskrit showed a but Greek and Latin showed e, and likewise *o was reconstructed where Sanskrit again showed only a and Greek and Latin showed o (e.g. Sanskrit aṣṭâ, but Old Irish ocht, Latin octō, Greek oktō all ‘eight’). Proto-Indo-European *a was reserved for those cases when all three groups showed a (e.g. Sanskrit ájra- ‘field, plain’, Old Norse akr ‘field’, Latin ager ‘field’, Greek agrōs ‘field’). An example of all three Proto-Indo-European vowels is to be seen in Greek δédorka ‘I saw’ which may be compared with its Sanskrit cognate dadârśa, with its uniform a.

As a result of these and other interlocking arguments we can confidently reconstruct the root of the Proto-Indo-European verb ‘carry’ as *bher-. We can push reconstruction a bit further to see how one reconstructs the morphological system. Returning to *bher- we can show the verbal endings for the singular of the present active indicative from some of the Indo-European languages (Table 3.4). The ending of the first person is *-ō (which in turn reflects an earlier -*oh₂, the last symbol to be explained below in Section 3.3); the exception is Sanskrit, which has attached the first personal ending (-mi) of a different class of verbs to the original ending. The second person shows a sibilant ending (-s) while the third person shows evidence of a dental (-t). The sequence is reconstructed as: *bherō, *bher-e-si, and *bher-e-ti where *bher- is the root, -e- is the stem vowel, and -si/-tī are the endings of the second and third
persons. In very simplified terms, the earliest reconstructions tended to look very much like slightly modified Sanskrit. As we have noted, by the beginning of the twentieth century reconstructions tended to look more like Greek vowels inserted between Sanskrit consonants. This is when Karl Brugmann published his *Grundriss der vergleichenden Grammatik der indogermanischen Sprachen* (1897–1916), which reflected the current status of Indo-European studies, and the term ‘Brugmannian’ is popularly employed by Indo-Europeanists to describe ‘traditional’ reconstructions.

### 3.2 Schleicher’s Tale

A good measure of the changing appearance of Indo-European reconstructions can be seen in what is known as ‘Schleicher’s Tale’. August Schleicher (1821–68) was one of the great comparativists of the mid nineteenth century. As an exercise he sifted through the reconstructed Indo-European of his day for enough usable words to compose a short narrative tale in Proto-Indo-European. The tale was published in 1868.

**Schleicher’s Tale**

Avis, jasmin varnā na ā ast, dadarka akvams, tam, vāgham garum vaghantam, tam, bhāram magham, tam, manum āku bharantam. Avis akvabhjams ā vavakat: kard aghnutai mai vidanti manum akvams agantam.

Akvāsas ā vavakant: krudhi avai, kard aghnutai vividvant-svas: manus patis varnām avisāms karnauti svabhjam gharmam vastram avibhjams ka varnā na asti.

Tat kukruvants avis agram ā bhugat.

A sheep that had no wool saw horses—one pulling a heavy wagon, another one a great load, and another swiftly carrying a man. The sheep said to the horses: ‘it pains my heart seeing a man driving horses.’

The horses said to the sheep: ‘listen sheep! it pains our hearts seeing man, the master, making a warm garment for himself from the wool of a sheep when the sheep has no wool for itself.’

On hearing this the sheep fled into the plain.

---

**Table 3.4. The singular endings of the verb ‘carry’ in Indo-European**

<table>
<thead>
<tr>
<th>Latin</th>
<th>Gothic</th>
<th>OCS</th>
<th>Grk</th>
<th>Skt</th>
</tr>
</thead>
<tbody>
<tr>
<td>I carry</td>
<td><em>ferō</em></td>
<td><em>baira</em></td>
<td><em>berō</em></td>
<td><em>phērō</em></td>
</tr>
<tr>
<td>you carry</td>
<td><em>fers</em></td>
<td><em>bairis</em></td>
<td><em>bereši</em></td>
<td><em>phēres</em></td>
</tr>
<tr>
<td>she/he carries</td>
<td><em>fert</em></td>
<td><em>bairiḥ</em></td>
<td><em>beretū</em></td>
<td><em>phērei</em></td>
</tr>
</tbody>
</table>
It is useful to watch how this tale has been updated through time so let us take a closer look at the first line:

\[ \text{avis, jasmin varnā nā ast, dadarka akvams,} \]

sheep to whom wool not was saw horses

The first thing that strikes us about Schleicher’s reconstructions is the unremitting use of the vowel \( a \), a clear sign of the predominance of Sanskrit in reconstruction. The first word, \( *\text{avis} \) ‘sheep’, is attested in Old Irish \( oı˘ \), Latin \( \text{ovis} \), Old English \( ēowu \), Lithuanian \( \text{avis} \), Old Church Slavonic \( \text{ovinű} \), Greek \( \dot{o}(w)i̯s \), and Sanskrit \( \text{āvis} \). By 1939, the linguist Hermann Hirt provided an updated (‘Brugmannian’) version whose first line ran as follows:

\[ \text{owis, jesmin wblnā ne ēst, dedork’e ek’wons,} \]

Some of the changes were purely notational, e.g. \( w \) (or \( u̯ \)) is preferred today rather than the \( v \) of Schleicher’s reconstructions (and the Sanskrit language). We now also see that with more attention to the other Indo-European languages the vocalic system is primarily \( e \) and \( o \). There are several other reconstructions, however, that are also new. The words for ‘saw horses’ (\( \text{dedork’e ek’wons} \)) both indicate a \( k \) with an apostrophe, Hirt’s notation for what is more commonly written as \( *k̯ \) today. We have already seen the problem of distinctive sounds in Proto-Indo-European being simplified to single sounds, e.g. PIE \( *e, *o, \) and \( *a > \text{Sanskrit} \ a \). The velars in Indo-European presented the opposite problem: there were fewer forms in the daughter languages than were being reconstructed to Proto-Indo-European. We can see an example of this when we take three sets of cognate terms in Latin and Sanskrit. Latin \( \text{centum} \) ‘hundred’, \( \text{coxa} \) ‘hip’, and \( \text{quod} \) ‘that’ are cognate with Sanskrit \( \text{s´atām} \) ‘hundred’, \( \text{kāksa-} \) ‘side, flank’, and \( \text{kād} \) ‘that’. If we place these in series, we reconstruct three different initial velars.

<table>
<thead>
<tr>
<th>Lat</th>
<th>centum</th>
<th>coxa</th>
<th>quod</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skt</td>
<td>s´atām</td>
<td>kāksa-</td>
<td>kād</td>
</tr>
<tr>
<td>velar 1</td>
<td></td>
<td>velar 2</td>
<td>velar 3</td>
</tr>
</tbody>
</table>

We appear to have a situation where we can match the Latin–Sanskrit correspondences as follows:

\[
\begin{align*}
\text{vel}^1 &= \text{Lat} \ e = \text{Skt} \ VOKE[acute]{s} \\
\text{vel}^2 &= \text{Lat} \ e = \text{Skt} \ k \\
\text{vel}^3 &= \text{Lat} \ qu = \text{Skt} \ k
\end{align*}
\]

We seem to need three velars to explain things but, unfortunately, not one of the Indo-European languages has more than two velars. The first velar (our \( \text{vel}^1 \)) would seem to have become palatalized in Sanskrit, a process that happens quite frequently, e.g. whether one pronounces Celtic as /keltik/ or /seltik/.
By Hirt’s time this was written as a palatal velar, i.e. *$k$ or *$k’$ as Hirt’s notation. Our second velar (vel²) gives the same results in Latin as Sanskrit and is left alone as a pure velar (*$k$). The final velar (vel³) is a labiovelar in Latin but a pure velar in Sanskrit. Latin appears to have merged the outcomes of vel¹ and vel² while Sanskrit merged the outcomes of vel² and vel³. These two patterns are commonly distinguished as the centum : satem split, taking their names for the words for ‘hundred’ in Latin (where Latin $c$ is always the hard /$k$/ sound) and Avestan where we have the s-sound, satam as also in Indic. The centum groups, those that retain the /$k$/ sound, are Celtic, Italic, Germanic, Greek, Anatolian, and Tocharian; the satem group, the ones that yield a palatalized sound, comprises Baltic, Slavic, Armenian, Iranian, and Indic. Before the discovery of Hittite and Tocharian, the split was seen as a straightforward east–west split. The question of whether there were actually three velars in the proto-language or whether there were only two that behaved differently in different environments is still a topic of major argument. The evidence of the Anatolian language Luvian strongly suggests a three-way distinction. As suggested above, the three velar series are commonly reconstructed as palatal *$k$*, velar *$k$*, and labiovelar *$kw$*. However, the centum group’s change of a palatal to a velar would be phonologically unusual, and one might also suppose that Proto-Indo-European’s three velars were *$k$*, *$q$* (dorso-uvular as the Arabic sound usually transcribed <$q$>), and *$qw$*.

We move on to a third translation of Schleicher’s tale which was published in 1979 by Winfred Lehmann and L. Zgusta.

owis, *k’esyo wḫmā ne ēst, ek’wons espek’et,

There are two major aspects of this translation that give us an indication of further changes in reconstruction. The first is word order. In the previous translations, the final phrase of the first line (Hirt: dedork’e ek’wons or here ek’wons espek’et) translates as ‘saw horses’. The subject of the sentence, the sheep, is at the head and so the order of elements is the subject (S), then the verb (V) and then the object (O), i.e. SVO, i.e. ‘sheep saw horses’. Since then, however, analysis of Anatolian and other Indo-European languages has suggested that the order of elements in Proto-Indo-European was more normally SOV with the verb at the end, and this is how Lehmann and Zgusta have put it although they have replaced Schleicher’s verb with *espek’et* which means the same as *dedork’e*. The other matter of interest is the word for ‘wool’ which has altered considerably since Schleicher’s time. The shift from Schleicher’s $r$ to $l$ in the reconstruction was simply another correction of the over-reliance on Sanskrit which largely merged the two sounds. More importantly, however, is that the 1979 version (*w$\overline{l}$hmā) has an $h$. The recognition of this sound in Proto-Indo-European has been called ‘the most important single discovery in the
 whole history of Indo-European linguistics’ and it was made by Ferdinand de Saussure (1857–1913) when he was 21 years old.

### 3.3 Laryngeal Theory

To understand de Saussure’s discovery we need a little background. In English (and the other Germanic languages) we can alter the meaning of a word both by adding endings, e.g. sing/singing/singer, or by changing the root vowel, e.g. sing/sang/sung/song. The second pattern is termed ablaut and it involves a variation in the root vowel. It is a fundamental operation in Sanskrit and Greek as well as Germanic. In our first sentence we have the verb *dedork’e* in Hirt’s translation. The Greek equivalent here is dédorka and we will take our example from Greek since it is the vowels that we need to follow. In Table 3.5 is found the ablaut pattern for the verb ‘to see’ in Greek and below each form the root has been isolated, and below that the actual vowel involved. The ablaut pattern here then is e ~ o ~ ø and these are known as e-grade, o-grade, and zero-grade. Ablaut is a fundamental part of Indo-European grammar.

The interesting problem arose when one considered other ablaut patterns that appeared to involve long vowels. Another example from Greek is given in Table 3.6. The ablaut pattern here would then be ē ~ ō ~ e. Similar patterns were observed with other vowels and there appeared to be two different systems: the first with short vowels that went down to the zero-grade and a second system where long vowels graded down to a short vowel. De Saussure devised a way of explaining them both as part of the same system. He proposed that the long vowels were originally a combination of a short vowel plus a sonant (written E in the example below) that was appropriate to each vowel (one for e, one for o, etc.). This meant that for the two examples given above, the systems ran as follows:

\[
e \sim o \sim \theta \\
eE \sim oE \sim E
\]

Eventually, the logic of this proposition was accepted and the missing particles were identified as laryngeals, a sound made by closing the glottis such as the initial

<table>
<thead>
<tr>
<th>Table 3.5. Short vowel ablaut patterns in Greek</th>
</tr>
</thead>
<tbody>
<tr>
<td>dérkomaí ‘I see’</td>
</tr>
<tr>
<td>dēdorka ‘I have seen’</td>
</tr>
<tr>
<td>édrakon ‘I saw’</td>
</tr>
<tr>
<td>derk-</td>
</tr>
<tr>
<td>e</td>
</tr>
<tr>
<td>dork-</td>
</tr>
<tr>
<td>o</td>
</tr>
<tr>
<td>édk-</td>
</tr>
<tr>
<td>o</td>
</tr>
</tbody>
</table>
‘catch’ (in phonetic notation/ʔ/) at the beginning of both syllables of the negative ‘uh-uh’, or the ordinary English h (a laryngeal fricative), or pharyngeals, sounds made in the pharynx. Collectively the laryngeals and pharyngeals are usually called just laryngeals. Another possibility is to see these consonants as the fricatives corresponding to the velars $\hat{k}$, $k$, and $k^w$ (just as s corresponds to t). Thus some would reconstruct $\hat{x}$ (the initial sound in huge), $x$ (as in German Bach) and $x^w$ or as $\chi$, and $\chi^w$, where $\chi$ is the fricative corresponding to q. The laryngeal theory as it was called played a significant part in resolving many problems of Indo-European linguistics, although it also threw up some problems of its own.

The problem with it was that the various Indo-European languages did not have laryngeals and so their existence was hypothetical. This situation remained until analysis of the Hittite language, which offered the earliest evidence of written Indo-European, revealed that it preserved some laryngeals, normally written in the form of an $h$. We can now reconsider the word for ‘wool’, i.e. *wl$hna$. The word is attested in Hittite as hulana-, perhaps an unfortunate example as this requires metathesis, that is the Hittites have altered the sequence of the initial syllable and so the pre-Hittite form was actually *ulhna.

We can now look to our final translation, prepared by Douglas Adams in 1997:

$h2\text{ow}is, k^w\text{e}syo w\text{ilh}n\text{ehane} (h1\text{e}) est, h1\text{e}kwons sp\text{eket}$

By now the notation of reconstruction looks positively algebraic. The simple $h$ of Lehmann and Zgusta has become $h_2$, which merely identifies it as the second laryngeal type, i.e. the one that colours vowels $a$, e.g. the Latin word for ‘wool’ is lâna. We also note that laryngeals have been placed before the words for ‘sheep’ and ‘horse’ where previously they began with simple vowels. This addition was in order to ensure that the root began with a consonant. Analysis of the root structures of reconstructed Proto-Indo-European revealed that the root was limited in the form it could take and always began and ended with a consonant (C). If we let ‘e’ stand for any vowel (it was the most common vowel in Indo-European), then an Indo-European root could only be CeC or CCeC or CeCC. There were two other limitations on the structure of the root: two voiced stops could not occur together in the root, e.g. *deg- and *bed- would be impossible roots in Proto-Indo-European, and an unvoiced consonant and an aspirated
consonant could not occur together, i.e. \(*tebh\) would also be against ‘root-law’. A laryngeal could be treated as a consonant so even when there was no evidence for them in any surviving Indo-European language except Hittite and its close relatives (and not always there), they would be added in front of the initial vowel. In the case of the word for ‘horse’ (*\(h_1\epsilon\kappa\omega\sigma\)) it is theoretical but in the case of ‘sheep’ (*\(h_2\omega\iota\iota\)) it is entirely justified as Luvian, another of the Anatolian languages to retain laryngeals, preserves the Proto-Indo-European word for ‘sheep’ as \(\hat{h}\alpha\omega\iota\iota\iota\iota\), i.e. with an \(h\). There are different schools of laryngeal use and argument over how many laryngeals should be reconstructed: opinions range from none to as many as six; three or four tend to be the general consensus.

### 3.4 Reconstruction and Reality

This chapter began with the reconstruction of Proto-Indo-European *\(bh\) and this is where we must return to understand one of the other major current issues of reconstruction. How real are our reconstructions? This question has divided linguists on philosophical grounds. There are those who argue that we are not really engaged in ‘reconstructing’ a past language but rather creating abstract formulas that describe the systematic relationship between sounds in the daughter languages. Others argue that our reconstructions are vague approximations of the proto-language; they can never be exact because the proto-language itself should have had different dialects (yet we reconstruct only single proto-forms) and our reconstructions are not set to any specific time. Finally, there are those who have expressed some statistical confidence in the method of reconstruction. Robert Hall, for example, claimed that when examining a test control case, reconstructing proto-Romance from the Romance languages (and obviously knowing beforehand what its ancestor, Latin, looked like), he could reconstruct the phonology at 95 per cent confidence, and the grammar at 80 per cent. Obviously, with the much greater time depth of Proto-Indo-European, we might well wonder how much our confidence is likely to decrease. Most historical linguists today would probably argue that reconstruction results in approximations. A time traveller, armed with this book and seeking to make him- or herself understood would probably engender frequent moments of puzzlement, not a little laughter, but occasional instances of lucidity.

The reality of the reconstructions has emerged in particular because of problems with the structure of the traditional Indo-European phonological system. The consonantal system (and semivowels) of the traditional system may be reconstructed as in Table 3.7.

There are several problems with this system. The first is that *\(b\) is (almost?) non-existent, i.e. it is extremely difficult, though not altogether impossible, to
find a solid case for reconstructing a Proto-Indo-European *b. Second, if one reviews the languages of the world, there is not a single well-attested one known that does not have voiceless aspirates if it has voiced aspirates as well. There are no voiceless aspirates, e.g. *ph, *kh, *th, reconstructed to Proto-Indo-European so it is typologically unique and thus, from the standpoint of its critics, an implausible reconstruction. Another way of looking at the apparent anomaly is to think of each of the distinctive sounds of Proto-Indo-European (or any other language for that matter) not as indivisible units but rather as aggregates of phonological features. For instance, when comparing p and b we can say that b is distinguished from p by the presence of voicing while in the case of p and ph the latter is distinguished from the former because it is characterized by aspiration. We illustrate the phonological relationships in Table 3.8 where + indicates presence and—shows absence of a feature.

A language with these three kinds of stops is a typologically expected one (and a well-attested type) containing one sound without special characterization (p), and two others minimally characterized (b with voice and ph with aspiration). The traditional reconstruction of Proto-Indo-European, however, is problematic precisely because it has a doubly characterized bh but not singly characterized ph (Table 3.9).

In order to render the reconstructed system of Proto-Indo-European more realistic, that is, more like the range of systems encountered in the living languages of the world, Thomas Gamkrelidze and Vyacheslav Ivanov proposed the Glottalic theory. This theory suggests that the plain voiceless series that is reconstructed above was actually comprised of voiceless aspirated stops,

### Table 3.7. The Proto-Indo-European consonant system

<table>
<thead>
<tr>
<th></th>
<th>unvoiced</th>
<th>voiced</th>
<th>voiced-aspirate</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABIAL</td>
<td>p</td>
<td>b</td>
<td>bh</td>
</tr>
<tr>
<td>DENTAL</td>
<td>t</td>
<td>d</td>
<td>dh</td>
</tr>
<tr>
<td>PALATAL VELO</td>
<td>k̄</td>
<td>ḡ</td>
<td>ḡh</td>
</tr>
<tr>
<td>PALATAL VELO ⚫</td>
<td>k̊</td>
<td>g̊</td>
<td>g̊h</td>
</tr>
<tr>
<td>LABIO-VELAR</td>
<td>kʷ</td>
<td>gʷ</td>
<td>gʷh</td>
</tr>
</tbody>
</table>

### Table 3.8. Normal marking of labials

<table>
<thead>
<tr>
<th></th>
<th>p</th>
<th>b</th>
<th>ph</th>
</tr>
</thead>
<tbody>
<tr>
<td>voice</td>
<td>+ voice</td>
<td></td>
<td>− voice</td>
</tr>
<tr>
<td>aspiration</td>
<td>− aspiration</td>
<td></td>
<td>+ aspiration</td>
</tr>
</tbody>
</table>
and that the other two series were voiceless glottalized stops, and voiced aspirated stops respectively, i.e. instead of *p - *b - *bh one should reconstruct *ph - *p’ - *bh. In this reconstruction the presence of aspiration is held to be non-distinctive, that is phonetically present but not a basic part of the phonological description of the sound (which is, admittedly, cheating a bit), and we might prefer (as some do) to transcribe the sounds as p(h), p’, and b(h) and array them as in Table 3.10. Others have suggested different revisions of the traditional system to make it typologically more realistic. All of the proposed revisions, however, have their critics. All of them also force one to assume that the attested sounds in the various branches have undergone changes which have few or no parallels or are otherwise complicated (how does one get from Proto-Indo-European *p(h) and *b(h) to the attested Greek p and ph for instance, or why do the majority of Indo-European branches have *p’ and *b(h) falling together as b’?). Thus the revisions would seem to fail the test of providing typologically appropriate transitional phases between Proto-Indo-European and the attested Indo-European languages. Finally there are rare but attested systems which show the same sort of imbalance of features necessitated by the traditional reconstruction of Proto-Indo-European. Thus in the Chinese of a large region of China around Shanghai, called Wu, we have p, ph, and bh which are displayed in Table 3.11. This system provides a kind of mirror image to that traditionally reconstructed by Indo-Europeanists (i.e. Proto-Indo-European had *bh but no *ph while Wu has bh but no b). Given the existence of a rare system such as that of Wu, it is hard to deny the possibility of an equally rare system in Proto-Indo-European.

Table 3.9. *Proto-Indo-European labials*

<table>
<thead>
<tr>
<th></th>
<th>p</th>
<th>b</th>
<th>bh</th>
</tr>
</thead>
<tbody>
<tr>
<td>– voice</td>
<td>+ voice</td>
<td>+ voice</td>
<td></td>
</tr>
<tr>
<td>– aspiration</td>
<td>– aspiration</td>
<td>+ aspiration</td>
<td></td>
</tr>
</tbody>
</table>

Table 3.10. *The labials in the glottalic system*

<table>
<thead>
<tr>
<th></th>
<th>p(h)</th>
<th>p’</th>
<th>b(h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>– voice</td>
<td>– voice</td>
<td>+ voice</td>
<td></td>
</tr>
<tr>
<td>– glottal</td>
<td>+ glottal</td>
<td>– glottal</td>
<td></td>
</tr>
</tbody>
</table>
Fortunately, one can interchange the reconstructed forms between the traditional system and the variety of newly proposed systems in a relatively mechanical fashion (Table 3.12). The traditional system is understood by all, and until the weight of scholarly opinion dismisses it for a single new system (if, indeed, that should happen), it remains the one most often cited (as it is in the remainder of this book for which, in any case, the exact phonological shape of words is of secondary importance). The reconstructed phonemes and their outcomes in the main Indo-European groups are summarized in Appendix 1.

### Further Reading

There are a number of good introductions to the comparative method in linguistics such as Anttila (1972), Bloomfield (1933), Hock (1991), Hoenigswald (1960), Lehmann (1992), and Campbell (1998) and, at a more exhaustive level, Joseph and Janda (2003). The Glottalic theory is found most extensively in Gamkrelidze and Ivanov (1995) and more recent discussion of it in Salmons (1992), Barrach (2002, 2003). For reality in reconstruction see Hall (1960).

### Table 3.11. The labials in Wu

<table>
<thead>
<tr>
<th>p</th>
<th>ph</th>
<th>bh</th>
</tr>
</thead>
<tbody>
<tr>
<td>– voice</td>
<td>– voice</td>
<td>+ voice</td>
</tr>
<tr>
<td>– aspiration</td>
<td>+ aspiration</td>
<td>+ aspiration</td>
</tr>
</tbody>
</table>

### Table 3.12. The traditional Proto-Indo-European system and its glottalic equivalents

<table>
<thead>
<tr>
<th>Traditional</th>
<th>Glottalic</th>
<th>Traditional</th>
<th>Glottalic</th>
<th>Traditional</th>
<th>Glottalic</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>p&lt;sup&gt;[h]&lt;/sup&gt;</td>
<td>b</td>
<td>(p')</td>
<td>bh</td>
<td>b&lt;sup&gt;[h]&lt;/sup&gt;</td>
</tr>
<tr>
<td>t</td>
<td>t&lt;sup&gt;[h]&lt;/sup&gt;</td>
<td>d</td>
<td>t&lt;sup&gt;'&lt;/sup&gt;</td>
<td>dh</td>
<td>d&lt;sup&gt;[h]&lt;/sup&gt;</td>
</tr>
<tr>
<td>̂k</td>
<td>̂k&lt;sup&gt;[h]&lt;/sup&gt;</td>
<td>̂g</td>
<td>̂k&lt;sup&gt;'&lt;/sup&gt;</td>
<td>̂g&lt;sup&gt;h&lt;/sup&gt;</td>
<td>̂g&lt;sup&gt;[h]&lt;/sup&gt;</td>
</tr>
<tr>
<td>k</td>
<td>k&lt;sup&gt;[h]&lt;/sup&gt;</td>
<td>g</td>
<td>k&lt;sup&gt;'&lt;/sup&gt;</td>
<td>gh</td>
<td>g&lt;sup&gt;[h]&lt;/sup&gt;</td>
</tr>
<tr>
<td>k&lt;sup&gt;ʷ&lt;/sup&gt;</td>
<td>k&lt;sup&gt;[h]o&lt;/sup&gt;</td>
<td>g&lt;sup&gt;ʷ&lt;/sup&gt;</td>
<td>k&lt;sup&gt;ʷo&lt;/sup&gt;</td>
<td>g&lt;sup&gt;ʷh&lt;/sup&gt;</td>
<td>g&lt;sup&gt;[h]o&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

3. RECONSTRUCTING PROTO-INDO-EUROPEAN 53
4

The System

4.0 The System

Over two centuries of research into the structure of the Indo-European proto-language have produced an enormous body of scholarship about the structure of Proto-Indo-European, and the purpose of this chapter is merely to introduce an extremely basic outline of the phonology and grammar of Proto-Indo-European.

4.1 Phonology

We have already discussed the reconstruction of Proto-Indo-European and we can provide a roster of the Proto-Indo-European phonological system (Table 4.1). This amounts to about thirty-two phonemes, i.e. distinctive sounds, although this could be increased depending on whether one wanted to admit other sounds, e.g. diphthongs such as *ay, *ey, etc. We might remind ourselves that the English language possesses forty-six phonemes (among the world’s living languages the number of phonemes may range from about a low of eleven to a high of 141).

In the last chapter we have already seen that there are a number of issues still very much under debate. The Glottalic theory would alter the reconstructed forms of the first five series. Argument still persists on whether there were three
series of velars (palatal-, pure, and labio-) and, if there were not, what precisely were the original velars. Many would only reconstruct the first three laryngeals; a few would require six laryngeals. Of the laryngeals presented, *h₁ leaves an adjacent vowel unchanged while an *h₃ will change an adjacent *e- to an *-o-, e.g. *dideh₂ > Greek διδόμι ‘I give’. Both *h₂ and *h₄ change an adjacent *e- to *-a- (e.g. *peh₂-s- ‘protect’ > Latin pāscō ‘I protect’ and *h₄elbhós ‘white’ > Latin albus ‘white’ and Hittite alpā- ‘cloud’). Only word initially can we distinguish *h₂ and *h₄, and then only when we have an Anatolian cognate. For *h₂-ε- we have ha- in Hittite harkis ‘white’ (cf. Greek argós ‘bright’), for *h₄-ε- we have α- (as in alpā-). (Some have suggested that initial *h₄ is preserved in Albanian as h-, e.g. herdhe ‘testicle’ from *h₄orgʰhiye₇ha₇ beside Hittite arka- ‘mount sexually’). Where we cannot distinguish between *h₂ and *h₄ we will use the symbol *h₅. In some instances where a laryngeal is posited but we are uncertain which laryngeal should be indicated we will employ *hₓ to indicate the unknown laryngeal.

The liquids, nasals, and semivowels are listed in both their consonantal and vocalic forms, i.e. if they are found between two consonants, they behave like vowels (i, u), but when they are found next to a pure vowel they behave like consonants (y, w; also written *j and *y). When the other forms behave like vowels, this is indicated with a small circle below the form (i, í, o, ó). Of the pure vowels, there are some who argue there was no PIE *a; others suggest that there are no original long vowels: these are short vowels + a laryngeal.
The English noun is a poor place to start for discussing the structure of the Indo-European noun. It distinguishes two numbers—singular and plural, e.g. *man*/men*—and only two cases, i.e. the nominative (subject) and the genitive (possessive), e.g. *man*/man’s* and *men*/men’s*; it does not distinguish grammatical gender as do many other modern languages such as French or German. Proto-Indo-European distinguished three numbers (singular, dual, and plural), there is (disputed, but generally accepted) evidence for grammatical gender, and it distinguished eight cases. The dual, attested in a number of the historical Indo-European languages, was employed for pairs, often natural pairs, e.g. ‘eyes’, ‘ears’.

If we look at the Indo-European noun from purely a mechanistic standpoint, we would begin with the root which would have to obey the rules laid down in the preceding chapter regarding its structure, i.e. (C)CeC(C)-. To the root might be added a variety of suffixes to create a stem and then finally the case endings depending on number and perhaps gender. In some cases, the so-called root-nouns, there are no suffixes before the case ending. Using R for ‘root’, S for ‘stem-creating suffix’, and E for ‘case-number-ending’, we might establish the formula for an inflected word in Proto-Indo-European as R-(S)-E. The suffixes sometimes still convey an earlier underlying meaning, e.g. the suffix *-trom* tends to indicate an instrument, e.g. *h₂erh₃-trom* ‘plough’ from a verb *h₂erh₃ye/o-* ‘to plough’, while kinship names tend to have the suffix *-er-* or *-ter-*, e.g. *sués-ør* ‘sister’, *bhre´h₂-te¯r* ‘brother’. The commonest suffixes and their functions are indicated in Table 4.2.

The case endings are outlined on Table 4.3. Most securely reconstructed are the nominative, vocative, accusative, and genitive of the singular and plural.

The nominative indicates the subject of the sentence and is formed either with an -s or no ending, e.g. *The father sees* (*ph₄,tēr*). The vocative is used in address, e.g. *O father!* (*ph₄,ter*). The accusative denotes the direct object, e.g. *I saw the father* (*ph₄,terṁ*); the genitive indicates possession, e.g. *the father’s cow* (*ph₄,trōs*). The final four cases are the least well preserved and many languages have abandoned them. The ablative indicates motion from some place, e.g. *I ran from father* (*ph₄,trēi*); the dative shows motion to somewhere, e.g. *I ran to father* (*ph₄,trēi*); the locative indicates position, e.g. *the flea was on the father* (*ph₄,tēr(i)*); and the instrumental indicates the means by which something is done or accompaniment, e.g. *he went with his father* (*ph₄,trēh₁*).

The case endings are added directly to the root or to one of the suffixes. The final sound of the stem is used to define which particular type of declension the
noun belongs to, e.g. *nép-ōt ‘grandson’ is a t-stem. If we look more closely at the nominative, accusative, and genitive of *nép-ōt (Table 4.4) we note another feature of Indo-European nouns—a shift in the accent and ablaut of the pattern ō ~ o ~ ō.

The complicated patterns of stress and ablaut are not found in the o-stems (Table 4.5), the only stem forms to end in a vowel (if one presumes that the á-stems are really eh₂-stems) and which have their own set of endings (Table 4.6).

<table>
<thead>
<tr>
<th>Table 4.2. Common Indo-European suffixes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTION NOUNS:</strong></td>
</tr>
<tr>
<td>-o-, -eh₂a-, -men-, -es- [all root stressed], -ti-, -tu-, -tr/trn-, -r/rn-, -wr/wn-, -yeh₂-</td>
</tr>
<tr>
<td><strong>AGENT NOUNS:</strong></td>
</tr>
<tr>
<td>-ô-, -tér-, -mén-, -és- [all stem stressed]</td>
</tr>
<tr>
<td><strong>NOUNS OF INSTRUMENT:</strong></td>
</tr>
<tr>
<td>-tro- (also -tlo-, -dhro-, -dhlo-)</td>
</tr>
<tr>
<td><strong>DEADJECTIVAL VERBS:</strong></td>
</tr>
<tr>
<td>-eh₂ ‘(become X)’, -eh₁ ‘(be X)’</td>
</tr>
<tr>
<td><strong>DEVERBAL VERBS:</strong></td>
</tr>
<tr>
<td>-se/o-, -eye/o- (iteratives, intensives)</td>
</tr>
<tr>
<td>-new-, -eye/o- (causatives)</td>
</tr>
<tr>
<td>-h₁se/o- (desideratives)</td>
</tr>
<tr>
<td><strong>ADJECTIVES:</strong></td>
</tr>
<tr>
<td>-o-, -yo-, -no-, -kó-, -ro-, -lo- [all adjectives of appurtenance]</td>
</tr>
<tr>
<td>-to-, -wo-, -went [adjectives of possession, ‘having X’]</td>
</tr>
<tr>
<td>-en-, -h₁en- ['characterized by X']</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 4.3. Basic case endings of the Indo-European noun</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>nominative</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>vocative</strong></td>
</tr>
<tr>
<td><strong>accusative</strong></td>
</tr>
<tr>
<td><strong>genitive</strong></td>
</tr>
<tr>
<td><strong>ablative</strong></td>
</tr>
<tr>
<td><strong>dative</strong></td>
</tr>
<tr>
<td><strong>locative</strong></td>
</tr>
<tr>
<td><strong>instrumental</strong></td>
</tr>
</tbody>
</table>
The dative of the o-stems reveals one of the more obvious instances of dialectal differences in Indo-European. The dative plural ending */-oibh(y) os/* is supported by Sanskrit, e.g. dative-plural viṅk-ebhyas ‘to the wolves’, but Germanic (e.g. Gothic wulf-am), Baltic (e.g. Lithuanian vilk-ams), and Slavic (e.g. Old Church Slavonic vílk-omū) support the alternative ending */-omus/*.

The o-stems were the most productive form of declension. By this is meant that through time, especially at the end of the Proto-Indo-European period and into the early histories of the individual Indo-European languages, the o-stems appeared to proliferate and replace other stem types. In Vedic Sanskrit, for example, they constitute more than half of all nouns. High productivity is often interpreted as evidence that the o-stems are a later declensional form than many of the other stems. Highly productive forms are ultimately capable of replacing many other forms as they provide the most active model by which speakers might decline a form. For example, in Old English, plurals were formed in a variety of ways, e.g. cyning ~ cyningas (‘king/kings’) but cwēn ~ cwēne (‘queen/queens’), feld ~ felda (‘field/fields’), spere ~ speru (‘spear/spears’) and assa ~ assan (‘ass/asses’). All of these were levelled out to the first form with the s-ending (that of the Proto-Indo-European o-stems) which became the most productive. Regarding the last form, although many common enough words were given an -an ending for the plural, e.g. guman ‘men’, froggan ‘frogs’, naman ‘names’, tungan ‘tongues’, only one of these has survived, i.e. Old

### Table 4.4. Accent shift in case forms

<table>
<thead>
<tr>
<th>Case</th>
<th>Nominative</th>
<th>Accusative</th>
<th>Genitive</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>nép-ōt</em></td>
<td><em>nép-ot-i</em></td>
<td><em>nep-t-ōs</em></td>
<td></td>
</tr>
</tbody>
</table>

### Table 4.5. Endings of o-stem nouns

<table>
<thead>
<tr>
<th>Case</th>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominative</td>
<td>-ōs</td>
<td>-ōs (&lt; *-o-es)</td>
</tr>
<tr>
<td>Vocative</td>
<td>-e</td>
<td>-ōs (&lt; *-o-es)</td>
</tr>
<tr>
<td>Accusative</td>
<td>-om</td>
<td>-ons</td>
</tr>
<tr>
<td>Genitive</td>
<td>-ōs</td>
<td>-om</td>
</tr>
<tr>
<td>Ablative</td>
<td>-ōd (&lt; *-o-ed)</td>
<td>-om</td>
</tr>
<tr>
<td>Dative</td>
<td>-ōi (&lt; *-o-ei)</td>
<td>-oibh(y)os/-omus</td>
</tr>
<tr>
<td>Locative</td>
<td>-oi</td>
<td>-oisu</td>
</tr>
<tr>
<td>Instrumental</td>
<td>-oh₁</td>
<td>-ōis (&lt; *-o-eis)</td>
</tr>
</tbody>
</table>
English *oxa ~ oxan*, though Middle English created a few new *n*-plurals by adding the *-n* to nouns like *childre*, the plural of *child* ‘child’ to give modern *children*.

The *h₂*-stems are associated with feminine nouns, e.g. Lat *dea* ‘goddess’ and, because of their absence in this use in Anatolian, these stems have been regarded by many as late formations. The fact that Proto-Indo-European also forms collectives in *-*h₂- (e.g. the Hittite collective *alpaš* ‘group of clouds’ from a singular *alpasˇ* ‘cloud’) has suggested that this was its original use and that it later developed the specifically feminine meaning.

### 4.3 Adjectives

The adjectives are constructed and declined very much like the nouns, i.e. a root, a stem, and an ending, with masculine and neuter endings corresponding generally to the *o*-stems and the feminine endings utilizing the *h₂*-endings. They are declined according to gender with masculine, feminine, and neuter forms, e.g. from the root *new*- ‘new’, we have the nominative singular endings *nēw-os* (masculine), *nēw-om* (neuter), and *nēw-eh₂* (feminine), e.g. Latin *novus, novum, nova*, Greek *nēos, néon, nēa*, Sanskrit *nāvas, nāvam, nāvā*, and Old Church Slavonic *nová, novo, nova*. The comparative suffix was either *-*yes- or (later) *-tero-* while the superlative suffix was *-*isto- or (again later *-*t(-)*mo-)*.

### 4.4 Pronouns

Pronouns are one of the core elements of vocabulary. The evidence for pronouns in Indo-European is abundant and includes personal pronouns (*I, you, 
etc.), reflexive pronouns (*one’s self*), interrogative (*who, which, how many*), relative (*which*), and demonstrative (*this one, that one*).

Proto-Indo-European had special personal pronouns for the first and second numbers (*I, you*) but not for the third (*he, she, they*) and instead employed a demonstrative pronoun (*that one*) where we would use a personal pronoun. As was the case with nouns, the personal pronouns (Table 4.7) were declined in the singular, dual, and plural.

The first person singular and the first and second persons plural had two roots, one for the nominative and one for the other cases. That situation is still preserved in New English ‘I’ but ‘me’ and ‘we’ but ‘us’ (*you* historically represents the non-nominative only). However, there has been a strong tendency in the various Indo-European groups for one, usually the non-nominative, to replace the other. Thus Sanskrit retains the Proto-Indo-European situation (i.e. *ahām* ‘I’ but *māṃ* ‘me’, *vayām* ‘we’ but *nas* ‘us’, and *yāyām* ‘you [nom.]’ but *vas* ‘you [acc.]’) but in later Indic all three show replacement of the nominative by the non-nominative. The same threefold replacement pattern is shown by Old Irish at its earliest attestation. In both Italic and Greek we find the first and second persons plural with the same replacement at their earliest attestations. In Slavic it is only the second person plural that is affected while in Tocharian the non-nominative of the first person singular is extended to the nominative while the nominative and non-nominative of the first and second persons plural merge so completely that it is hard to say which was the dominant ancestor (e.g. Tocharian B *wes* ‘we/us’ from Proto-Indo-European *wei* + *nos*, yes ‘you’ from *yuh,s* + *wos* (one should note that Tocharian -e- is the regular outcome of Proto-Indo-European *-o-). Given that nominative pronouns were normally only used for emphasis (the person and number of the subject was normally adequately expressed by the ending of the verb), it is not surprising that the much more frequent non-nominative shape would win out. What is a bit surprising is that in Baltic it is the nominative shape that replaces the non-nominative one in the first and second persons plural.

The reflexive pronoun, used to refer back to oneself, was *sēwe.

The Indo-European languages do not agree on a single relative pronoun, e.g. *the man who killed the bear*, and there are two forms that were widely used, i.e. *yo-* in Celtic, Balto-Slavic, Greek, and Indo-Iranian but *kʷo-* or something

<table>
<thead>
<tr>
<th>SINGULAR</th>
<th>DUAL</th>
<th>PLURAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>*h₁eg/*h₁éme</td>
<td>*nōh₁</td>
</tr>
<tr>
<td>Second</td>
<td>*tūh₃</td>
<td>*wōh₁</td>
</tr>
</tbody>
</table>
similar in Italic, Germanic, Albanian, Armenian, Anatolian, and Tocharian. This latter form is also found among the interrogatives, e.g. *who?, which?, all of which begin with *kw̑- (which we find in Old English as hw- which then metathesizes in the spelling [shifts the order of elements around] in New English as wh-). For example, we have PIE *kw̑ós, OE hwā, and NE who; PIE *kw̑ód > OE hwæt > NE what; and PIE *kw̑óteros > OE hweþer > NE whether).

As there was no third personal pronoun this function had to be served by a series of demonstrative pronouns such as *so (masculine), *seh (feminine), and *tód (neuter) ‘that (one)’, the latter of which survived as Old English þœt > that.

An emphatic pronoun was also employed, i.e. *h₁ei ‘he, this (one)’, *h₁ih₁a ‘she, this (one)’, and *h₁id. The latter survives in New English as it. New English he derives from another demonstrative pronoun, *kis ‘this (one)’. For every question of ‘where’, ‘when’, ‘how much’, there was a corresponding pronoun to indicate ‘there’, ‘then’, ‘that much’, e.g. PIE *tór~*tér > OE þær > NE there or PIE *tóti ‘so much, many’ > Lat tot ‘so much’ (see Chapter 24).

### 4.5 Numerals

Numbers tend to be one of the more stable elements of any language (although even these can be replaced) and some of the basic numerals are presented in Table 4.8 (see Section 19.1).

Volumes have been written about the Indo-European numerals as they provide evidence for the construction of a counting system. The number ‘one’

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>*h₁oi-no-s</td>
</tr>
<tr>
<td>2</td>
<td>*dveh₁(u)</td>
</tr>
<tr>
<td>3</td>
<td>*tréyes</td>
</tr>
<tr>
<td>4</td>
<td>*kw̑étwor-</td>
</tr>
<tr>
<td>5</td>
<td>*pënkw̑e</td>
</tr>
<tr>
<td>6</td>
<td>*(s)wēks</td>
</tr>
<tr>
<td>7</td>
<td>*septn̑i</td>
</tr>
<tr>
<td>8</td>
<td>*h₁okt̑o(u)</td>
</tr>
<tr>
<td>9</td>
<td>*h₁newh₁m</td>
</tr>
<tr>
<td>10</td>
<td>*dēk̑n̑(t)</td>
</tr>
<tr>
<td>20</td>
<td>*wīŋk̑n̑ih₁</td>
</tr>
<tr>
<td>30</td>
<td>*tȓk̑omt(h₁)</td>
</tr>
<tr>
<td>100</td>
<td>*k̑m̑t̑óm</td>
</tr>
<tr>
<td>1000</td>
<td>*tuṅs̑- k̑ntyɔ́s-/g̑hesl(i)yos</td>
</tr>
</tbody>
</table>
is singular, ‘two’ is dual, and ‘three’ and the higher numerals are plurals except for the number ‘eight’ which appears to have originally been a dual. This apparent anomaly presupposes one to imagine ‘eight’ as ‘two fours’ and that *h₂ekₜeh₃(u) ‘eight’ contains the basal element *kʷet- in ‘four’, but the phonological distance is very great. When we examine the numerals ‘ten’, ‘twenty’, etc., we see the element *ₙ₄₄mt- which was no doubt an abstract counting concept, a unit of some kind, on which were based ‘ten’ (two-units), ‘hundred’ (big unit), and, in some areas of the Indo-European world (including Germanic), ‘thousand’ (fat hundred).

4.6 Particles and Conjunctions

The Indo-European languages preserve a number of earlier particles of speech. For example, negation was made with the particle *ne ‘not’ or *gh₁hi ‘certainly not’ or *meh₁ if it were a prohibition, i.e. ‘do not!’. There were also particles of time and place that have changed little, e.g. *new₁ ‘now’. The main connective particle was *ₙ₄₄we ‘and’, e.g. Latin -que, which would be suffixed to the final word in a series (e.g. Senatus Populusque Romanus ‘the Senate People-and Roman’; see Section 24.5).

4.7 Prepositions

In English we require prepositions to indicate position or motion; in Proto-Indo-European these would not have been so much required because the different case endings already indicated location (locative), motion to (dative) or from (ablative), and accompaniment (instrumental). Nevertheless, prepositions were required to specify more closely location or movement and there is a fairly large number reconstructed to Proto-Indo-European, e.g. *ni ‘downward’, *peri ‘over’, *pro ‘before’, *som ‘together’ (see Section 18.2).

4.8 Verbs

The reconstruction of the verbal system is the most complex feature of the Proto-Indo-European language. Difficulties arise both because of its internal complexity and because it would appear that there were more dialectal differences involving the verb within Proto-Indo-European than was the case with the other major grammatical classes. In consequence there is less agreement
among Indo-Europeanists about the verb than there is about the noun or adjective. These are some of the basic features almost all would agree with:

1. As was the case with the noun, the verb was also conjugated in three numbers: the singular (I eat), the plural (we eat), and the dual (we two eat).

2. There were two voices, i.e. indications of whether the subject acted on something else or (on behalf of) himself. There was, therefore, an active voice (I wash the child) and a medio-passive (also called the ‘middle’) voice (I wash myself). There is no pure passive in Proto-Indo-European (The child was washed by the mother) but the medio-passive could, in the proper context, be used passively as well as medio-passively.

3. The tenses included the present (I eat), the aorist (I ate), and the perfect (I have eaten)—though the perfect has left no trace in Anatolian and many Indo-Europeanists, therefore, would take the perfect to be a late addition to the Proto-Indo-European verbal repertoire of tenses, added only after the separation of pre-Anatolian from the rest of the Indo-European community. In another restricted set of languages there was yet another past, the imperfect (I was eating). The best evidence for an inherited imperfect comes from Indo-Iranian, Greek, and Armenian, and thus this imperfect may reflect a south-eastern innovation; other IE groups having the imperfect, Slavic, Italic, and Tocharian, may all have innovated independently. There is only scattered evidence of a future (I will eat) and, again, that evidence is not from Anatolian but it does occur on both the extreme east of the Indo-European world (Balto-Slavic and Indo-Iranian) and the extreme west (Celtic) so it may have been another late addition in Indo-European—otherwise the future must have been rendered with the present or the optative.

4. There may have been four moods: indicative (plain statement of objective fact), injunctive (perhaps mild commands or prohibitions), optative (intentions or hoped for action), and imperative (commands). In the Anatolian languages there is only a distinction between the indicative and imperative. In non-Anatolian Indo-European there are greater or lesser traces of a fifth mood, the subjunctive (potentiality, possibility).

5. A series of derivational suffixes could be employed to alter the meaning, e.g. the suffixes *-eye/o- and *-neu- could be added to form a causative, e.g. *ters- ‘dry’ but *torséye/o- ‘to make dry’; -eh₂ changed a noun or adjective into a verb with those qualities, e.g. new- ‘new’ but *neweh₂- ‘make new’ (e.g. Latin novāre ‘make new’, Greek neāò ‘re-plough’, Hittite newahh- ‘make new’).

The personal endings of the verb were divided into two major conjugations, each with a primary and a secondary set of endings (Table 4.9). The conjugations are distinguished by the shape of the singular person endings in the present tense. The first conjugation is traditionally called the ‘athematic’ conjugation
(there being no theme-vowel between the root or stem and the person-number ending) while the most important subtype of the second conjugation is the ‘thematic’ verbs (which have an *-e- or *-o- after the root or stem and before the person-number endings). The primary endings were used in the present (and future) of the indicative. The secondary endings were used for the non-present tenses of the indicative, and for the injunctive, optative (and subjunctive). The difference between the primary and the secondary endings of the First Conjugation active is basically the addition of the particle *-i, which is argued to be the same particle seen in the locative case and hence it carried (once) the meaning of ‘here and now’. First conjugation verbs generally have a singular where the root vowel is e and a plural which shows a zero-grade. This interchange can be seen in the verb *h₁es- ‘to be’ (Table 4.10). The reflexes of this verb are also shown for Latin, Greek, Sanskrit, and Hittite; we can see that Sanskrit has been the most conservative in preserving the interchange of a full-grade and a zero-grade in this verb.

<table>
<thead>
<tr>
<th>Table 4.9. Proto-Indo-European personal endings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTIVE</strong></td>
</tr>
<tr>
<td>First Conj</td>
</tr>
<tr>
<td>sec/prim</td>
</tr>
<tr>
<td>1st</td>
</tr>
<tr>
<td>2nd</td>
</tr>
<tr>
<td>3rd</td>
</tr>
<tr>
<td>1st</td>
</tr>
<tr>
<td>2nd</td>
</tr>
<tr>
<td>3rd</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 4.10. The verb *h₁es- ‘to be’ in the present active indicative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PIE</strong></td>
</tr>
<tr>
<td><strong>Singular</strong></td>
</tr>
<tr>
<td>1. *h₁es-mi</td>
</tr>
<tr>
<td>2. *h₁es-si</td>
</tr>
<tr>
<td>3. *h₁es-ti</td>
</tr>
<tr>
<td><strong>Plural</strong></td>
</tr>
<tr>
<td>1. *h₁s-més</td>
</tr>
<tr>
<td>2. *h₁s-té</td>
</tr>
<tr>
<td>3. *h₁s-énti</td>
</tr>
</tbody>
</table>
We have already encountered a second conjugation thematic verb in *bher-‘to carry’ and its forms are indicated in Table 4.11, along with the reflexes in Latin, Greek, and Sanskrit (Hittite has no simple thematic verbs).

In addition to suffixes and endings, there were changes that could be made to the beginning of the verb as well. These comprise the augment and reduplication. The augment was merely the addition of a particle *h₁e- to the beginning of the root. This was used to indicate the past tense and was therefore associated with the imperfect and the aorist, e.g. Sanskrit a´-bharam, Greek é-pheron, Armenian e-ber indicate a Proto-Indo-European *h₁e-bher-om ‘I carried’.

The second technique of changing the beginning of the word is reduplication which involves, more or less, repeating the initial consonant followed by the vowel e or i, e.g. the verbal root *derk- ‘see’ yields Sanskrit dadarśa: Greek dēdorka < Proto-Indo-European *dȇ-dorkê ‘he/she has seen’. In some cases nearly the entire root would be reduplicated, e.g. Sanskrit vārvarti ‘turns’ <*wer-w(e)rt-.

The participles formed from verbs were of great importance and were formed by the suffixes *-e/ont-, e.g. *bher- ‘carry’ but *bher-ont- ‘carrying’, *-wes- for the perfect and *-mh₁no- for the middle. The participles were then declined like adjectives.

4.9 Derivation

Proto-Indo-European clearly had a rich system of both verbal and nominal derivation, the description and illustration of which would require a large book in itself. However a couple of examples of the derivational processes will give the reader a partial insight into the system and allow him or her better to understand and evaluate the lexical evidence offered up in later chapters in support of the reconstruction of various semantic fields.
The first example (Table 4.12) shows a number of productive nominal and verbal derivatives from Proto-Indo-European *steh₂ - 'stand'. Each of the derivatives illustrated is reflected in at least three Indo-European groups which makes it relatively likely that the derivation dates to Proto-Indo-European times, rather than being the result of independent creations in the stocks where it is attested.

<table>
<thead>
<tr>
<th>Present Tense</th>
<th>*sti-steh₂-ti 'he/she stands (up)'</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[cf. Skt tīsthati, Av hiṣṭati, Grk histēsi, Latī sistī]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aorist Tense</th>
<th>*h₁-é-steh₂-t 'he/she stood (up)'</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[cf. Skt āsthāt, Grk ēstē]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Verbal Derivatives</th>
<th>(1) Stative</th>
<th>*steh₂-eh₁-ti 'he/she is standing'</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[cf. Lat stat, OHG stät ~ stēt, OIr tā ‘is’, OCS stoītā]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Verbal Derivatives</th>
<th>(2) w-derivative</th>
<th>(no apparent change in meaning)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>*steh₂-w- ‘stand’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[cf. Lith stōvia ‘stands’, Goth stōjan ‘to stand’, Grk stoīd ‘marketplace’ (&lt; ‘where one stands’) ]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nominal Derivatives</th>
<th>(1) -ó-</th>
<th>*sth₂-ó- ‘standing’</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[cf. Skt pra-stha- ‘stable, firm, solid’, OIr ross ‘promontory’]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nominal Derivatives</th>
<th>(2) -tó-</th>
<th>*sth₂-tó- ‘standing, placed’</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Nominal Derivatives</th>
<th>(3) -tí-</th>
<th>*sth₂-tí- ‘standing, erection’</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[cf. Skt sthitī-‘stay, sojourn’, Grk stāsis ‘place, setting, erection [of a statue]’, Lat statim ‘firmly, steadfastly’, NE stead]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nominal Derivatives</th>
<th>(4) -tlo-</th>
<th>*sth₂-tlo- ‘something standing’</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Nominal Derivatives</th>
<th>(5) -no-</th>
<th>*steh₂-no- ‘standing, place’</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Nominal Derivatives</th>
<th>(6) -men-</th>
<th>*steh₂-men- ‘place for standing’</th>
</tr>
</thead>
</table>
### Table 4.13. Derivational tree of *h₂eh₃- ‘be hot, burn’ (cf. Palaic h₂a- ‘be hot’)

<table>
<thead>
<tr>
<th>FIRST</th>
<th>SECOND</th>
<th>THIRD</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Generation’</td>
<td>‘Generation’</td>
<td>‘Generation’</td>
</tr>
<tr>
<td>DERIVATIVES</td>
<td>DERIVATIVES</td>
<td>DERIVATIVES</td>
</tr>
</tbody>
</table>

1. *h₂éh₃-ti- ‘heat’  
   [cf. OIr aíth ‘kiln’]
2. *h₂éh₃-mr ‘heat’  
   [cf. Grk ēmar ‘day’, Arm awr ‘day’ (< ‘heat of day’)]
3. *h₂éh₃-ter- ‘burner’ > ‘fire’  
   (3a) *h₂éh₃-tr-o- ‘burnt’ [cf. Lat āter ‘black’]
   (3b) *h₂éh₃-tr-o- ‘fiery, hot’  
   [cf. Latv ātrs ‘quick, sharp, hot’]  
   (3c) *h₂éh₃-tr-eh₄ ‘fire-place, hearth’  
   (3ci) *h₂éh₃-tr-iyo- ‘of the hearth’  
   [cf. Lat ātrium ‘atrium’ < ‘fire-hall’]  
   (3d) *h₂eh₃-ter-ye/o- ‘make fire, kindle’  
   [cf. Arm ayrem ‘kindle’]
4. *h₂eh₃-s- ‘burn’  
   (4a) *h₂eh₃-s ‘ash’  
   [cf. Hit hās ‘ash, potash’]  
   (4b) *h₂(h₃)-s-tér- ‘burner’ > ‘ember’ > ‘star’  
   [cf. Grk astēr ‘star’, Lat stēlla ‘star’, NE star]  
   (4c) *h₂eh₃-s-eh₄ ‘burning place, hearth’  
   [cf. Lat ārā ‘altar; hearth’, Hit hāssa ‘hearth, fire-altar’]  
   (4d) *h₂eh₃-s-no- ‘fiery’  
   [cf. OIr ān ‘fiery’]  

(Cont’d.)
The second illustration is presented in the form of a (sideways) tree diagram (Table 4.13) and attempts to demonstrate the progressive nature of Indo-European derivation where one derivative presupposes another. In this example some of the derivatives are supported by only one Indo-European branch but the nature of the derivational process is such that derivatives at one point in the ‘tree’ presuppose derivatives ‘higher up’ (i.e. to the left) in the tree.

A final illustration (Table 4.14) gives examples from Old English and Greek of the role that ablaut, the interchange of vowels, plays in Proto-Indo-

---

Table 4.13. (Cont’d.)

<table>
<thead>
<tr>
<th>First ‘Generation’ Derivatives</th>
<th>Second ‘Generation’ Derivatives</th>
<th>Third ‘Generation’ Derivatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>(4e) *h₂eh₂-s-dh- ‘burn’ (no detectable difference)</td>
<td>(4ei) *h₂eh₂-s-dh-eh₁- ‘be burning’ [cf. Lat ardeo ‘burn’]</td>
<td>(4ei) *h₂eh₂-s-dh-ro- ‘burning’ [cf. Toch B astare ‘pure’]</td>
</tr>
</tbody>
</table>

---

Table 4.14. Illustration of Indo-European ablaut in derivation (PIE *sed- ‘sit’ and *pet- ‘fly’)

<table>
<thead>
<tr>
<th>Vowel</th>
<th>Old English</th>
<th>Greek</th>
</tr>
</thead>
<tbody>
<tr>
<td>ø</td>
<td>nest ‘nest’</td>
<td>pterón ‘feather’</td>
</tr>
<tr>
<td></td>
<td>*ni-sd-ós ‘sit down [place]’</td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>sittan ‘sit’</td>
<td>pétomai ‘fly’</td>
</tr>
<tr>
<td></td>
<td>*sed-ye/o-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>setl ‘settle’</td>
<td></td>
</tr>
<tr>
<td>o</td>
<td>geset ‘act of sitting’</td>
<td>potáomai ‘fly hither and thither’</td>
</tr>
<tr>
<td></td>
<td>*sódos</td>
<td></td>
</tr>
<tr>
<td>ē</td>
<td>sēr ‘lurking-place’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>*sēdhe₂₁</td>
<td></td>
</tr>
<tr>
<td>ð</td>
<td>sōt ‘soot’</td>
<td>pōtáomai ‘fly about’</td>
</tr>
<tr>
<td></td>
<td>*sōdos ‘what settles’</td>
<td></td>
</tr>
</tbody>
</table>
European derivation. If we take the vowel *-e- as basic, the system of ablaut might be diagramed as follows:

\[ \theta \sim e \sim o, \bar{e} > \bar{o} \]

Table 4.15. Schleicher’s Tale

<table>
<thead>
<tr>
<th>Phrase</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gʷrh₄ei h₂owis</td>
<td>‘carry’</td>
</tr>
<tr>
<td>bhóros</td>
<td>‘what is borne, a load’ (from *bher-)</td>
</tr>
<tr>
<td>bheug-</td>
<td>‘flee’</td>
</tr>
<tr>
<td>ġhmén-</td>
<td>‘man’</td>
</tr>
<tr>
<td>ghe</td>
<td>intensifying particle</td>
</tr>
<tr>
<td>gʷhermós</td>
<td>‘warm’</td>
</tr>
<tr>
<td>gʷrh₅-</td>
<td>‘hill’</td>
</tr>
<tr>
<td>gʷrh₆u-</td>
<td>‘heavy’</td>
</tr>
<tr>
<td>h₁ékwo̱s</td>
<td>‘horse’</td>
</tr>
<tr>
<td>h₁ést-</td>
<td>‘is’</td>
</tr>
<tr>
<td>h₁oinos</td>
<td>‘one’</td>
</tr>
<tr>
<td>h₂owis</td>
<td>‘sheep’</td>
</tr>
<tr>
<td>h₂ék-</td>
<td>‘drive, pull’</td>
</tr>
<tr>
<td>h₂ékros</td>
<td>‘field’</td>
</tr>
<tr>
<td>h₁eghmutór</td>
<td>‘pains, is painful’</td>
</tr>
<tr>
<td>h₃nér</td>
<td>‘man’</td>
</tr>
<tr>
<td>h₃óku</td>
<td>‘fast’</td>
</tr>
<tr>
<td>k⁻e</td>
<td>‘and’</td>
</tr>
<tr>
<td>kʷós</td>
<td>‘who’ (genitive kʷéyo)</td>
</tr>
<tr>
<td>kʷer-</td>
<td>‘make’</td>
</tr>
<tr>
<td>mégh₄-</td>
<td>‘large’</td>
</tr>
<tr>
<td>moi</td>
<td>‘me’</td>
</tr>
<tr>
<td>ne</td>
<td>‘not’</td>
</tr>
<tr>
<td>néghi</td>
<td>‘not at all’</td>
</tr>
</tbody>
</table>

(Cont’d.)
Any further discussion takes us into realms of detail unintended for this book. But as an exercise in some of the principles, the reader is invited to tackle, with attendant glossary, the complete text of Schleicher’s tale (Table 4.15).

### Further Reading

Good recent surveys of Proto-Indo-European can be found in Fortson (2004), Meier-Brugge (2003), Szemerényi (1996), Tichy (2000), and Beekes (1995); see also Lockwood (1969); the most noteworthy earlier classical accounts can be found in Meillet (1937) and Brugmann (1897–1916). Specialist studies include Benveniste (1935, 1948), Jassano (2003), Kuryłowicz (1964, 1968), Lehmann (1952, 2002) Lindeman (1987), Mayrhofer (1986), Schmalstieg (1980), Specht (1944); syntax is discussed in Friedrich (1975) and Lehmann (1974). For Schleicher’s tale (Schleicher 1868), see also Lehmann and Zgusta (1979); other examples of extended Proto-Indo-European text can be found in Sen (1994), Danka (1998), and Macjion (1998).  

Etymological dictionaries of Indo-European include Buck (1949) and Delamarre (1991) which are both arranged semantically, and Pokorny (1959) which remains the starting point for most discussion; there are also Mann (1984–7) and Watkins (1985); encyclopedic presentations are to be found in Gamkrelidze and Ivanov (1995) and Mallory and Adams (1997). An index of the roots ascribed to Proto-Indo-European can be found in Bird (1993).

### Table 4.15. (Cont’d.)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>nu</strong></td>
<td>‘now’</td>
</tr>
<tr>
<td><strong>ŋsméi</strong></td>
<td>‘us’</td>
</tr>
<tr>
<td><strong>pótis</strong></td>
<td>‘master’</td>
</tr>
<tr>
<td><strong>r</strong></td>
<td>intensifying contrastive particle</td>
</tr>
<tr>
<td><strong>sebhi</strong></td>
<td>‘for oneself’</td>
</tr>
<tr>
<td><strong>spék</strong>-</td>
<td>‘see’</td>
</tr>
<tr>
<td><strong>tód</strong></td>
<td>‘that one’</td>
</tr>
<tr>
<td><strong>tu</strong></td>
<td>‘then’</td>
</tr>
<tr>
<td><strong>wégh</strong>-</td>
<td>‘move’</td>
</tr>
<tr>
<td><strong>wéstrom</strong></td>
<td>‘clothes’ (&lt; <em>wes-</em> ‘to dress’)</td>
</tr>
<tr>
<td><strong>wek</strong>-</td>
<td>‘speak’</td>
</tr>
<tr>
<td><strong>weid</strong>-</td>
<td>‘see’</td>
</tr>
<tr>
<td><strong>wóghos</strong></td>
<td>‘wagon’</td>
</tr>
<tr>
<td><strong>wih₂neh₂</strong>-</td>
<td>‘wool’</td>
</tr>
</tbody>
</table>
5
Relationships

5.0 Linguistic Relationships

The Indo-European languages share both internal and external relationships. The internal relationships are expressed as dialectal relationships among the different Indo-European languages while the external relationships are primarily concerned with the Indo-European language family and how it relates to others of the world’s language families.

5.1 Internal Relationships

We have already seen that within any of the Indo-European groups, there are also subgroups. For example, the East Slavic languages of Russian, Belorussian, and Ukrainian are all much more closely related to one another than any of them is related to Polish or Serbo-Croatian, two other Slavic languages. This situation represents subgrouping (Eastern Slavic) within an Indo-European language group (Slavic). What interests us here is, to what extent can we speak of subgroupings within Indo-European itself? August Schleicher (1861–2) proposed one of the earliest models of the relationship between the different Indo-European groups (Fig. 5.1) that portrayed the groups as branches stemming from a common trunk (Stammbaum), and the concept of a family tree, although often maligned as oversimplistic, is still the primary method
employed in indicating the interrelationships of the Indo-European languages. The problem with the tree’s simplicity is that the branching of the different groups is portrayed as a series of clean breaks with no connection between branches after they have split, as if each dialectal group marched away from the rest. Such sharp splits are possible, but assuming that all splits within Proto-Indo-European were like this is not very plausible, and any linguist surveying the current Indo-European languages would note dialectal variations running through some but not all areas, often linking adjacent groups who may belong to different languages. This type of complexity, which saw each innovation welling from its point of origin to some but not all other speakers (dialects, languages), is termed the ‘Wave theory’ (Wellentheorie). A detailed example is provided in Figure 5.2.

The ‘Wave theory’ provides a useful graphic reminder of the ways different isoglosses, the lines that show the limits of any particular feature, enclose some but not all languages. However, their criteria of inclusion, why we are looking at any particular one, and not another one, are no more solid than those that define family trees. The key element here is what linguistic features actually help determine for us whether two languages are more related or less related to one another. A decision in this area can be extraordinary difficult because we must be able to distinguish between features that may have been present throughout the entire Indo-European world (Indoeuropeia has been employed

Figure 5.1. Schleicher’s family tree of the Indo-European languages
to describe this concept) and have dropped out in some but not others against those features that are innovations in only some of the different groups. The historical linguist is principally looking for shared innovations, i.e. are there traces of corresponding developments between two or more language groups that would indicate that they shared a common line of development different from other language groups? Only by finding shared innovations can one feel confident that the grouping of individual Indo-European linguistic groups into larger units or branches of the tree is real.

Before looking at the picture as a whole, we will review the evidence for those relationships that finds fairly general consensus.

5.1.1 Anatolian and Residual Indo-European

Most linguists will argue that Proto-Anatolian was the first Indo-European language to diverge from the continuum of Proto-Indo-European speakers; there are also a considerable number who would argue that the split was made so early that we are not dealing with a daughter language of a Proto-Indo-European mother but rather a sister language (Fig. 5.3). Acceptance of this latter model is the foundation of the Indo-Hittite hypothesis, though many linguists who believe in the early separation of Proto-Anatolian would not use the term ‘Indo-Hittite’ but rather continue to use the term Indo-European.
The antiquity of the separation of Anatolian from the rest of Indo-European is argued on several grounds. The first is obviously Anatolian’s own antiquity: it is the earliest Indo-European group attested in the written record which begins c.2000 BC. More important is the fact that when Hittite (the earliest and most substantially attested Anatolian language) is compared with the other

Figure 5.3. A modern tree diagram of the Indo-European languages suggested by Eric Hamp (1990).
Indo-European languages, especially with its closest contemporaries, Indo-Iranian and Greek, it reveals on the one hand strikingly conservative features and on the other hand an absence of forms that one would have expected in an Indo-European language attested so early—how these absences are explained is one of the fundamental issues of determining the relationship between Anatolian and the other Indo-European languages.

Among the conservative features of Anatolian is the preservation of one laryngeal (*h₂) and traces of another (*h₃). Another is its productive use of what are known as heteroclitic nouns. One of the more curious types of declension reconstructed for Proto-Indo-European is nouns that have a stem in *r in the nominative but in *n in all other cases. While few traces are found in other Indo-European languages (where the stem is generally levelled one way or the other, for example, OE has r in water but ON has levelled the same word to n in vatn ‘water’), Hittite maintained this type as an active declension pattern (e.g. Hit wa¯tar ‘water’ in the nominative but genitive witenas). Another conservative trait of Anatolian is the preservation of two separate conjugational types characterized by different person-number endings. One type, easily recognized as cognate with the type found in other Indo-European languages, has -mi, -si, -ti as the endings of the first, second, and third persons singular. The other type, which has left only traces in the other IE groups, has the endings -hi, -ti, and -i instead.

On the other hand, Anatolian has no dual (as found in both Greek and Indo-Iranian), its verb has no subjunctive or optative (again unlike its Bronze Age neighbours), and it is questionable (arguments go both ways) whether there are any traces of a feminine in Anatolian. The augment *e-, which is found in the other Bronze Age languages (Indo-Iranian, Greek) and all the surrounding languages, i.e. Phrygian, Armenian, with possible traces elsewhere, is not found in Anatolian. The combination of conservatism on the one hand with absence of features found in the other two groups to emerge in the Bronze Age has led some to suggest that Anatolian did not share in a number of the developments that we find in any of the other Indo-European languages because it was not part of the Proto-Indo-European world when these developments occurred. This supposition then leads to the hypothesis that Proto-Anatolian and Proto-Indo-European were siblings of an earlier Proto-Indo-Hittite language.

Opponents to this theory are highly sceptical of employing absence of features in Anatolian as evidence for greater antiquity. They have long argued that as there were non-Indo-European languages in central Anatolia, it is just as likely that the original features were lost as Anatolian was taken up by the substrate population or employed initially as a trade language whose grammar was simplified to facilitate intercommunication.
5.1.2 Indo-Iranian

The sole uncontroversial subgrouping of Indo-European is Indo-Iranian, the super-group, if you will, that unites the Indo-Aryan and the Iranian languages. We have already seen that the similarities between Avestan and Sanskrit were such that there was a period in Indo-European research when Avestan was regarded as a dialect of Sanskrit. Table 5.1 illustrates this similarity in a much cited comparison between a verse from the Avesta and its literal transposition into Sanskrit. A comparison between the two texts reveals similarities that are so strong that often one need do no more than make an expected sound change in one language to effect a translation into the other. The two languages are so closely related that we can derive them from a common Indo-Iranian proto-language. This means that between Proto-Indo-European and the Indo-Aryan and Iranian groups, there was also a Proto-Indo-Iranian stage. To this group, it might be noted, belongs one further subgroup. Only recorded since the nineteenth century, the five Nūristānī (also termed Kafiri, a term that means ‘infidel’ and is hardly politically correct today nor since their conversion to Islam is it any longer true) languages of the Hindu-Kush have provided evidence that their ancestor does not appear to have been either Indo-Aryan or Iranian but is more likely to derive directly from Proto-Indo-Iranian and possibly represents a third ‘branch’ of the super-group although there are arguments that set them closer to either Indo-Aryan or Iranian.

Precisely when this stage existed we cannot say, but we already have evidence by c.1400 BC for the existence of a separate Indo-Aryan language. The evidence

<table>
<thead>
<tr>
<th>Language</th>
<th>Proto-Indo-Iranian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avestan</td>
<td>təm amavantəm yazatəm</td>
</tr>
<tr>
<td>Old Indic</td>
<td>təm āmavantam yajatām</td>
</tr>
<tr>
<td>Proto-Indo-Iranian</td>
<td>*təm āmavantam yajatām</td>
</tr>
<tr>
<td>Avestan</td>
<td>sūrəm dāmōhu səvištəm</td>
</tr>
<tr>
<td>Old Indic</td>
<td>śāram dhāmasu śāviṣtham</td>
</tr>
<tr>
<td>Proto-Indo-Iranian</td>
<td>*cāram dhāmasu cāviṣtham</td>
</tr>
<tr>
<td>Avestan</td>
<td>mītrəm yazāi zaotrābyō</td>
</tr>
<tr>
<td>Old Indic</td>
<td>mītrām yajāi hōtrābhyaḥ</td>
</tr>
<tr>
<td>Proto-Indo-Iranian</td>
<td>*mītrām yaţ āi jhāautrābhyaḥ</td>
</tr>
</tbody>
</table>

Table 5.1. Yašt 10.6 from the Avesta and a Sanskrit translation

Mithra, I honour with libations
is intriguing in that it does not come from India but rather from northern Syria which was controlled by an ancient people known as the Mitanni. The Mitanni were contemporaries of the Hittites and their language was Hurrian, a non-Indo-European language attested to the south of the Caucasus in eastern Anatolia. But some of their leaders bore Indo-Aryan names, and in a peace treaty between themselves and the Hittites, they appended to a long list of deities guaranteeing the treaty the names of Indara, Mitrašil, Našatianna, and Uruvanaššil which would have been rendered in India as Indra, Mitra, Naṣa-tya, and Varuṇa, principal gods of the Vedic religion. How much further back the Indo-Aryan languages separated from the Iranian we cannot say but there seems to be a general impression that sets the split to sometime around 2000 BC. Before this period we might imagine the period of Proto-Indo-Iranian.

The grouping of Indo-Iranian together is not based solely on the obvious similarities between the languages but also certain common innovations. There are a number of words that occur in both Indic and Iranian but not in any other Indo-European language. Some of these concern religious concepts, e.g. Proto-Indo-Iranian *ətharwan- ‘priest’, *ṛśi- ‘seer’, *ućig- ‘sacrificing priest’, *anču- ‘soma plant’. Both the ancient Indo-Aryans and Iranians drank the juices of the pressed soma plant (Indo-Iranian *sauma > Sanskrit soma and Avestan haoma). Moreover, there are also some names of shared deities as well as a series of animal names (hedgehog, tortoise, pigeon, donkey, he-goat, wild boar, and camel), architectural names (pit, canal, house, peg), and a variety of other terms. These common elements suggest that the Proto-Indo-Iranians borrowed certain words from a presumably non-Indo-European culture before they began their divergence into separate subgroups.

5.1.3 Balto-Slavic

Although there are still some (more often Balticists than Slavicists) to contest the close association of Baltic and Slavic, majority opinion probably favours a common proto-language between Proto-Indo-European and the Baltic and Slavic languages, i.e. during or after the dissolution of Proto-Indo-European there was a stage of Proto-Balto-Slavic before the separation of the two language groups. This proto-language may not have undergone a simple split into Proto-Baltic and Proto-Slavic. Another possibility often put forward is that Balto-Slavic became divided into three subgroups: East Baltic (Lithuanian and Latvian), West Baltic (Old Prussian), and Slavic. In any case the two groups (Baltic and Slavic) or the three groups (East Baltic, West Baltic, and Slavic) remained in close geographical and cultural contact with one another.
and have continued to influence one another long after the initial division into separate groups. They share a number of items of vocabulary not found in other Indo-European groups as well as new grammatical features such as the definite adjective built on the adjective plus the relative pronoun *yos, new accent and comparative adjective patterns, etc. (Oszwald Szemerényi lists fourteen although more than half are disputed). What is particularly interesting is that the Balto-Slavic languages are satem languages like Indo-Iranian and some suggest some form of historical connection between the two supergroups. In addition to satemization, all these groups obey what is known as the ruki-rule, i.e. *s is palatalized to *š after *r, *u, *k, or *i, e.g. Grk térsomai ‘I become dry’ but Skt tṛṣyáti ‘he thirsts’, Av tāṣṇa- ‘thirst’, Lith tūštus ‘thirst’.

5.1.4 Contact Groups?

There are a number of other proposed relationships. Some argue that similarities between Greek and Armenian are such that there was a common Graeco-Armenian, while Italo-Celtic has been another long suggested and just as frequently rejected proposition. In both of these cases, we do not require a proto-language between Proto-Indo-European and the individual languages as we do with Indo-Iranian, and so the case for these other sets is simply not as strong as it is for Indo-Iranian and Balto-Slavic. Generally, when similarities between Greek and Armenian, say, or Italic and Celtic are found, it is presumed that they may have been a result of contact relations between the ancestors of the different languages, and these relationships may have been intense, but insufficient to view these similarities as evidence for discrete Proto-Graeco-Armenian or Proto-Italo-Celtic. Here, the concept of the ‘Wave theory’ probably has a significant role to play.

A major group presumably created or maintained by contact is labelled the North-West group and comprises Germanic, Baltic, and Slavic (as one chain whose elements may have been in closer contact with one another), and additionally Italic and Celtic. The link between these languages is largely that of shared vocabulary items: thirty-eight were originally proposed but more recent studies list up to sixty-four lexical innovations, although they do not cross all languages uniformly. Items include words such as ‘rye’ (ON rugr ‘rye’, OE ryge ‘rye’ (> NE rye), Lith (pl.) rugiai ‘rye’, OCS růži ‘rye’ from an earlier *ruğhis), the type of ‘culture word’ that could be introduced into one area and then spread through a larger region along with the item itself. The evidence suggests that this spread occurred at some time before there were marked divisions between these languages so that these words appear to have been ‘inherited’ from an early period.
In some cases the loans are obviously late and involved an alien phonetic shape that challenged each language, e.g. the word ‘silver’ (Ibero-Celt $\acute{\text{s}}\text{ila}Pur (/\text{sil}abur/) ‘silver’, ON $\text{silfr}$ ‘silver’, OE $\text{seolfor}$ ‘silver’ (> NE silver), Goth $\text{silubr}$ ‘silver’, Lith $\text{sid\acute{a}bras}$ ‘silver’, Rus $\text{serebro}$ ‘silver’) where the best we can reconstruct is *$\text{silVbVr}$- where V stands for unknown vowels.

5.1.5 Family Trees

We can now return to the concept of a family tree and the relationships between the different Indo-European languages.

1. Anatolian is generally recognized as the first Indo-European language to have separated from the remaining languages (or, alternatively, the rest of Indo-European moved away from Anatolian). Whether one wishes to see this separation as an event so early that Anatolian did not share innovations developed by all other Indo-European languages (the Indo-Hittite hypothesis) or whether Anatolian simply departed somewhat earlier but may still be analysed like any other Indo-European language is, as we have seen, still debated.

2. The Indo-Iranian languages form a distinct super-group.

3. The Balto-Slavic languages, although somewhat more questionable than Indo-Iranian, are generally held to form a single super-group.

4. The Indo-Iranian and Balto-Slavic languages share both satemization and the ruki-rule and may have developed as some form of west–east (or north-west–south-east) continuum with certain features running through them.

5. There were close contact relations between Greek and Armenian at some period of their existence prior to their emergence as discrete language groups. This contact is plausible as many would see both their origins to lie in the Balkans, so that their ancestors were once more closely situated to one another than their present distribution suggests. There are also connections between this Graeco-Armenian group and Indo-Iranian, particularly with regard to what are probably late Proto-Indo-European morphological innovations, but there are also a series of lexical isoglosses confined to Greek and Indo-Iranian.

6. There were contact relations between the ancestors of Italic and Celtic. Again such contact is entirely plausible as the two groups were historically adjacent to one another in west central Europe.

7. The North-West European languages (Germanic, Baltic, Slavic, Celtic, Italic) shared a series of common loanwords (probably created among themselves as well as derived from some non-Indo-European source) at some period in their antiquity before they emerged as distinct Indo-European groups.
8. The position of Tocharian with respect to the other Indo-European groups is a major issue of contention. However, there is no grammatical evidence that it was strongly associated with its nearest neighbour, Indo-Iranian. Many suggest that its connections appear to lie further west, with Germanic in particular, or that Tocharian represents a peripheral language that separated from the other Indo-European groups at a very early date (Fig. 5.4).

9. In time sequencing Indo-European developments, there has been a tendency to see the more peripheral languages such as Celtic in the west and Tocharian in the east as the language groups that separated earliest (after Anatolian).

How the various relations were played out in three-dimensional (geographical) space is nearly impossible to determine. The assumption that Italo-Celtic relations occurred on the Italian–French border, for example, is purely presumptive and the actual relationship could have been developed distant from both Italy and France/Switzerland before either language group had achieved its historical position. Similarly, the common innovations of other contact groups may have occurred long before the component language groups emerged in their earliest historically attested locations.

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**Figure 5.4.** A recent family tree of the Indo-European languages prepared by D. Ringe, T. Warnow and A. Taylor (1995).
5.2 External Relations

Indo-European is but one of the world’s language families and it obviously had non-Indo-European neighbours both before and over the course of its expansions. There are two ways in which Indo-European may have related to these neighbours: through contact or through genetic inheritance.

A contact relationship would occur when two languages were adjacent to one another and there were loanwords, possibly even grammatical or phonological borrowing, between the two. It should be emphasized that the movement of loanwords need not be the result of direct contact, i.e. Indo-European with language X, but may have been the result of indirect contact, i.e. language Y passes a word to language X which then passes it on to Indo-European (a good example of the circuitous route a loanword might take through space and time is the Avestan word *pairi-daēza- ‘enclosure’ that was borrowed into Greek as *parádeisos ‘garden’ then into Late Latin as *paradītsus whence into Old French paradis, and, finally, into English paradise). Secondly, the contact relationships may have occurred during differing stages of each language family’s evolution, e.g. the loan may be between the proto-language of one family and a late descendant of another family.

A genetic relationship is one in which Proto-Indo-European would be seen as a constituent element of a still larger family of languages, i.e. the Proto-Indo-European tree is reduced to a bundle of branches on a still larger linguistic tree.

5.2.1 Indo-European-Uralic

Indo-European shares Europe with one other major language family—Uralic, the family to which Hungarian, Finnish, Estonian, and a number of other languages found to both the west and east of the Urals belong. Relationships between the two have been proposed for many years and primary debate concerns: (1) whether they are evidence of an earlier genetic relationship or contact-induced loanwords, and (2) to which stage precisely of both Indo-European and Uralic these loanwords belong. Károly Rédei offers a total of seven words that are attributed to the earliest period (PIE *mei- ‘exchange’: PU *miye- ‘give, sell’; PIE *mesg- ‘dip under water, dive’: PU muške- ‘wash’; PIE *h₁pomn̥ ‘name’: PU nime ‘name’; PIE *sneh₁wṛ ‘tendon’: PU sene ‘vein, sinew’; PIE *deh₂ ‘give’: PU toye- ‘bring’ (note the representation of the PIE laryngeal by PU *h₂); PIE *h₁weseh₂ ‘gold’: PU waške ‘some metal’; PIE *wōdṛ ‘water’: PU wete ‘water’). Some of these words have been also employed to argue a genetic rather than contact relationship between Indo-European and
Uralic. Subsequent loanwords are reputed to be between various stages of Indo-European, generally Indo-Iranian, and the Finno-Ugric languages, i.e. a subgrouping of Uralic, or even more recent stages of the Uralic languages. For example, Finnish *parsas ‘pig’ could only have come from a satem language such as Iranian (Proto-Iranian *persos ‘pig’) rather than an earlier form such as PIE *pórkos ‘pig’. A number of these later words concern exchange relationships, e.g. ‘value’, ‘portion’, ‘hundred’, ‘thousand’, ‘commodity’, words associated with agriculture, e.g. ‘grain’, or stockbreeding, e.g. ‘pig’, ‘ox’, and suggest that at various stages of Indo-European, Uralic speakers were absorbing some elements of a farming economy and probably more complex social concepts from Indo-Europeans to their south.

5.2.2 Indo-European and Semitic

Unlike the relationship between Indo-European farmers and Uralic hunter-fishers, the Indo-Europeans were likely to have been economically less advanced and socially less complex than contemporary Semitic societies. Relationships with Semitic, one of the subgroups of the Afro-Asiatic language family that spanned the Near East and northern Africa, including ancient Egyptian, have been long discussed in Indo-European studies. The better-known Semitic languages are Hebrew, Arabic, and Aramaic.

In their study of Indo-European origins, Thomas Gamkrelidze and Vyacheslav Ivanov suggest that the Semitic vocabulary borrowed into Indo-European is primarily concerned with farming, technology, and numerals. They list seventeen potential loanwords such as ‘bull’, ‘goat’, ‘lamb’, ‘monkey’, ‘grain’, ‘grinding stone’, ‘honey’, ‘axe’, ‘boat’, ‘sacrifice’, ‘star’, and ‘seven’. Some of these comparisons are far more speculative than others, e.g. the Proto-Indo-European word for ‘goat’ (*ghaidos) that is compared with Proto-Semitic *gadyi- is only attested in Latin and Germanic and it is far more easily assumed to be a regional word of North-West Indo-European rather than Proto-Indo-European. If such is the case, the resemblance of *ghaidos and Semitic *gady- would be entirely accidental. Similarly, the words for ‘monkey’ occur in only two Indo-European languages, Greek kêpos and Sanskrit kapî-, but these are far more easily explained as late loans from some Semitic language than as an inheritance from Proto-Indo-European: the export of monkeys as a prestigious gift was known in the eastern Mediterranean from the Bronze Age onwards. The more significant Semitic-Indo-European comparisons are Proto-Indo-European *mēdhu ‘honey’: Proto-Semitic *mVik- ‘sweet’; Proto-Indo-European *tauros ‘wild bull, aurochs’: Proto-Semitic *tawr- ‘bull, ox’; Proto-Indo-European *septm ‘seven’: Proto-Semitic *sab’datum; and Proto-
Indo-European *wṓinom* ‘wine’: Proto-Semitic *wayn* ‘wine’ (although this last word could also claim to have a decent IE pedigree).

The correspondences between Indo-European and Semitic are generally explained as flowing from Semitic into Indo-European at the level of the Indo-European proto-language itself. As for the mechanics of such loanwords, some maintain that they could only have been made if the Proto-Indo-European- and Proto-Semitic-speaking populations were living adjacent to one another (presumably somewhere in South-West Asia) or that these loanwords had passed through other intermediaries over a greater distance. Lesser claims for borrowing into or out of Proto-Indo-European have been made with reference to Sumerian, Kartvelian, and other Caucasian languages.

### 5.3 Genetic Models

It is logically imperative that Proto-Indo-European had its own prehistory and was descended from earlier languages and was likely to have had its own linguistic siblings. Attempts to substantiate such hypothetical relationships have been made on the small scale, e.g. with Proto-Indo-Uralic or Proto-Indo-Semitic, and on much larger scales where a series of language families have been combined into a single unit. The evidence for genetic constructs relies heavily on the same type of evidence that others adduce for contact relationships, e.g. that Proto-Indo-European and Proto-Uralic both share a common term for something as basic as ‘water’. But further evidence derives from morphological comparisons which, in the attempt to distinguish between borrowing and inheritance, we already know count for far more. For example, in Table 5.2, we see again the reconstructed Proto-Indo-European pronouns compared with those in Proto-Afro-Asiatic and Proto-Uralic.

Rather than relations between Indo-European and one other family, most effort along these lines is now devoted to the reconstruction (and the confirmation

<table>
<thead>
<tr>
<th></th>
<th>PIE</th>
<th>PUralic</th>
<th>PAfro-Asiatic</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>*h₁eŋ/*h₁éme</td>
<td>*me</td>
<td>*ma/-*mə-</td>
</tr>
<tr>
<td>we two</td>
<td>*nôh₁</td>
<td>—</td>
<td>*na/-*nə-</td>
</tr>
<tr>
<td>we (plural)</td>
<td>*wêi</td>
<td>—</td>
<td>*wá/*wə-</td>
</tr>
<tr>
<td>you</td>
<td>*tûh₂</td>
<td>*te</td>
<td>*l₃/₃-/*l₃/₂-</td>
</tr>
<tr>
<td>who</td>
<td>*kʷós</td>
<td>*ku/*ko</td>
<td>*k₃/₃-/*k₃/₂-</td>
</tr>
</tbody>
</table>

**Table 5.2. Pronouns in Proto-Indo-European, Proto-Uralic, and Proto-Afro-Asiatic**
of the existence) of Eurasiatic and Nostratic. Eurasiatic as a hypothesis comprises Indo-European, Uralic-Yukaghir, Altaic, Korean, Japanese, Ainu, Gilyak (Nivkh), Chukotian (Chukchi-Kamchatkan), and Eskimo-Aleut in a single large genetic unit. In its most recent formulation it is based on 72 grammatical features and 437 items of vocabulary. Nostratic is the proposed mega-family that would unite Indo-European, Afro-Asiatic, Uralic, Altaic (Turkish, Mongolian, etc.), Kartvelian (Georgian), and Dravidian (languages of the southern third of India), and possibly several other families (some would exclude Afro-Asiatic and Dravidian from this list). In the dictionary of Nostratic published by Allan Bomhard, there are about 650 Nostratic roots which have been proposed to underlie Indo-European roots. One notes that evidence cited to establish contact relations can find itself being reinterpreted in terms of genetic relations, e.g. Nostratic *madw-/mēdw- ‘honey, mead’ is cited as the proto-form for the words for ‘honey’ not only in Indo-European but also Afro-Asiatic and Dravidian.

The Nostraticists propose that Nostratic existed about 15,000–12,000 BC, among hunter-gatherers, generally somewhere in South-West Asia (Fig. 5.5). They have opponents in abundance who challenge the entire concept of Nostratic, and most certainly one’s ability to reconstruct proto-languages at such a time depth and the entire issue of time are so critical that we devote the next chapter to it.

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**Figure 5.5.** The Nostratic languages according to A. Bomhard (1996).
Further Reading

The internal relationships of the Indo-European languages can be found in Porzig (1954), Meillet (1967), and Stang (1972). There is a large literature devoted to external relations: they are discussed at length in Gamkrelidze and Ivanov (1995); for IE-Uralic connections see Collinder (1974), Rédei (1988), and the papers to be found in Carpelan, Parpola, and Koskikallio (2001); for IE-Semitic relations see Brunner (1969), Levin (1973), Bomhard (1977), and D’iakonov (1985); for IE-Kartvelian see Klimov (1991); for Eurasian see Greenberg (2000–2); and for Nostratic see Bomhard and Kerns (1994), Bomhard (1996), Dolgopolsky (1998), and the many papers in Renfrew and Nettle (1999).
6

A Place in Time

6.0 The Fourth Dimension

We have considered the conceptual space of the Indo-European groups, their interrelationships with one another, and now it is time to enter the fourth dimension and consider their place in time or, as it is usually expressed in linguistics, time depth. Establishing time depth involves a combination of serenely difficult theoretical issues and some extraordinarily tricky practical problems. The theoretical problems stem from the fact that we are ultimately attempting to discuss the absolute dates, i.e. BC/AD dates, of a hypothetical construct. There are a lot easier things to do.

6.1 Time Depth

Many linguists adhere to the concept that Proto-Indo-European in the sense of the linguistic forms that we reconstruct is a hypothetical abstraction. This abstraction goes beyond the argument between those who maintain that our reconstructions are merely formula and those who assert that these formulas are still fair approximations of a real language. Rather, it can be argued that the
abstract formulas, even if they are approximations, are not approximations set in real time, i.e. they do not go back to a common point or a single language but rather simply reflect reconstructable words, morphological forms, and syntactic processes that need not have been contemporary. We can discuss their relative order but this is not the same as the reconstruction of the entire state of a language at a particular moment in time. This concept of the proto-language as a timeless conglomeration of linguistic fragments is contrasted with the idea that there must have been a speech community that spoke a real language that was ancestral to the historically known Indo-European languages. Real people speak real languages in real time. It is interesting that linguists sceptical of joining reconstructed Proto-Indo-European with “real” Proto-Indo-European have tended to rediscover these distinctions every generation since at least the late nineteenth century. Their arguments may be correct but they have not become any better.

Generally, when one attempts to straddle the demands of the pure linguist and the logical needs of the cultural historian who is looking for a prehistoric Proto-Indo-European, the definition is then cautiously reshaped to describe the final state of the Proto-Indo-European language before its break-up and the dispersal or formation of the various daughter groups. The looseness of this definition also has its problems since “dispersal” is not necessarily equivalent to language change although, in time, it will stimulate differentiation.

The bottom line then becomes: what is the latest date that Proto-Indo-European could have existed? This question is partly answered by examining the earliest date that any of the Indo-European groups did exist. The three earliest are Anatolian at c. 2000 BC, Indo-Iranian at c.1400 BC (Mitanni treaty), and Greek at c.1300 BC or somewhat earlier (Linear B tablets). If we presume a Proto-Indo-European that includes Anatolian (rather than the Indo-Hittite hypothesis, which makes Anatolian a sister of Indo-European rather than a daughter), then Proto-Indo-European must be set before 2000 BC when Anatolian is historically attested. How long before? Once we ask this question, we enter the slippery world of intuitive extrapolation. The more cautious will not venture far. For example, Stefan Zimmer urges linguists and archaeologists not to use the word Proto-Indo-European for anything ‘linguistic or archaeological’ older than c. 2500 BC, but such caution, which in any case may well be misplaced, is not shared by most linguists who venture into the area of time depth.

In this chapter we will review the attempts to push beyond 2500 BC and clarify the chronology, both relative and absolute, of Proto-Indo-European. Relative is all some linguists will grant us anyway so we will begin there.
6.2 Relative Chronologies

A relative chronology simply expresses a relationship between two or more ‘events’, i.e. it seeks to determine whether A is older or younger than B. For at least the past century there have been linguists who have been attempting to discern the different layers of Indo-European and here we can employ the archaeological term ‘seriation’ to describe this process of ordering layers. There have been three basic techniques of linguistic seriation: morphological, semantic, and geographical; these are very crudely equivalent to an archaeologist attempting to order a sequence of artefacts by typology (style), context, and by distribution.

6.2.1 Morphological Seriation

If we consider the morphology of plural formations in English, we would note that the names of many of our most basic livestock tend to have irregular plurals, i.e. not the simple -s plural, or, if they do have it, they may still retain older formations, e.g. *cow/kine, *sheep/sheep, *ox/oxen. The conclusion drawn from this situation is that the domestic animals obviously belong to a relatively archaic layer of the English vocabulary.

From time to time linguists such as Alfons Nehring and Franz Specht have attempted to apply similar techniques to the reconstructed morphology of Proto-Indo-European. For example, the heteroclitic nouns, those that have an -r ending in the nominative singular but then an -n in all the other cases, e.g. **wōd-r ‘water’ but genitive singular *wēd-n-s, are seen to be among the earliest layers of Indo-European nouns. This proposal was supported, it was argued, by the fact that the semantic fields of these heteroclitics are among our most basic vocabulary, e.g. ‘light’, ‘day’, ‘year’, ‘water’. The next level would be the root-nouns and the consonant-stems, with a third and final period marked by our o-stems and -ā- (or *-eh2-) stems. This scheme always worked better in theory than in practice because there were too many o-stems that seemed to belong to pretty basic layers of the Indo-European vocabulary. For example, beside the domestic animals of the reconstructed lexicon, there also lurk the *h₂gĩkos ‘bear’ and *w₁kʷos ‘wolf’, and the forest revealed the *bherh₂gos ‘birch’. These basic items of the lexicon required explaining away and of course explanations were offered. For instance, the names of fierce animals were o-stems because they were not the real names of the animals but rather late circumlocutions, e.g. the word for bear could be derived from a root meaning ‘destroy’, and wolf is the adjective ‘dangerous’ changed into a noun with a shift
in accent (Chapter 9). The birch word could be explained as the ‘bright one’. In all these cases, so it is argued, we are reconstructing words of no great antiquity that may have been created either to avoid tabu, i.e. names of fierce animals are often governed by tabu (you don’t say the name of you-know-what or you might find yourself its next meal), or they are derived from poetic language. The conundrum here is fairly obvious—if these words, tabu replacements or poetic epithets, were created to replace another word, they presuppose the existence of the earlier word, i.e. Indo-Europeans surely knew of bears and wolves and had a name for the animals before they replaced it with another word; alternatively, at an equally early date, the Proto-Indo-Europeans burst into a rapture of poetic metaphor in first encountering a wolf or bear. Thus this technique can decide the antiquity of the formation but not of the actual object. An older word might not only be replaced by a newer epithet but also might be rebuilt to look like a newer word itself. Certainly the histories of all attested branches of Indo-European show a pattern of replacement whereby other stem-types are replaced by (the descendants of) o-stems, e.g. the history in New English whereby cow/kine (where kine has itself replaced Old English cyð) has been replaced by cow/cows. And, there is no reason to suppose that Proto-Indo-European itself was immune to this same tendency, and therefore a reconstructed o-stem may not be a new word at all but merely the morphological renewal of an old word. A good example comes from the word for horse, *h₁eḱwos, since one might presume that the wild horse was known to the Proto-Indo-Europeans. F. Specht got around this by regarding the horse word as a remodelled u-stem, i.e. it was an old word in the proto-language with a relatively archaic shape in earlier stages of the language that was then changed to an o-stem in a later period.

Other attempts to seriate the Indo-European lexicon argued that we could divide the words between those that indicated ablaut of the root and those that did not and thus were more recent. In this case the reconstructed word for ‘birch’ provides a good example. While some branches of Indo-European would appear to have words for ‘birch’ that reflect a Proto-Indo-European *bherh₁.x̱gös, others would appear to reflect a Proto-Indo-European *bh₁yhx̱.gös. The alternation of a full-grade (*-er-) and a zero-grade (*-r-) makes it reasonable to suppose that the o-stem formation of both is a later addition, albeit one of Proto-Indo-European age, to an older ablauting paradigm without it (i.e. something like *bh₁erh₁.dx̱gś [nominative], *bh₁yhx̱.gós [genitive]). Hans Kuhn added that the reconstructed PIE *a was another marker of a more recent layer of Indo-European and this could be confirmed by its frequent presence in words associated with agriculture. Robert Beekes and some other linguists would argue that the *a is not Proto-Indo-European at all but indicates a later formation or loanword from a non-Indo-European substrate. This association of *a with newness is
today not nearly so strong, as many of the \textit{a}-vocalisms are now treated as the result of an \textit{a}-colouring laryngeals on an adjacent \textit{*-e-}.

What then can the morphological system really say about the antiquity of the concept? Probably less than frequently claimed. An archaic formation such as the heteroclitics can support a case for antiquity but the problem still remains, older than what? Older than an \textit{o}-stem noun? If it means that the formation may be older, this may well be true, but unless the concept itself is inherently related to its morphological class, then very little intelligent can be concluded or, worse, something very unintelligent may be deduced. We can survey the English language and note that \textit{cow} has a regular plural in \textit{cows} but \textit{ox} has a more archaic plural as \textit{oxen}. Does this mean that oxen are older in English culture than cows? From the standpoint of linguistic history, such a conclusion is absurd, as both ‘cow’ and ‘ox’ derive from Proto-Indo-European words, \textit{*gʷʰus} and \textit{*ukʷsen-} respectively.

\textbf{6.2.2 Semantic Seriation}

Another approach to discerning the layers of Indo-European vocabulary has been the analysis of the different semantic stages of the reconstructed vocabulary. For example, Sanskrit \textit{ayäs} clearly indicates ‘copper’ or ‘bronze’ in earlier Indic texts but comes to mean the technologically later ‘iron’ in later texts. This shift in meaning is an example of semantic change within a particular stock where our records of the language can confirm the change over time. The same kind of problem can arise when comparing two or more stocks: while comparative analysis may recover but a single proto-form, the different stocks may reflect different underlying meanings. Thus it has long been observed that PIE \textit{*h₂egros} ‘field’ revealed a semantic split between Indo-Iranian where it meant ‘plain’ and the European languages where the same root invariably referred to a ‘cultivated field’. Wilhelm Brandenstein regarded this semantic divergence as evidence that the Indo-Europeans had dispersed at various stages of the evolution of the Indo-European vocabulary and that the Indo-Iranians had separated before the word for ‘field’ had come to mean ‘cultivated or arable field’. He collected a large body of lexical evidence to distinguish between what he regarded as an early phase of Indo-European which was primarily pastoral and where its population lived where there were hills, swift running water, and warm weather and then, after expansion into Europe, revealed semantic shifts to colder, wetter weather and the adoption of farming. His conclusions were far more than the slender weight of evidence could carry and were very much anchored in a highly doubtful model of the origins of agriculture, i.e. that nomadic pastoralism preceded settled agriculture, that is generally not found creditable today.
6.2.3 Geolinguistic Seriation

A once popular school of comparative linguistics, perhaps more so in Italy than elsewhere, was geolinguistics, an approach to languages which emphasized that one could determine the antiquity of a word from its spatial distribution. According to the geolinguists, the centre of language areas tended to be where innovations developed and then spread, perhaps not entirely, to the periphery; conversely, peripheries tended to be more conservative of earlier layers of speech. A classic for adherents of this school was to be seen in the words for ‘fire’ in Proto-Indo-European. We reconstruct two words as seen in Table 6.1.

Giulio Bonfante argued that the two words were in contrasting distributions (he did not have all the lexical data at hand at the time) and that the more ‘central’ term was *pēh₂ur while the more peripheral word was *h₃.ŋgʷnis. Originally, all the languages should have possessed the second term, which appears in Indic as the name of a deity and indicates fire in its ‘animate’ form, while *pēh₂ur was seen to have spread from the centre toward the periphery and begun to replace the more animate word with ‘fire as instrument’. This explanation fails to convince on a number of grounds. To begin with, if the Indo-Hittite hypothesis has any force, then the presence of the innovative form in Anatolian is hardly indicative of its more recent date. One might also note for instance that Tocharian, as far out on the periphery as any Indo-European language, attests only *pēh₂ur, supposedly the innovative, central form. It is also surprising that, in this pair, the supposedly innovative word *pēh₂ur is of the archaic heteroclitic form while the presumably more archaic *h₃.ŋgʷnis belongs to what is usually thought to be a younger morphological type. Today, the distinction between animate (*h₃.ŋgʷnis) and instrument (*pēh₂ur)

Table 6.1. Indo-European words for ‘fire’

<table>
<thead>
<tr>
<th>Language</th>
<th>Form</th>
<th>Meaning</th>
<th>Form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIE</td>
<td>*pēh₂ur</td>
<td>‘fire’</td>
<td>*h₃.ŋgʷnis</td>
<td>‘fire’</td>
</tr>
<tr>
<td>Italic</td>
<td>Umb pir</td>
<td>‘fire’</td>
<td>Lat ignis</td>
<td>‘fire’</td>
</tr>
<tr>
<td>Germanic</td>
<td>OE fyr</td>
<td>‘fire’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baltic</td>
<td>OPrus panno</td>
<td>‘fire’</td>
<td>Lith ugnis</td>
<td>‘fire’</td>
</tr>
<tr>
<td>Slavic</td>
<td>Czech pýř</td>
<td>‘ashes’</td>
<td>OCS ogni</td>
<td>‘fire’</td>
</tr>
<tr>
<td>Greek</td>
<td>Grk pûr</td>
<td>‘fire’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Armenian</td>
<td>Arm hur</td>
<td>‘fire’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anatolian</td>
<td>Hit pahhur</td>
<td>‘fire’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tocharian</td>
<td>TochB puwar</td>
<td>‘fire’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sanskrit</td>
<td>—</td>
<td>agni- ‘fire’</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
would still be made, but these would be regarded as two contrasting concepts both attributed to the proto-language where one or the other stabilized in a particular group. In the case of Italic, the loss of contrast between *pēh₂ur and *h₃gʷnis must have occurred after the break-up of that group, since Umbrian shows generalization of the former word and Latin generalizes the latter. A second example leads to the same conclusion. The fact that the word often reconstructed as ‘king’, *h₃rēgs, is attested only in Celtic (Gaul rix, OIr rí), Italic (Lat rēx), and Indo-Iranian (Skt rāj-) suggested to the geolinguists that Proto-Indo-European society had once been ruled by strong kings but a democratic revolution of the centre had replaced them, and hence the absence of the word in the centre of the Indo-European world. However, while the absence of an inherited word for ‘king’ may indeed betoken a major social change, it may also simply reflect a change in the designation of the ruler, whose social function continued largely as it had been. In any case, if the lack of the inherited word for ‘king’ in certain Indo-European branches is due to a social revolution, the revolution would appear to have been independently produced in all of those branches where it took place because the ‘central area’ shows no common replacement terminology.

There are certain core–periphery phenomenon in Indo-European but there would be few if any convinced today by the socio-chronological arguments of the geolinguists.

6.3 Absolute Chronologies

The relative dating of the evolution of Indo-European is all that many linguists might not only aspire to but admit as a possibility. On the other hand, unless Proto-Indo-European can be provided with an approximate absolute date, i.e. a date in years BC, then it will prove impossible to relate the Indo-European languages as a linguistic phenomenon with the prehistoric record. Linguists have proposed four different techniques for assigning an absolute date to a proto-language.

6.3.1 External Contact Dating

A modern English dictionary will reveal that the English language contains the word sputnik which refers to any number of artificial satellites. The term need not refer specifically to a Russian satellite but might be loosely employed for any satellite. The date of its introduction into English was 1957 with the launch of the first Russian satellite bearing that particular Russian name. This is a
loanword then that carries with it a specific date. It has been suggested (and rejected) that we might discover similarly datable words in Proto-Indo-European that might suggest an approximate date for the proto-language itself.

The credibility of using loanwords to date Proto-Indo-European rests largely on our ability to date the loanwords in the first place. We already know that Indo-European languages had already differentiated by c. 2000 BC because that is the time when we encounter our first evidence of the Anatolian languages. If we seek a language earlier than c. 2000 BC, there are not many recorded that we can confidently read other than Egyptian, Sumerian, Elamite, Hurrian, and Akkadian. In 1923 Günther Ipsen thought that he could find such a datable relic when he proposed that Proto-Indo-European *h₂stēr ‘star’ (putting his reconstruction in modern symbols) be derived from Akkadian istar, attested c. 2000 BC, and not from any other earlier Semitic form, e.g. Proto-Semitic *attar ~ *aētar. In so doing, he thought that he had proved that Proto-Indo-European had survived at least until 2000 BC when the form istar first appeared in Akkadian texts. Of course, this conclusion is contradicted by the existence of a separate Anatolian stock already by 2000 BC, and there is hardly a step in the reasoning regarding the ‘star’ word that has not been challenged, e.g. some derive it from Proto-Semitic, others claim that the word in Semitic only came to mean ‘star’ (in general) at a later date and hence the meanings are not comparable, and some maintain that the Indo-European word for ‘star’ is home-grown and not a loanword and can be derived from Proto-Indo-European *h₂eh₂s- ‘burn’ (see Section 8.4). By and large there are no credible loanwords ascribed to Proto-Indo-European that can provide an absolute date for it unless one wishes to trust the absolute dating of others’ proto-languages (blind leading the . . .).

Günther Ipsen’s foray into dating Proto-Indo-European demonstrates how the technique is employed, and the use of external contacts is very much with us in the dating of prehistoric language phenomena. For example, there are Indo-Iranian (or later) loanwords in the Uralic languages and it has been presumed that as Indo-Iranian as a subgroup of Indo-European first formed c. 2500–2000 BC, this is the period to which the loanwords should be ascribed. Unfortunately, this argument rests entirely on the presumption that we have the date for Indo-Iranian correct.

6.3.3 *Glottochronology*

At about the time that physicists discovered that the constant disintegration of the isotope \(^{14}\text{C}\) (radiocarbon) could be employed to date organic remains in archaeology, the American linguist Morris Swadesh was working on a similar
technique to date languages. Swadesh reviewed the speed at which various languages changed through time by comparing their vocabulary either across their own time trajectory, e.g. Old English to Middle English to New English, or between closely cognate languages, e.g. English, German, and Swedish. He used a comparative wordlist of 200 lexical items which he thought were basic to any human language (e.g. animal, blood, father, I, mother, sew, tree, two) and thus resistant to cultural borrowing. Later, feeling that he had been optimistic about how many words were truly resistant to borrowing, he used a 100-word list (wherein, among others, animal, father, mother, and sew were excluded). This study was empirical and the surprising result that he announced was that no matter what the language family considered, there appeared to be a constant rate of attrition of the basic core vocabulary—after a period of 1,000 years, 86 per cent of the core vocabulary appeared to remain. He employed this technique (which is called glottochronology) against the major Indo-European languages to determine when Proto-Indo-European dissolved and what the chronological differences were between the various Indo-European stocks. He presented his results with the minimum of methodological discussion and even less empirical evidence and we are far better off illustrating the results of the method with a more recent example of the technique published by Johann Tischler in 1973 (Table 6.2).

A glance at Tischler’s results should sober any optimist, and by and large the technique of glottochronology has had almost no currency among Indo-Europeanists although it may be found in use among linguists studying other language families (generally where there is no written evidence that might contradict the results), and there seems to be a particular fascination for publishing the results of glottochronology in science periodicals (where there are no apparent linguistic referees). The problem with glottochronology is that it rests on three assumptions, all of which have been challenged, sometimes not only challenged but apparently demolished. The first assumption is that there is a core vocabulary that one can examine to measure linguistic disintegration. However, experience has repeatedly shown that there is not a core vocabulary that is constant across all languages, culture areas, and times. There is no large part of the vocabulary of any language that can be trusted to behave in a consistent manner from which linguists can isolate out a set of words which will yield Swadesh’s expected results. Swadesh employed wordlists of decreasing size, starting with 500 and then to 200 and finally the famous 100-word list. Tischler shows us the results of employing both the 200- and 100-word lists where Hittite gains over two thousand years of antiquity by using the 100-word list as opposed to the 200-word list, Albanian moves nearly 3,000 years, and other languages change their relative ordering of antiquity. The shift to the smaller wordlist was stimulated by the fact that so many of the words on the
longer list were seen not to be ‘culture-free’. Even this shorter list has been recently modified by Sergey Starostin who has replaced ten words from the list which were regarded as less cultural-free. Starostin also recognizes a super core list of thirty-five and a somewhat less diagnostic list of sixty-five words. Glottochronology must be about the only scientific technique where the accuracy of one’s results is enhanced by the removal rather than the augmentation of data! Moreover, the smaller the list, the more an error concerning any individual item on it will affect the accuracy of the result.

A second assumption is that, assuming there is a culture-free list of however many words one wants to propose, it changes at a constant rate. Where the technique can be tested closely, it reveals markedly differing results. Closer examination of changes in English for instance indicates a retention rate not of 86 per cent but 68 per cent, while Icelandic has remained far more conservative with a 97 per cent retention rate over the same period. Finally, the very means

<table>
<thead>
<tr>
<th>200-WORD LIST</th>
<th>DATE</th>
<th>100-WORD LIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hittite (6400)</td>
<td>6000</td>
<td>Armenian (5700)</td>
</tr>
<tr>
<td>Armenian (4700)</td>
<td>5000</td>
<td>Greek (4700) Latin (4400)</td>
</tr>
<tr>
<td>Greek, Albanian (3800)</td>
<td>4000</td>
<td>Sanskrit, Gothic (3700)</td>
</tr>
<tr>
<td>Latin (3500)</td>
<td>3000</td>
<td>Lithuanian (3400)</td>
</tr>
<tr>
<td>Sanskrit, OCS (2900)</td>
<td>2000</td>
<td>OCS (2900)</td>
</tr>
<tr>
<td>Lithuanian (2200)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.2. Dates of separation from Proto-Indo-European based on the 100- and 200-word lists (after Tischler 1973)

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of calculating the separation is methodologically difficult. One seeks to match cognates between the different languages but how cognate must the words be? In some cases residues of the word may remain but in a different semantic form. For example, the Old Irish cognate of the Indo-European word for ‘sun’ only survives in the meaning ‘eye’, i.e. the sun seen as a large eye in the sky. And, finally, how does one convincingly address the problem of comparing languages whose own attestation is separated by great periods of time: how do we compare the ‘basic vocabulary’ of Lithuanian (attested only from the sixteenth century AD onwards) with Hittite which had been dead for over two thousand years?

So what do we get with glottochronology? A series of dates, generally cited to a precision of a century. The level of precision far exceeds anyone’s confidence in the method, so one might imagine that these dates have about the comparable value of a radiocarbon date with a large statistical error, e.g. a date of 5000 ± 100 BP (years before present) indicates that a sample should have lived (with 95 per cent probability) somewhere between 4035 and 3541 BC. Glottochronology cannot even provide this level of precision since the rate of decay is simply not that well fixed. But we cannot avoid the allure of producing a list of the hundred words with their Proto-Indo-European forms and an indication of whether a particular stock shares this form (Table 6.3).

This list, indeed any list, would be far from definitive because there are numerous problems in establishing true cognate terms. Although we may derive the cognate set from the same root morphemes, a number of the sets require us to group together very different endings, dialectal forms, or more distant derivation, e.g. *h₁oi- is the root morpheme for ‘one’ but the forms underlying the different IE languages include *h₁oi-no-, *h₁oi-wo-, and *h₁oi-ko-. In other cases we find that we cannot be sure of the precise meaning of our reconstructed form, e.g. *pleu- ‘swim’ but it only means ‘swim’ in Greek and Indo-Iranian; in the other groups it may mean ‘move’, ‘float’, ‘rain’, ‘wash’, or ‘flow’. In a number of instances there are multiple candidates for the PIE root, e.g. *twέks ‘skin’ rather than *pēln-, or *sméru- ‘oil, grease’ and/or *h₁opús ‘(animal) fat’ rather than *sélpes- ‘fat, grease’; to select a different candidate would result in an entirely different series of correspondences and putative dates of separation.

### 6.3.4 Informed Estimation

George Trager, unimpressed by the claims of glottochronology, argued that a linguist’s hunch, that is, “informed judgement” based on one’s experience with known language separations and the structure of the language one was dealing
Table 6.3. *The 'basic' vocabulary of Proto-Indo-European and its attestation in the major Indo-European groups*

<table>
<thead>
<tr>
<th>Word</th>
<th>PIE</th>
<th>Ct</th>
<th>It</th>
<th>Gm</th>
<th>Bt</th>
<th>Sl</th>
<th>Al</th>
<th>Grk</th>
<th>Arm</th>
<th>An</th>
<th>Ir</th>
<th>Ind</th>
<th>Toch</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>One</td>
<td>*h₁oin-</td>
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<td>+</td>
<td>+</td>
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<td>+</td>
<td>+</td>
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<td>+</td>
<td>+</td>
<td>9</td>
</tr>
<tr>
<td>Two</td>
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with, was a far more reliable guide. But how can this task be accomplished? Generally, we find some form of triangulation based on the earliest attested Indo-European languages, i.e. Hittite, Mycenaean Greek, and Indo-Aryan, each of these positioned somewhere between 2300 and 1500 BC. Given the kind of changes linguists know to have occurred in the attested histories of Greek or Indo-Aryan, etc., the linguist compares the divergence wrought by such changes with the degree of divergence between the earliest attested Hittite, Mycenaean Greek, and Sanskrit and reconstructed Proto-Indo-European. The order of magnitude for these estimates (or guesstimates) tends to be something on the order of 1,500–2,000 years. In other words, employing some form of gut intuition (based on experience which is often grounded on the known separation of the Romance or Germanic languages), linguists tend to put Proto-Indo-European sometime around 3000 BC plus or minus a millennium.

Table 6.3. (Cont’d)

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The explicit reasons for these estimations, however, are hardly clear, never really quantifiable, and there seems no way of testing the validity of such guesses. For this reason, some suggest that these are not informed estimates but groundless guesses and that Proto-Indo-European might go back to 10,000 BC or earlier. Most linguists would probably argue, however, that such a long chronology is even more speculative than the estimates of change between Proto-Indo-European and Hittite, say, as it requires a rate of linguistic change in all descendant groups to be slower than any known historically from any attested Indo-European or non-Indo-European family. Unless we are prepared to believe that prehistoric language change is different by an order of magnitude from historic change, it is better to work with a more realistic and shorter chronology than one going back to 10,000 BC.

Of course any assumptions about rate of change (including those upon which glottochronology is built) are only as good as the data upon which they are based. In actuality we have long observable histories of language change only for a very few languages (e.g. Greek, Indo-Aryan, Egyptian, Chinese) and none longer than about 4,000 years. And all of these observed languages are naturally enough languages of high civilizations which have had long histories of interaction with other cultures and languages. It is possible that these interactions have caused a higher rate of change than would have been the case with languages of groups less in the limelight. On the other hand, one might also expect that the weight of the written tradition of these literate societies might have had the effect of slowing change.

6.3.5 Archaeological Estimation

If linguists have hunches, archaeologists sometimes propose theories with far greater hubris and far less credibility. The characteristic approach here is to presume that if the archaeologists can identify the archaeological equivalent of the proto-language, then the dates for the archaeological culture must provide us with the dates of the proto-language. When it comes to dating, between an archaeologist and a linguist, there is no contest. The archaeologist has an arsenal of techniques to date prehistoric remains with various degrees of precision. The usual technique employed with respect to the prehistoric record is radiocarbon dating which, for the general time depth that we have been discussing, should be able to come up with a date within about 400 years of the target. And unlike glottochronology, the date is replicable and capable of being tested against even more precise dating techniques such as tree-ring dating. But the archaeologist is normally dating some form of organic remains—wood, charcoal, bone—which can then be employed to date the archaeological culture
(an entity of ambiguous if not dubious social reality) that provides a context for the remains. He or she is not dating a proto-language and the only way the archaeological date then comes into play is if one accepts that the culture in question coincides with the remains of the people who spoke the proto-language. So if one accepts, for example, that Proto-Indo-European was spoken by the first farmers to enter Europe (and only by them), then the archaeologist can put a date of c.7000 BC on the event and, hence, the proto-language. Alternatively, if one suggests that Proto-Indo-European was carried into south-eastern Europe with the spread of horse-riding pastoralists from the steppelands and the earliest evidence for this incursion dates to c. 4500 BC, then we have another date for Proto-Indo-European.

It takes little thought to realize that this entire means of dating requires one to accept some archaeological identification of the Proto-Indo-Europeans, and when one considers that there is no consensus on this issue after two centuries, there is precious little reason for optimism. Moreover, archaeological cultures, the entities that the archaeologist plays with, for the time in question, say c.7000–2000 BC, generally exist for periods of about 600 years, although some cultures can extend for up to 1,500 years. Every culture will have a predecessor (Homo sapiens sapiens has been around for c.100,000 years in the Near East and about 40,000 years in western Europe). If an archaeologist selects Culture X which dates to c.3500–3000 BC as the one to be associated with the spread of (Proto-)Indo-European, you can bet that there was a Culture W that may have occupied the same general area c. 4000–3500 BC. Now why has X been selected to date Proto-Indo-European and not the earlier W? Generally, because it is only Culture X that has transcended its earlier borders, which is then read by the archaeologist as an expansion (= linguistic expansion). If so, then the archaeologist is not even pretending to date the proto-language but what he or she takes to be the linguistic dispersal, i.e. an event which defines the break-up of the proto-language rather than the proto-language itself.

6.3.6 Lexico-cultural Dating

Although there is plenty of room to make mistakes or devise erroneous conclusions, lexico-cultural dating does offer at least some hope for generating approximate dates for a proto-language, provided that one’s conclusions are properly framed. Much of material culture is time factored, that is, items of material culture have been added to the inventory of human knowledge over time (while some items have been discarded). Elements of the environment might also be time factored in that plants, particularly trees, have followed a
regular and datable procession since the last Ice Age; the spread of domestic plants and animals to different regions of Eurasia also occurred over a specific time. The dating of a proto-language might then be attempted by comparing certain items of the reconstructed vocabulary with the archaeological record, here the general archaeological record rather than one specific to a certain region. For example, we reconstruct terminology associated with wheeled vehicles in Proto-Indo-European and from an archaeological standpoint we know that our earliest evidence for wheeled vehicles anywhere in Eurasia (actually anywhere on this planet) dates to the fourth millennium BC. We also know that dates might be pushed back somewhat in time—discoveries in archaeology are a growth business—and hence the actual date for a particular item may obviously antedate somewhat any of our existing evidence. But if the Proto-Indo-European vocabulary had words pertaining to wheeled vehicles, these should not have come into existence much earlier than c. 4000 BC on the basis of our present archaeological knowledge. The presence of words for wheeled vehicle does not date the proto-language to c. 4000 BC but it does tell us that any date long anterior to this becomes increasingly implausible. That the proto-language may have existed long after 4000 BC goes without saying; the archaeologist can provide a terminal date (in this case a terminus a quo) but there is no reason whatsoever why a proto-language should be correlated with the earliest occurrence of an item of material culture.

So, is there a consistent dating horizon for the reconstructed Proto-Indo-European vocabulary? In broad terms, there is certainly conclusive evidence that the Indo-European languages shared what an archaeologist might term a Neolithic vocabulary. There is a full range of domestic animals (cattle, sheep, goat, pig, dog; the horse was certainly known but its status as a domestic animal is arguable) and cereals (grain, barley) and the tools and techniques to process them (plough, harrow, sow, thresh, chaff, grind) and store the result (pot). The Neolithic economy appears in the Near East by about 8000 BC and in Europe it appears by the seventh millennium BC where it spreads both north and west to reach the western and northern European periphery by about 4000 BC. Although claims are occasionally made—sometimes with an amazing sense of audacity—that Proto-Indo-European should date back to the Palaeolithic or Mesolithic, periods before the advent of a mixed farming economy, such a dating can only be made if you ignore all the linguistic evidence to the contrary. Only archaeologists are likely to make such a gross mistake (there is a reason for making this mistake which we will see later).

What is the most recent date the lexicon offers for Proto-Indo-European? We have already seen that wheeled vehicle terminology tends to be part of the vocabulary and this tends to be no earlier than c. 4000 BC. Wool, the product of selectively bred sheep, would also appear to be largely a development of the
fourth millennium BC although it was known somewhat earlier in the Near East. The plough may also join this list of relatively late developments. If silver be admitted as inherited from Proto-Indo-European, its presence would similarly point to a date in the fourth millennium BC. As we mentioned before, any discovery can be advanced in age and so we might imagine that the earliest we are going to be able to set Proto-Indo-European is about the fifth millennium BC if we want it to reflect the archaeological reality of Eurasia. We have already seen that individual Indo-European groups are attested by c. 2000 BC. One might then place a notional date of c. 4500–2500 BC on Proto-Indo-European. The linguist will note that the presumed dates for the existence of Proto-Indo-European arrived at by this method are congruent with those established by linguists’ ‘informed estimation’. The two dating techniques, linguistic and archeological, are at least independent and congruent with one another.

6.4 The Dark Ages?

If one reviews discussion of the dates by which the various Indo-European groups first emerged, we find an interesting and somewhat disturbing phenomenon. By c. 2000 BC we have traces of Anatolian, and hence linguists are willing to place the emergence of Proto-Anatolian to c. 2500 BC or considerably earlier. We have already differentiated Indo-Aryan in the Mitanni treaty by c. 1500 BC so undifferentiated Proto-Indo-Iranian must be earlier, and dates on the order of 2500–2000 BC are often suggested. Mycenaean Greek, the language of the Linear B tablets, is known by c. 1300 BC if not somewhat earlier and is different enough from its Bronze Age contemporaries (Indo-Iranian or Anatolian) and from reconstructed PIE to predispose a linguist to place a date of c. 2000 BC or earlier for Proto-Greek itself. So where we have written documentation from the Bronze Age, we tend to assign the proto-languages to an earlier period of the Bronze Age, i.e. earlier than at least 2000 BC if not 2500 BC.

When we turn to western and northern Europe, however, both our attestation of the different groups and the estimates of their proto-languages tend to be shallower. The Germanic languages, for example, are all derived from Proto-Germanic. Now the earliest runic inscriptions are so close to reconstructed Proto-Germanic that there is a tendency to date the Germanic proto-language to about 500 BC. Similarly, if we examine the earliest Celtic inscriptive evidence, be it Continental or even the much more recent Irish ogham stones, these inscriptions are not that far removed from the reconstructed Proto-Celtic and again we tend to have dates suggested on the order of 1000 BC. The Slavic languages only began differentiating from one another during the historical period, and Proto-Slavic is generally set to about the beginning of the
Christian era while Proto-Baltic and Proto-Balto-Slavic (assuming its existence) are probably envisaged as a second millennium BC phenomenon. In short, where the Indo-European groups are more recently attested, we tend to find that they are also regarded as having differentiated at a more recent time, i.e. between c.1500 and 500 BC.

One explanation for the relatively short time depths of the attested northern and western Indo-European groups is that these groups are the only survivors of a long process of linguistic assimilation that has occurred as small demographic and linguistic groups moved, interacted, and merged. We can see precisely such a process in action in the historic period as Latin assimilated and replaced all the other Italic languages, Umbrian, Oscan, etc., and then went on to assimilate and replace much of the Celtic languages. Also within the historic period Slavic assimilated and replaced such other Indo-European languages as Thracian, and Koine Greek replaced nearly all other varieties of Greek. If we had only contemporary data to work with, we would have to conclude that both Proto-Italic (now equivalent to Proto-Romance) and Proto-Greek flourished around the beginning of the Christian era. These ‘extinction events’ in the history of Italic and Greek had the effect of ‘resetting’ the time depth of the proto-language. This process must have been repeated time and again in the prehistoric period.

A second alternative is that the differences in chronology between the European languages and those of the Aegean-Anatolia and Asia may be an illusion fostered by the lateness of our written sources for most of Europe, i.e. linguists have a tendency to place proto-languages cautiously about 500 to 1,000 years before first attestation, and hence the later the earliest written evidence, the more recent the estimated time depth.

Finally, it might be argued that we should take the time depths of the various Indo-European groups at face value and envisage a process which led to a relatively recent spread of most of the Indo-European languages of Europe, some time after Indo-European languages had been established in Greece, Anatolia, and South-West Asia.

Further Reading

The most recent large-scale discussion of time depth can be found in Renfrew, McMahon, and Trask (2000). Specific discussions on Indo-European can be found in Zimmer (1988) and Mallory (1997a, 2002). Morphological seriation is discussed by Nehring (1936), Specht (1944), Arumaa (1949), Kuhn (1954), and most recently in Lehmann (2002). A major attempt at semantic seriation is seen in Brandenstein (1936). Geolin-
guistics in Indo-European is discussed in Bonfante and Sebeok (1944) and Devoto (1962). A rare instance of external contact dating and Proto-Indo-European is seen in Ipsen (1923). The literature on glottochronology is vast: the original application to Indo-European can be found in Swadesh (1960) but a better treatment is Tischler (1973); Bergsland and Vogt (1962) was among the first major criticisms. Trager’s ‘hunch’ is quoted from Trager (1967) while an example of estimate triangulation can be found in Milewski (1968). There have also been attempts to classify different morphological and temporal stages within Proto-Indo-European in Meid (1975) and Adrados (1982).
7
Reconstructing the Proto-Indo-Europeans

7.1 Approaches to the Past

There is only one route to the reconstruction of Indo-European culture that offers any hope of reliability and that is language. Although we might compare cultural traditions, behaviour, or material culture among the different Indo-European groups, this exercise would be a very uncertain plunge into comparative ethnography or archaeology and we would be forced to compare peoples at vastly different time depths. For example, a number of Indo-European groups, from whatever period they are attested, indicate the existence of warrior bands or sodalities, Männerbunde for those who prefer the German expression. One could (and has) accumulate(d) accounts of these bands from Irish, Germanic, Greek, or Indic sources which themselves extend over a period of some 1,500 years at least. We could then generalize about the characteristics of such groups, e.g. a tendency to represent warriors as wolves with berserker-like behaviour, and then back-project this generalization to the Proto-Indo-Europeans. But why should Proto-Indo-Europeans in, say, 4000 BC have behaved like Irish or Germanic war-bands over 4,000 years later? Had nothing really changed in the structure, tactics, and behaviour of warriors and warrior units in so many thousand years? Could the similarities be merely
independent developments? After all we find comparable institutions among unrelated Amerindians or African tribes. Or are we dealing with something in between—actual remnants of inherited social institutions but, by the time of our earliest written sources, these have been elaborated in similar ways that were independently generated in the different traditions? It is nearly impossible to know at what point to draw the line between acknowledging the existence of the institution and fleshing it out with our ethnographic parallels. Even when the evidence comes from roughly similar temporal horizons we find ourselves confronting dubious ethnographic comparisons. During the Iron Age both the early Celts and the steppe Iranians attest the practice of head-hunting. But so do many other peoples, and there are few if any who would regard this as sufficient evidence to project head-hunting to the time of the proto-language. Clearly we need something more directly associated with the people we are trying to deal with (those who existed at the time of the proto-language) and for that, there is only one, admittedly problematic, source: the reconstructed lexicon offers us our best hope of glimpsing the world of the speakers of Proto-Indo-European. Of course there is a catch, in fact, several catches. The first concerns the very reconstruction of the Indo-European vocabulary.

7.2 How Many Cognates?

How many cognates do we need to declare a word Proto-Indo-European? There are very few instances in which we find a cognate in every major IE group, and Table 7.1 indicates the items that are so fully attested.

The list poses no real surprises as most of the words belong to those regions of the lexicon that are quite basic and more resistant to loss. Of this list five are pronouns, four are numerals, and the rest are some of the more basic nominal concepts. But we should not imagine that this list necessarily indicates word frequency. We might compare it, for example, with the most frequent words in English which, other than pronouns, are primarily confined to prepositions (whose function would usually be met by case endings in PIE), conjunctions, and articles (absent from PIE), i.e. *you, that, it, he, of, to, in, for, on, as, with, the, and, a, and is.*

As we have just seen those reconstructions based on evidence from the full range of IE groups are very much in the minority and if we consider the 1474 reconstructions found in Mallory and Adams (1997) we can gain a rough idea of the size of the cognate sets that form the basis of our reconstructed lexicon (Table 7.2).

Only 1 per cent of the reconstructed lexicon is based on a cognate from all twelve major language groups. Most cognate sets are comprised of far fewer
language groups, with 75 per cent of the reconstructed lexicon based on six or fewer groups and half of our reconstructions based on between four and five groups.

With most of our cognate sets founded on half or less of the various language groups, how do we know that the word existed in Proto-Indo-European and not some later stage of development? There is no hard and fast rule accepted by

| Table 7.1. Cognates that are found in all major Indo-European groups |
|---------|------------|
| *wódrَ | ‘water’ |
| *gʷóus | ‘cow’ |
| *póds | ‘foot’ |
| *dhwórm | ‘door, gate’ |
| *tréyes | ‘three’ |
| *pénkʷe | ‘five’ |
| *septʰe | ‘seven’ |
| *h₁néwh₁m | ‘nine’ |
| *swep- | ‘sleep, dream’ |
| *h₁nómme | ‘name’ |
| *h₁egʷ- | ‘I’ |
| *wéi | ‘we’ |
| *túh₁ | ‘thou’ |
| *yuhr₁s | ‘ye’ |
| *só | ‘that (one)’ |

\[a\] A putative Albanian cognate for cow (ka) is uncertain.

| Table 7.2. Number of cognate sets attested per number of groups sharing a cognate |
|---------|------------|--------|
| LANGUAGE GROUPS | COGNATES | PERCENTAGE |
| 12       | 16        | 1      |
| 11       | 23        | 2      |
| 10       | 52        | 4      |
| 9        | 59        | 4      |
| 8        | 78        | 5      |
| 7        | 137       | 9      |
| 6        | 181       | 12     |
| 5        | 252       | 17     |
| 4        | 274       | 19     |
| 3        | 238       | 16     |
| 2        | 164       | 11     |
all linguists as to what constitutes a solid reconstruction and we feel that one needs to be fairly explicit about what criteria are employed. Because a cognate might exist in two language groups, e.g. Celtic (Old Irish \textit{rucht} ‘tunic’) and Germanic (Old English \textit{rocc} ‘overgarment’), this does not mean that the ancestor of this word (*ruk-*) was also known in Proto-Indo-European. A word confined to Celtic and Germanic might more probably be assigned to a late development in western Europe long after the Indo-European languages had differentiated. There are many such regionally confined cognates (or early borrowings), and to the Celtic-Germanic correspondences we can also add cognate words from Italic (primarily Latin), Baltic, and Slavic. There are so many of these words that are confined within these five language groups (Celtic, Italic, Germanic, Baltic, and Slavic) that most linguists would regard cognates found \textit{exclusively} between any two or among all of these groups as specifically North-West Indo-European and not demonstrably Proto-Indo-European. To accept a series of cognates as reflections of a PIE word requires that the evidence come from further afield than a series of contiguous language groups in Europe.

How about an isogloss between Celtic and Greek? That would be better than a North-West isogloss but this would still leave the word confined to two European groups. It is not that the word might not derive from Proto-Indo-European, but there are some fairly popular models of Indo-European dispersals that would see the prehistoric European languages moving west while the Asian languages dispersed south and east, and hence one might well expect innovations to emerge purely among the European (or Asian) groups that were never part of the shared Proto-Indo-European vocabulary. For convenience we will label these non-North-Western groups, that is, the Balkan languages (only Albanian attested in any significant sense), Greek, and Armenian (as we have seen, the suspiciously large number of isoglosses between Greek and Armenian leads many to group these two together), as the ‘Central’ languages. To this we might add Phrygian (it will not add much anyway) because it is generally recognized as a western intruder into Anatolia. Cognates may occur within the four Central languages (where they will be labelled ‘Central’) or between languages of the North-Western group and the Central group where they will be labelled here as ‘West Central’, but not positively Proto-Indo-European.

As we have seen, Anatolian is the earliest attested Indo-European group and is widely but not universally regarded as one of the first if not the first group to have separated from the rest of the Indo-European continuum. For those who accept the concept of Indo-Hittite, this separation, in terms of the evolution of Indo-European, may be even earlier. For this reason, one might propose that if there are cognates between Anatolian and any other Indo-European language, it may be accepted as Proto-Indo-European. Just such an example would be
Hittite *tanau* ‘fir’, OHG *tanna* ‘fir’, or, similarly, Hittite *hates- ‘adze, axe, hatchet’, NE *adze*. This rule will not please everyone but it will be applied here.

The Asian languages are critical in defining Proto-Indo-European, especially when there is no Anatolian cognate (and given the paucity and nature of our Anatolian sources, such a lack is a very frequent occurrence). From our discussion of internal relationships, we see that the Asian languages must be divided into two groups, i.e. Indo-Iranian and Tocharian. We are not overly concerned if the word occurs in only one Indo-Iranian language since if it has a cognate in another Indo-European language, it is likely then that the word existed in Proto-Indo-Iranian and it is pure luck or loss that we do not find it in the other Indo-Iranian branch. A general rule of thumb would admit as Proto-Indo-European any word that shared cognates in a European language and an Asian language on the argument that they are dispersed so widely that it is unlikely that they are later innovations. Actually, the rule cannot be quite so hard and fast and we need some fine-tuning. An Irish-Indic cognate looks a damn sight stronger than a Greek-Iranian and linguists have long noted that there are a whole series of words that seem to be confined largely to Greek and Indo-Iranian. Here this pattern will be designated GA, i.e. Graeco-Aryan, which does not indicate a special branch of Indo-European but a pattern of isoglosses that we may feel cautious about assigning to full Proto-Indo-European antiquity without additional evidence. A cognate set involving Tocharian places us in the nightmare of determining the internal relationship between Tocharian and the other IE languages. Some would argue that it is merely a North-Western language while others, emphasizing its position so far to the east of the Indo-European world, would suggest that it constitutes independent evidence of an Asian language; this latter interpretation will be followed in the course of this book, i.e. a cognate set found in a European (or Anatolian) language and Tocharian will be regarded as Proto-Indo-European (PIE). On the other hand, in those very few cases where we have a word only in Indo-Iranian and Tocharian, these will be termed Eastern (E). We can summarize these relationships in Figure 7.1.

### 7.3 Reconstructed Meaning

A second major catch to our recovery of the Proto-Indo-European lexicon concerns the reconstructed meaning of a word. Sometimes there is uniformity across all or almost all the groups offering cognates. Take for example the cognate set of animal names indicated in Table 7.3 in which the odds are pretty well stacked in favour of reconstructing the proto-meaning as ‘sheep’. 
On the other hand, Table 7.4 illustrates one of the classic problems of reconstruction in Proto-Indo-European.

In some instances the level of ambiguity appears truly perverse, especially when the cognates suggest what might seem to be diametrically opposed meanings as we find in Table 7.5.

Here we find the more central groups of Baltic, Slavic, and Greek indicating the process of washing or bathing while the more peripheral groups (Celtic, Indo-Iranian) suggest dirt/urine. The proto-meaning is usually taken to indicate ‘wash’ and the more contradictory meanings are explained as either the target or residue of washing (i.e. the filth one washes away) or, possibly, the use of urine to wash with, a cultural practice that includes several groups of IE speakers.

A third type of problem is when the range of meanings is obviously related but so disparate that we can only hazard a vague proto-meaning which might underlie the original word. Table 7.6 provides an example of a word that we can only reconstruct as ‘some form of tool’ (it is a nominal derivative of *kʷer- ‘do, make’).
7.4 Semantic Fields

We also find ourselves reconstructing multiple words to fill out a single semantic field. It has been observed that in English, for example, nouns are often organized according to some principle of meronomy, i.e. they may be arranged as subparts of a larger entity such as body > leg > foot > toe. While there may be some contrast at each level, e.g. ‘foot’ versus ‘claw’, there is unlikely to be a great proliferation of terms for a single referent. On the other hand, verbs tend to be generated according to a system of troponymy where each is nuanced in a particular way. The reconstructed PIE vocabulary illustrates both of these principles. For example, the reconstructed lexicon provides us simply with *póds ‘foot’ (similarly Collins Roget’s International Thesaurus simply lists *foot) but when we come to a verb like speak the Thesaurus provides us with an enormous number of terms. Here is a fraction: speak, talk, patter, gab, say,

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<tr>
<td>OIr</td>
<td>oī</td>
<td>‘sheep’</td>
</tr>
<tr>
<td>Lat</td>
<td>ovis</td>
<td>‘sheep’</td>
</tr>
<tr>
<td>ON</td>
<td>ār</td>
<td>‘sheep’</td>
</tr>
<tr>
<td>OE</td>
<td>ēowu (&gt; NE ewe)</td>
<td>‘sheep’</td>
</tr>
<tr>
<td>OHG</td>
<td>ou ~ ouwi</td>
<td>‘sheep’</td>
</tr>
<tr>
<td>Lith</td>
<td>avis</td>
<td>‘sheep’</td>
</tr>
<tr>
<td>Latv</td>
<td>avs</td>
<td>‘sheep’</td>
</tr>
<tr>
<td>OCS</td>
<td>ovīnū</td>
<td>‘sheep’</td>
</tr>
<tr>
<td>Grk</td>
<td>ὀ(w)īs</td>
<td>‘sheep’</td>
</tr>
<tr>
<td>Luv</td>
<td>ḥāva/i-</td>
<td>‘sheep’</td>
</tr>
<tr>
<td>Skt</td>
<td>āvī-</td>
<td>‘sheep’</td>
</tr>
<tr>
<td>TochB</td>
<td>āu</td>
<td>‘ewe’</td>
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<tbody>
<tr>
<td>Gaul</td>
<td>bāgos</td>
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<tr>
<td>Lat</td>
<td>fāgus</td>
</tr>
<tr>
<td>ON</td>
<td>bōk</td>
</tr>
<tr>
<td>OE</td>
<td>bōc</td>
</tr>
<tr>
<td>OHG</td>
<td>buohha ~ buocha</td>
</tr>
<tr>
<td>Rus</td>
<td>’buz</td>
</tr>
<tr>
<td>Alb</td>
<td>bung</td>
</tr>
<tr>
<td>Grk</td>
<td>phēgós</td>
</tr>
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</table>
utter, vocalize, state, declare, remark, allege, give tongue, relate, recite, announce, proclaim, blurt out. One can readily appreciate how difficult it might be to retrieve the precise meanings of each of these terms after several thousand years, yet this difficulty is what confronts the linguist who sorts through the twenty-four odd roots that express for Proto-Indo-European or some subsequent phase the concept of ‘speak’ (Table 7.7). In some cases we can distinguish the differences in the underlying nuance of the word but often we cannot and hence our reconstructed meanings can only be vague approximations (indicated by \( \pm \)) of what the word might have meant to its prehistoric speakers.

### 7.5 Folk Taxonomies

Many semantic fields of a language are structured by its speakers into a hierarchical system of categories. In English, for example, we tend to divide the natural world into three categories, animal, vegetable, and mineral, and these may be further subdivided, sometimes in reasonably Linnaean fashion but also according to different, folk taxonomic, criteria, e.g. Herman Melville’s Ishmael who was adamant that a whale was a fish or the common tendency for English speakers to classify the tomato as a vegetable (a ‘veg’) rather than a fruit (even the US Supreme Court has ruled that tomatoes are ‘vegetables’) or refer to a spider as an insect or bug. Typical areas of folk taxonomies include colour terms, the (five) senses, the (four) seasons, the (four) directions, plants,

| Table 7.5. Cognates of \(*m(e)uh_{3}\)- |
|-----------------|-----------------|-----------------|
| MIr  | mūn         | ‘urine’         |
| OPrus | aumūsman     | ‘wash’          |
| Lith | mūdyti       | ‘bathe’         |
| Latv | maudāt       | ‘bathe’         |
| OCS  | myjo         | ‘wash’          |
| Grk  | mulāsasthai  | ‘wash oneself’  |
| Av   | mūdra-       | ‘dirt’          |
| Skt  | mūtra-       | ‘urine’         |

| Table 7.6. Cognates of \(*k\’rwis\) |
|-----------------|-----------------|-----------------|
| Lith  | kirvis         | ‘axe’           |
| Rus   | cervi          | ‘sickel’        |
| Skt   | kṛvi-          | ‘weaving instrument’ |
animals, geometric shapes, or aspects of material culture, e.g. crockery, silverware. Modern English speakers tend to accept the canonical number of seasons, directions, and senses but these are a product of culture and it is perfectly possible to find examples of two seasons (summer versus winter) or to find taste as merely an aspect of touch (with the tongue). The level of taxonomy may operate with a single conceptual division where there are at least two terms in complementary distribution (e.g. the early Germanic system is reputed to have divided the year into only two seasons—‘winter’ and ‘summer’) but may form a multilevel system, e.g. from the main taxonym ‘colour’ (Level 0) we may then descend to a Level I basic colour term such as red, then a Level II variety of red such as crimson or scarlet, and then to a Level III specialized term such as ruddy which is generally confined to the human complexion. In the following chapters we will be mindful of some of the folk taxonomies that have been proposed for the various semantic fields.

Table 7.7. Verbs concerned with speaking in Proto-Indo-European

<table>
<thead>
<tr>
<th>Verb</th>
<th>Meaning</th>
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</thead>
<tbody>
<tr>
<td><em>wekʷ</em></td>
<td>‘speak’</td>
</tr>
<tr>
<td><em>(s)wer-</em></td>
<td>‘say, speak’</td>
</tr>
<tr>
<td><em>h₁eɣ</em></td>
<td>‘say’</td>
</tr>
<tr>
<td><em>ter-</em></td>
<td>‘± speak out’</td>
</tr>
<tr>
<td><em>wed-</em></td>
<td>‘raise one’s voice’</td>
</tr>
<tr>
<td><em>mleuh₂ⁿ</em></td>
<td>‘speak’</td>
</tr>
<tr>
<td><em>rek-</em></td>
<td>‘speak’</td>
</tr>
<tr>
<td>?<em>gʷet-</em></td>
<td>‘say’</td>
</tr>
<tr>
<td><em>gal-</em></td>
<td>‘call out, speak’</td>
</tr>
<tr>
<td><em>ɣar-</em></td>
<td>‘shout, call’</td>
</tr>
<tr>
<td><em>neu-</em></td>
<td>‘± cry out’</td>
</tr>
<tr>
<td>*ɣheu(h₁)-</td>
<td>‘call to, invite, invoke’</td>
</tr>
<tr>
<td><em>kelh₁</em></td>
<td>‘call out to’</td>
</tr>
<tr>
<td><em>keuk-</em></td>
<td>‘cry out (to)’</td>
</tr>
<tr>
<td><em>keh₁</em></td>
<td>‘declare solemnly’</td>
</tr>
<tr>
<td><em>ke(n)s-</em></td>
<td>‘declare solemnly’</td>
</tr>
<tr>
<td><em>h₁/o ör-</em></td>
<td>‘speak a ritual formula’</td>
</tr>
<tr>
<td><em>(s)pel-</em></td>
<td>‘say aloud, recite’</td>
</tr>
<tr>
<td><em>yek-</em></td>
<td>‘± express, avow’</td>
</tr>
<tr>
<td><em>h₁erkʷ-</em></td>
<td>‘praise’</td>
</tr>
<tr>
<td><em>h₁eug”h-</em></td>
<td>‘speak solemnly’</td>
</tr>
<tr>
<td><em>wegʷh-</em></td>
<td>‘speak solemnly’</td>
</tr>
<tr>
<td><em>gʷerh₁-</em></td>
<td>‘praise’</td>
</tr>
<tr>
<td><em>kar-</em></td>
<td>‘praise loudly’</td>
</tr>
</tbody>
</table>

7. RECONSTRUCTING THE PROTO-INDO-EUROPEANS
7.6 Level of Reconstruction

The level of reconstruction varies depending on how much evidence we can extract from our cognate forms. In some cases we have sufficient evidence to reconstruct the entire ‘word’, i.e. the root, any extensions, and its nominative case ending (e.g. *gʷʰōus ‘cow’) or the present indicative of the verbal form (e.g. *h₁ēiti ‘he/she goes’). In many instances, however, the evidence for the nouns may be ambiguous with regard to the original declension (especially if we lack evidence from Latin, Greek, and Indo-Iranian which maintained so much of the original declension system) and we can only reconstruct the root morpheme, e.g. *sem- ‘summer’. In some cases, there will even be ambiguities about elements of the root morpheme, e.g. as both Hittite and Tocharian merged the PIE labials, a word reconstructed solely from cognates from these two languages must be unclear as to the nature of any labial, e.g. Hit warpa ‘enclosures’, TochA warp ‘enclosure’ permits us to reconstruct a PIE *worPo- where the ‘P’ may indicate a *b, *bh, or *p.

In some instances the reconstruction will be based on cognates drawn from both nouns and verbal forms and sometimes from nouns alone (e.g. *h₁mómmy ‘name’ or *h₂ówis ‘sheep’). Occasionally there are sets of nouns that look very much as though they should be derived from a verb but no verb is found. Such is the case with *yéw(e)s-, the common PIE word for ‘barley’. On the basis of similar words for ‘grain’ (including corn and grain itself) we might expect it to have meant *’ripe (grain)’ or the like and it certainly looks like a banal derivative of **yeu-. Not until Tocharian AB yu- ‘ripen, mature’ was discovered was either the semantic or the morphological hypothesis confirmed.

In some instances we will find cognate sets that would appear to agree perfectly, almost too perfectly, to be regarded as evidence for the reconstruction of a Proto-Indo-European word. This situation is likely to arise when, for example, we find a widely attested noun that has been clearly formed from a well-attested verb by processes active in most of the Indo-European groups. For example, Grk edanón, Hit adanna-, and Skt ádanam could all be derived from a PIE *h₁edonom ‘food’, but as all these words are fairly banal extensions of the widespread PIE root *h₁ed- ‘eat’ (hence the word literally indicates a noun ‘eats’) we may be dealing with independent creations of a noun from an inherited verbal form.

7.7 Root Homonyms

In the basic vocabulary of English, say among the first 1,000 words or so, we might expect about 10 per cent of the words to be homonyms, i.e. two (or more)
different words sharing the same pronunciation such as write/right or bough (of a tree)/bow (to bend oneself). We find that our reconstructed lexicon indicates about the same percentage, although we have to be mindful that our reconstructions can never be regarded as even approximating phonetic transcriptions. Table 7.8 indicates some of the more peculiar homonyms.

In general, linguists attempt to reduce homonyms if possible under the presumption that what we reconstruct as several roots might, in fact, be a single root. In some cases we find attempts to nudge the proto-sememes (meanings) closer together, e.g. *wel- has been discussed within the context of IE death beliefs where one might imagine that to die (*wel-) meant that one went to live in fertile meadows or grass (*wel-). Needless to say, many of these problems are products of root reconstructions; had we been able to reconstruct more of the word (i.e. its declensional or conjugational membership), we would generally have found that they were not actually homonyms.

7.8 How Long a Text?

We have seen how Schleicher’s tale represents an attempt to reproduce in Proto-Indo-European an extended narrative, and a number of similar exercises have been attempted since Schleicher’s time. But what is the longest text that we can actually reconstruct to Proto-Indo-European from its daughter languages? The answer: not very long, generally two words in combination. The problem here is

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<th>Table 7.8. Some PIE ‘homonyms’</th>
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that the IE languages have been separated for so long before we encounter them that any common text, e.g. a poem, prayer, or aphorism, that existed in the proto-language has either disappeared or been so much altered that we cannot reconstruct the original text. To give a familiar example, we can recover from Celtic, Germanic, Anatolian, and Sanskrit a specific medical incantation for rejoining a dismembered body. Its basic structure runs something like: ‘joint to joint, limb to limb, blood to blood, skin to skin, etc.’ In Germanic the expression in OHG goes Ben zi bena, bluot zi bluoda, lid zi geliden . . . (‘bone to bone, blood to blood, limb to limb . . .’). In Irish we have ault fri halt di & féith fri féith (‘joint to joint, and sinew to sinew’). In Sanskrit the charm runs: sāṃ te majjā bhavatu sā u te pārūṣa pāruḥ ‘marrow with marrow should be together, and joint with joint . . .’ and we find similar spells in Hittite, i.e. hastai-kan hastai handan ‘bone (is) attached to bone’. The structure is generally the same but nowhere do we find lexical cognates to permit us to reconstruct the text to Proto-Indo-European.

In order to reconstruct beyond the single word we must make recourse to poetic diction, the frozen phrases of poetry which have survived. Generally our evidence comes from those few groups that provide us with extensive poetic traditions when we first encounter their texts, i.e. Indo-Iranian and Greek, although some expressions have also survived in other language groups, occasionally as proper names. Many of these frozen expressions concern the main theme of poetry, the fame of the hero (Table 7.9).

Another expression reconstructed to PIE is *(h₁)e劳动合同 h₁og’him ‘he killed the serpent’, a statement concerning one of the most central mythic deeds of the IE warrior god/her. It is lexically only attested in Indo-Iranian, i.e. Av jāṇat ažim ‘[who] killed the serpent’ and Skt āhann āhim ‘he killed the serpent’, and then with a substituted verb in Grk kteine hóphin ‘he slew the serpent’ and a new noun in Hit illyanka kwenta ‘he killed the snake’; cf. OIr gono mili ‘I slay the beast’ which has replaced both noun and verb.

7.9 Vocabulary—What’s Missing?

To what extent does the reconstructed vocabulary mirror the scope of the original PIE language? The first thing we should dismiss is the notion that the language (any language) spoken in later prehistory was somehow primitive and restricted with respect to vocabulary. Counting how many words a language has is not an easy task because linguists (and dictionaries) are inconsistent in their definition or arrangement of data. If one were simply to count the headwords of those dictionaries that have been produced to deal with non-literate languages in Oceania, for example, the order of magnitude is somewhere on the order of 15,000–20,000 ‘words’. The actual lexical units are
greater because a single form might have a variety of different meanings, each of which a speaker must come to learn, e.g. the English verb *take* can mean ‘to seize’, ‘to capture’, ‘to kill’, ‘to win in a game’, ‘to draw a breath’, ‘imbibe a drink’, ‘to accept’, ‘to accommodate’ to name just a few of the standard dictionary meanings. Hence, we might expect that a language spoken c.4000 BC would behave very much like one spoken today and have a vocabulary on the order of 30,000–50,000 lexical units. If we apply fairly strict procedures to distinguishing PIE lexical items to the roots and words listed in Mallory and Adams’s *Encyclopedia* or Calvert Watkins’s *The American Heritage Dictionary of Indo-European Roots* (1985) we have less than 1,500 items. The range of

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<th>Table 7.9 Some examples of poetic diction built on <em>kléwos</em> ‘fame’</th>
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<tr>
<td>PIE <em>kléwos ḫidgʷ</em>hitom ‘fame everlasting’</td>
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<td>Grk kléos áphthiton</td>
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<td>Skt śrávas . . . áksitam</td>
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<tr>
<td>PIE <em>kléwos wéru</em> ‘wide fame’</td>
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<td>Gaul Verucloetius</td>
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<td>Grk kléos eurù</td>
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<tr>
<td>Skt urugíyám . . . śrávo</td>
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<td>PIE <em>kléwos meghₐ</em> ‘great fame’</td>
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<td>Grk mégas kléos</td>
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<td>Skt māhí śráva-</td>
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<td>Cf. OIr clú mór ‘great fame’</td>
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<td>Cf. ON mikil frægð ‘great fame’</td>
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<tr>
<td>PIE *kléwos wésu ~ <em>kléwos h₁esu</em> ‘possessing good fame’</td>
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<td>Illyrian Veseleves-</td>
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<td>Grk Eukleēs</td>
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<tr>
<td>Skt Suśráva-</td>
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<tr>
<td>Cf. OIr sochla (&lt; so+chū) ‘of good fame’</td>
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<td>Cf. Av vadhāu sravahī</td>
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<tr>
<td>PIE <em>kléwos deh₁</em> ‘acquire fame’</td>
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<td>Grk kléos katathésthai</td>
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<tr>
<td>Skt śráva- dhā-</td>
</tr>
<tr>
<td>PIE <em>dus-klewes-</em> ‘having bad repute’</td>
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<tr>
<td>Grk duskleēs</td>
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<tr>
<td>Av dusā-sravahyā-</td>
</tr>
<tr>
<td>PIE <em>kléwos h₁gróm</em> ‘fame of (real) men’</td>
</tr>
<tr>
<td>Grk klēa andrón</td>
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<tr>
<td>Skt śrávo . . . nṛṇām</td>
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meanings associated with a single lexeme is simply unknown although we occasionally get a hint, e.g. *bher- indicates both ‘carry (a load)’ and ‘bear (a child)’. So the PIE vocabulary that we reconstruct may well provide the basis for a much larger lexicon given the variety of derivational features in PIE.

Yet we know that our reconstructed lexicon falls far short of the full language, e.g. we can reconstruct ‘eye’ and ‘eyebrow’ but not ‘eyelash’. We can most easily gain an impression of what may be missing when we consider modern ethno-botanical studies. In Proto-Indo-European we can offer about thirty-two plant names and an additional twenty-six tree names. In contrast, Brent Berlin examined the languages of ten traditional farming societies and found that the average number of botanical taxa reported in each language was 520. If we were to treat such comparisons at face value this would suggest that we are recovering only about 11 per cent of the probable botanical lexicon known to the Proto-Indo-Europeans. Or compare, for example, the fact that we can reconstruct only a few terms relating to the horse in Proto-Indo-European; in English this semantic field includes horse, pony, nag, steed, prancer, dobbin, charger, courser, colt, foal, filly, gelding, hack, jade, crock, plug, and many more terms, including the many specific terms describing the colour of the horse, e.g. bay, chestnut, sorrel, pinto. There is no reason to suspect that PIE did not behave similarly. The following chapters thus present a very incomplete record of Proto-Indo-European; nevertheless, this record brings us about as close to the speakers of the language as we can hope for.

Further Reading

8
The Physical World

8.1 Earth

We begin our review of the reconstructed Indo-European world with a survey of the four elements—earth, fire, water, and air (though there is no evidence that this fourfold division of nature can be dated to Proto-Indo-European times itself). Table 8.1 provides a summary view of the Indo-European lexicon that pertains to the solid world of the earth. It lists the PIE form, the reconstructed meaning, and representative examples drawn from Latin, New English (occasionally well-known forms from other Germanic languages), Greek, and Sanskrit to illustrate the phonological development of the proto-form.

The word for ‘earth’ (*dheǵhōm) also underlies the many formations for designating humans, either in the sense that they are ‘earthly’ (and not immortals) or that they were fashioned from the earth itself. Thus for ‘earth’ itself we find OIr dū ‘place, spot’, Lat humus ‘earth’, Lith žemė ‘earth’, OCS zemlja ‘earth’, Alb dhe ‘earth’, Grk khthón ‘earth’, Hit tēkan ‘earth’, Skt kṣam- ‘earth’, Toch A ṭkaṇi ‘earth’. In the meaning ‘human being’ we have OIr duine ‘human being’, Latin homō ‘human being’ (and the adjective humānus ‘human’), Lith žmuo ‘human being’, Phrygian zemelō ‘human being’ and ‘earthly’; it survives also in NE bridegroom where groom < OE guma ‘man’ which was remodelled after folk etymology.
The first word for ‘clay’(*ml̥dhəo/ehə-) is tolerably well established (e.g. OE molde ‘sand, dust, soil’ [NE mould], Grk málthē ‘modelling mixture of wax and pith’, Skt mṛd- ‘clay, loam’). The second word for ‘clay’ (*tk̑wrehjyot-) is found on the western and eastern fringes of the Indo-European world, but nowhere in the centre (e.g. OIr cré¯ ‘clay’, Lat cre¯ta ‘chalk’, Toch A tukri and Toch B kwriye, both ‘clay’). It is difficult to reconstruct an ordinary word for ‘dirt’. All the possibilities suggest ‘dirtiness’ in contrast to cleanliness. So we have PIE *rehjmoš (e.g. OE rōmig ‘sooty’, Skt rāmā– ‘dark, black’ and Rāmā– ‘Rama’) and *solh, (e.g. OE salu ‘dark, dusky’ [NE sallow], sol ‘dark, dirty’, Lat salebra ‘dirt’, Toch B sal ‘dirty’, and perhaps Hit salpa- ‘dog-dung’). A verb for ‘be dirty’ (*tih,n-) occurs in Tocharian (Toch B tin- ‘be dirty’) and in Slavic in a derived noun (OCS tina ‘mire, filth’). There is also *pē(n)s ‘dust’ (e.g. OCS pēśukā ‘dust’, Av pasmu- ‘dust’, Skt pāṃsū- ‘crumbling soil, sand, dust’).

The word for ‘hill’ or ‘mountain’ (*bhergh-, seen, for example, in Mir brt ‘hill’, NE barrow, NHG Berg ‘mountain’, Rus bërg ‘river-bank’, Av bāzza- ‘hill’) derives from the adjective ‘high’ while *g̣orh, (see for instance in OCS gora ‘mountain’, Alb gur ‘rock’, Av gairi- ‘mountain’, Skt girī- ‘mountain’, and possibly Grk bōrēas ‘northwind’ [if < *mountain wind’]) uniformly means ‘forest’ in the Baltic languages (e.g. Lith giriù, a common enough semantic shift as forests are often found or survived after the introduction of agriculture in upland locations.

Certainly, one of the most troublesome words is *h₂ēkmōn ‘stone’ as reflexes of this same word in a number of Indo-European groups render ‘sky’ or ‘heaven’ (e.g. Grk ākmōn ‘anvil’, Skt āśman- ‘stone’ [also ‘heaven’?], OPrus
asman- ‘heaven’, Lith akmuo˜ ‘stone’, OCS kamy ‘stone’, and, in the view of some, the Germanic words for ‘heaven’, e.g. NE heaven. This semantic convergence has been variously explained by assuming that the Proto-Indo-Europeans believed that they lived under a stone vault, that the stone hills and mountains rose to the sky, or that stone axes fell out of the sky, i.e. as thunder-stones (e.g., Lith Perku¯nas akmuo˜ ‘thunder-stone’ [lit. ‘Perku¯nas’ stone’, where Perku¯nas is the god of thunder]). Restricted solely to the meaning ‘stone’ is PIE *péru (e.g. Hit perunant- ‘rocky’, Av paurvata¯ ‘mountain’, Skt pârvata- ‘rock, mountain’). Meaning something like ‘cliV, rock outcrop’ was PIE *pel- (e.g. OIr āil ‘cliV’ [lit. ‘Perku¯nas’ stone’, where Perku¯nas is the god of thunder]).

Words for ‘valley’ are *dhólha˘s and *lóndeha˘. The first has reflexes across the geographical spectrum of Indo-European (e.g. NWels döl ‘valley, meadow’, NE dale, Rus dol ‘valley, under side’, Grk thôlos ‘vault’ [a sort of ‘upside-down valley’], Sarikoli [an Iranian language of the Pamirs] ñer ‘ravine’) while the second is more restricted, occurring in Baltic (e.g. Lith lanka˘ ‘valley, river-meadow’), Slavic (e.g. OCS lôka ‘gulf, valley, meadow, marsh’), Tocharian (e.g. Toch B leѐke ‘valley’), and Late Latin (< Gaulish?) *lanca ‘depression, bed of a river’.

Geographically more restricted words include: North-Western *mai- ‘soil, defile’ (e.g. NE mole, Lith miellas ‘yeast’); West Central *hier- ‘earth’ (e.g. NE earth, Grk èrα ‘earth’); *gloiwos ‘clay’ (e.g. NE clay, Grk gloiós ‘clay’; cf. Lat glütten ‘glue’); *leu- ‘dirt’ (e.g. Lat polluò ‘soil, defile’, Grk lúma ‘dirt’); *grûgs ‘dirt’ (e.g. NE crock [as in ‘that’s a bunch of crock’], Grk grûks ‘dirt under the nails’); *lep- ‘stone’ (Lat lapis ‘stone’ [with unclear -a-], Grk lépas ‘stone’); *lehjw- ‘stone’ (OIr lít (gen. lítíc) ‘stone’, Homeric Grk lëas (gen. lëos) [rebuilt from (*lëwas, lëwasos?)], lëusò ‘stone’ (vb.), Alb lërë ‘rubble’); *kohlj-˘ôn ‘hill’ (e.g. NE hill, Lat collis ‘hill’, Lith kâñas ‘mountain’, Grk kolônós ‘hill’—these are all derivatives of *kelhj- ‘rise, stand’); a similar development is seen in the connection between OE swelle ‘slope, rise in land’ and Toch B šale ‘mountain’, both from PIE *swelno- ‘slope’; *samhj˘os ‘sand’ (e.g. NE sand, Lat sabulum ‘sand’, Grk ámathos ‘sand’).

8.2 Fire

There are two words that explicitly refer to ‘fire’ but have long been seen to stand in semantic contrast. The first, *hixŋ˘wnis, is masculine and is generally understood to indicate fire as an active force; it is deified in India as the god Agni. The second term, *pêh2˘ur, is neuter and hence regarded as ‘inactive’, i.e. fire purely as a natural substance without the personification implicit in the first
The different Indo-European groups or even languages within a single group generally settled on the exclusive use of one or the other term, i.e. *h₁hx₉nis is found in Lat ignis, Lith ugnis, Latv uguns, OCS ognî, Rus ogónî and Skt agni-; *pēh₉ur survives in Umb pîr, Germanic (e.g. NE fire), OPrus panno, Czech pýř ‘ashes’, Grk pûr, Arm hur, Hit pâhHur (genitive pâhhenas) and Tocharian (e.g. Toch B puwar). Another word for ‘fire’ (*h₂ēh₉tx) is only marginally attested but with cognates in Europe and Asia (e.g. Lat āter ‘black’ [< *‘blackened by fire’], ātrium ‘atrium’ [< *‘chimney space over hearth’], Av ātarṣ [genitive ādorō ‘fire’) it is securely reconstructed. It derives from the verbal root *h₂ēh₉- ‘burn, be hot’ (see below) which also gives us a word for ‘ash’, *h₂ēh₉ōs ‘ash’ (e.g. NE ash, Hit hās ‘potash, soda ash, ashes’). Another word for ‘ash, combustion product’ is PIE *kenh₉is (Lat cinis ‘ash’, Grk kónîs ‘dust, ash’, Toch B kenteṣ ‘rust, verdigris’). There is also *h₉ongl ‘charcoal’ with cognates in NIr aingeal ‘light, fire’, Baltic (e.g. Lith anglis ‘charcoal’), Slavic (e.g. OCS oglí ‘charcoal’), and Indo-Iranian (e.g. Skt āṅgāra ‘charcoal’).

The abundance of terms for ‘burn’ suggests semantic distinctions, only few of which we can hazard a guess for the proto-language. Getting a fire started may have been indicated by *deh₉u- ‘kindle, burn’ with cognates in Celtic (e.g. OIr

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<td>*h₁hx₉nis</td>
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<td>*pēh₉ur</td>
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doud ‘burning’), Grk daíō ‘kindle, burn’, Skt dunōti ‘kindles, burns’, and Tocharian (e.g. TochA twās- ‘kindle, ignite, light’). A verbal root *h₂eidh-‘burn; fire’ supplies both verbs and nouns, e.g. OIr aer ‘fire’, Lat aedēs ‘temple’, OE ād ‘heat, fire’, Grk aithō ‘burn’, Skt indhē ‘kindle’. PIE *h₂el- ‘burn’ is based on cognates in Italic (Lat altar ‘altar’ and adoleō ‘burn a sacrifice’), Germanic (Swed ala ‘blaze, flare up’), and Skt alātam ‘rebrand, coal’. Our root *h₂eh₂x- ‘burn, be hot’ is attested as such only in Palaic hā- ‘be hot’ but, as we have seen, has left a wealth of derivations, including *h₂éh₁ōs ‘ash’, *h₂eh₂tʃ ‘fire’, and *h₂eh₃ₘeᵽ- ‘heat (of the day)’ (Grk hēmērā ‘day’, Arm awr ‘day’). The verb with the meaning ‘burn’ that is most widely spread in Indo-European is *dhegʷh- (e.g. OIr daig ‘ame’, Lat foveō ‘heat, cherish’, Lith degu’ ‘burn’, OCS z₃ég ‘burn’, Alb djeg ‘burn’, ndez ‘kindle’, Grk téphra ‘ash’, Skt dhāhati ‘burns’, Toch tāk- ‘burn’). Perhaps also belonging here is Proto-Germanic *dagaz ‘day’ (e.g. NE day), if from ‘heat of the day’ as in *h₂eh₂xₘer- (above) and Toch B kaum ‘day’ from another word for ‘burn’, PIE *keh₃ᵽᵽ-, as in Grk kaíō ‘burn’. There is also *h₁eus- ‘burn, singe’ indicated by cognates in Lat ūrō ‘burn’, Germanic (e.g. ON syja ‘fire’), Alb ethe ‘fever’, Grk heūō ‘singe’, and Skt ōsati ‘burns, singes’. A PIE *swel₃p- ‘burn, smoulder’, which occurs as an attested verb in Tocharian (i.e. sālp- ‘be set alight, burn’), has an old nominal derivative *swel₃pl (genitive *sulpl₃s) that shows up in both Germanic (e.g. OE swel) and Lat sulphur as the word for ‘sulphur’, i.e. ‘that which burns’. There is a possible PIE *preus- ‘burn’ if one accepts that Lat prāna ‘glowing coals’ and Alb prush ‘glowing’ have a reliable cognate in Skt plosati ‘burns’. We will encounter related words for ‘burn’ when we examine the vocabulary of cooking in Chapter 16. But to these words for ‘burn’ we should add *teh₃ᵽ- ‘to melt’ which is attested in Celtic (NWels todh ‘melt’), Lat tabeo- ‘melt’, Germanic (e.g. OE thiaw), Baltic (Lith smilėkti ‘give off light dust or smoke’), Slavic (Sorbian smalis’ ‘singe’) and Toch B kesi ‘melt’, which all indicate ‘go out, extinguish’.

An isogloss of the NW and Tocharian can be found in *(s)mel- ‘give off light smoke, smoulder’ which is seen in Celtic (Middle Irish smail ~ smōl ~ smuāl ‘fire, glow, ashes’), Germanic (NE smoulder, smell), Baltic (Lith smilėkti ‘give off light dust or smoke’), Slavic (Sorbian smaliś ‘singe’) and Toch B meli [pl.] ‘nose’. The best word for ‘smoke’ is *dhuh₃mōs ‘smoke’ with Lat fūmus, Lith fūmai, OCS dymu, Skt dhūmā- all ‘smoke’, and Grk thūmōs ‘spirit’.

Finally, there is wide agreement in meaning, if not in phonetics, for a verb *g₃₇es- ‘extinguish’ seen in Baltic (e.g. Lith gėstī), Slavic (OCS ugasiti), Grk sbēmētī, Anatolian (Hit kist-), Skt jasate, and Tocharian (Toch B kes-), which all indicate ‘go out, extinguish’.

To these words may be added North-Western *swel- ‘burn’ (e.g. OE swel ‘burn’, Lith svilụ ‘singe’, Grk hēlā ‘heat of the sun’ [and it is presumably this *swel- which underlies the extended *swel₃p- above]); *ker- ‘burn’ (*ker-h₂₃- in 8. THE PHYSICAL WORLD
Goth *haúrí* ‘coal’, ON *hyrr* ‘fire’ OE *heorƿ*, whence NE *hearth*, Lith *kūrti* ‘heat’, OCS *kuriti* ‘smoke’; *kr*-em- in Lat cremō ‘burn’ (borrowed in NE *cremate*); and perhaps *ker*- is if Skt kaṣāku ~ kuṣāku ‘fire, sun’ belongs here; *perk*- ‘glowing ash, coal’ (OIr riches [< *prki-stā-] ‘glowing coal’, Lith *piškšnys* [pl.] ‘ashes with glowing sparks’); *g(e)ulo*- ‘fire, glowing coal’, found only in Celtic (e.g. OIr gāul ‘coal’) and Germanic (e.g. NE *coal*). From the West Central region we have *(s)meld- ‘to melt’ (e.g. NE melt, Grk *méldomai* ‘melt’); *kʷap-* ‘smoke, seethe’ (e.g. Lith kvāpas ‘breath’, Grk *kapnós* ‘smoke’); and *(s)m(e)ug(h)- ‘smoke’ (e.g. NE smoke, Grk *smu̱kho̱* ‘burn in a smouldering fire’, Arm *mux* ‘smoke’); *kseros* ‘dry’ (Lat *serescunt* ‘they dry’, *serênus* ‘clear, bright, fair [of weather]’ < *dry [of weather]’, OHG *serawêin* ‘become dry’, Greek *kserón* ‘dry land’, *ksērós* ‘dry, solid’).

### 8.3 Water

The main word for ‘water’ was *wódr* which is attested in most language groups (e.g. OIr *uisce* ‘water’ [> NE *whiskey*], Lat *unda* ‘wave’, NE *water*, Lith *vanduo* ‘water’, OCS *voda* ‘water’ [and the Russian derivative *vodka*], Alb *uje¨* ‘water’, Grk *húdor* ‘water’, Arm *get* ‘river’, Hit *wätar* [genitive *witenas*] ‘water’, Skt

| *wódr* | ‘water’ | NE *water*, Grk *húdör* |
| *h₂eP-* | ‘living water’ | Lat *amnis*, Skt *āp-* |
| *we/ohₓr* | ‘water’ | Lat * térnart*, Skt *vār(i)* |
| *suhₓr* | ‘rain’ | Grk *húei* |
| *h₁wers-* | ‘rain’ | Grk *ēersê*, Skt *vārsati* |
| *ghr(rob/zf)-* | ‘rain’ | Lat *imber*, Skt *abhrā-* |
| *dhreg-* | ‘rain/snow lightly’ | NE *dark* |
| *sneig*h- | ‘to snow’ | Lat *ntere* |
| *yeg-* | ‘ice, icicle’ | NE *icele* |
| *?h₁eih₃(s)-* | ‘ice’ | NE *ice* |
| *ghel(lob/z)b-| ‘hail’ | Grk *khálaza* |
| *rōs* | ‘dew, moisture’ | Lat *rōs* |
| *spoh₂,ino/eh₄* | ‘foam’ | NE *foam*, Lat *spūma* |
| *deh₂,nu-* | ‘river’ | |
| *drewentih₂-* | (river name) | |
| *móri* | ‘sea’ | NE *mere*, Lat *mare* |
| *weh₂,₄p-* | ‘body of water’ | Skt *vāp₂-* |
| *penk-* | ‘damp, mud’ | Skt *pāńku-* |
udan- ‘water’) while *h₂eP- (the labial appears sometimes voiced, sometimes voiceless) is preserved as ‘river’ in a number of languages, more generally as ‘water’ in others (e.g. OIr ab ‘river’, MWel afon ‘river’ [and thus from British the various English river names Avon], Lat annis ‘river’, OHG river names in -affi-., OPrus ape ‘river’, Hit hāpa- ‘river’, Av āfis ‘water’, Skt āp- ‘water’, Toch AB āp ‘water, river’). The combination of attested meanings suggests an original ‘living water’, i.e. ‘water on the move’. Thus these two words for ‘water’ act in much the same way as do the two for ‘fire’. *we/oh₃r offers divergent meanings, e.g. ‘water’ (Luv wār(sa)), ‘rain’ (Av vār, Skt vār(i), ON är ‘fine rain’), ‘pool’ (OPrus wurs), ‘moist’ (OE ārig), ‘marsh’ (Arm gayr), so that its underlying meaning is extremely obscured.

Judging by the number of words for it, ‘rain’ was something with which the Proto-Indo-European community had considerable experience. We are able to reconstruct the verbs *suh₂- ‘rain’ (e.g. Grk hu´ei, OPrus suge ‘rain’, Toch AB su- ‘rain’, and perhaps Alb shi ‘rains’); *h₁wers- ‘rain’ (e.g. Grk eérē ‘dew’, ourēō ‘urinate’ [< *make rain’], Hit warsa- ‘rainfall’), Skt vārṣati ‘rains’; *qbh(ro/ri)- ‘rain’ (e.g. Lat imber ‘shower’, Skt abhrā- ‘rain-cloud’, and probably Grk ómbros ‘rain’, Toch B epprē ‘sky’); and *dhreg- ‘rain/snow lightly’ (e.g. NE dark, Lith dėrgti ‘be slushy, sleety’, ORus padorog ‘stormy weather’, Toch B tarkār ‘cloud’). The root *sneigʷh- (e.g. OIr snigid ‘snows, rains’, Lat nivit ~ ninguit ‘snows’, OE snīwan ‘to snow’, Grk néphei ‘snows’, Sarmyēzˇaiti ‘snows’) gives both the verb ‘to snow’ and two different noun formations of which the zero-grade (*snigʷhs in Lat nix ‘snow’ and Grk nípha [accusative] ‘snow Xake’) is presumed to be the older while Germanic, Baltic, Slavic, and Old Indic yield a full-grade root (*snoigʷhos). ‘Ice’ would appear to be represented by two roots, *yeg- ‘ice, icicle’ (e.g. OIr aig ‘ice’, NE icicle, Hit eka- ‘ice’, Sarikoli [an Iranian language of the Pamirs] yo’z ‘glacier’) and *h₂eth,(s)- ‘ice’ (e.g. NE ice, Lith ýnis ‘glazed frost’, Rus ínej ‘hoarfrost’, Av aěxa- ‘frost, ice’). The meanings of the various reflexes of these words might suggest that the first meant ‘solid expanse of ice’ whereas the second was ‘(hoar)frost’. We also have a possible word for ‘hail’ in PIE *ghek(h₂)d- which is found in Slavic (e.g. OCS žlědica ‘freezing rain’), Grk khálaza ‘hail’, and N Pers zāla ‘hail’.

The root for ‘dew’, *rōs (e.g. Lat rōs ‘dew’, Lith rasā ‘dew’, Rus rosá ‘dew’, Alb resh ‘it is precipitating’, Skt rása- ‘sap, juice’), underlies a number of river names in Indo-Iranian, including the mythical world river of the ancient Indians (Rasā-). The word for ‘foam’, *spoh₂imo/eh₁a (e.g. Lat spūma ‘foam’, NE foam, Lith spāine (with dissimilation of p...m > p...n) ‘foam (of beer)’, may originally derive from the verb ‘to spit’.

The names for ‘river’ are difficult; often elements in river names are offered as potential roots but it is seldom clear that they really derive from a Proto-Indo-European form. Aside from *h₂eP- which apparently includes ‘river’ among its
possible meanings, we have *deh₄nu, which is most famously attested in the river names ‘Danube’ and ‘Don’ (from Iranian, e.g. Av dānu- ‘river’), while *drewentih₂ can be seen in river names as widely separated as Gaul (Druentia) and India (Dravantī).

The word for ‘sea’, *móri, is firmly attested in Celtic (e.g. OIr moir ‘sea’), Italic (e.g. Lat mare ‘sea’), Germanic (e.g. NE mere), Baltic (e.g. Lith mārė ‘sea’), and Slavic (e.g. OCS morje ‘sea’) which would leave it a North-Western word were it not for a possible cognate in Ossetic (mal ‘deep standing water’), an East Iranian language of the Caucasus, which would provide an Asian cognate. Hit marrmar(r)a- ‘swamp’ may be a reduplicated version of the word and, if so, would secure this word to Proto-Indo-European. The semantics of the word pose difficulties as well since it only means ‘sea’, i.e. salt-water sea, in Celtic, Italic, and Slavic while Germanic often suggests a ‘lake’. Generally we find that most Indo-European languages have innovated or borrowed terms to indicate the sea, e.g. Germanic, Greek, Indic, and so the balance of opinion suggests that the word referred originally to an ‘inland sea’ or ‘lake’ and was later extended to mean ‘salt water sea’. However, excepting for a moment Germanic, it is noteworthy that those Indo-European groups with maritime locations (Italic, Celtic, Baltic, and Slavic) have the meaning ‘sea’, while those with an inland location (Ossetic and Hittite) have the meaning ‘lake’. Either meaning could have been developed from the other to reflect the local environment. It is languages like English whose speakers live in a maritime environment but use the inherited *móri for inland waters that tip the balance in favour of an original non-maritime meaning. Another word which could mean anything from a ‘river’ to a ‘lake’ is *weh₃p- ‘body of water’ found in Baltic (Lith įpę ‘river’), Slavic (OCS vapa ‘lake’), Hit wappu- ‘wadi, river bank’, and Skt vāpī ‘large pond’. The existence of *penk- rests on the evidence of Germanic (e.g. OE fūht ‘wet’) and Skt pāṇku- ‘mud, mire’.

There are a considerable number of sub-PIE words, e.g. North-Western *hr₄ek₃eh₃a- ‘water’ (e.g. Lat aqua, NE island); *preus- ‘frost’ (e.g. NE frost, Lat prūna ‘hoarfrost’, with uncertain cognates in Celtic (e.g. OIr reōd ‘strong cold’) and possibly Indic (Skt prusvā- ‘hoarfrost’ or ‘dew, drop’?); *h₂eust(y)o- ‘estuary, river mouth’ (Lat ōstium, Lith ūostas ‘river mouth, harbour’, Rus ustīje ‘river mouth’); *pen- ‘water’ (e.g. OIr en ‘water’, NE fen, OPrus pannean ‘peat-bog’); West Central *yuhr₁₋r- ‘water’ (e.g. Lith jūrės ‘sea’, Thracian iuras [a river name]); *hr₄eghlu (ðh?) ‘rain’ (OPrus aglo ‘rain, Grk akklūs ‘fog, cloud’); *mregh- ‘rain softly, drizzle’ (e.g. Latvian merngūt ‘rain softly’, Grk brēkhei ‘rains’); *k₃er(s)no- ‘hoarfrost, frozen snow’ (e.g. Lith šarmā ‘frost’, Rus sérēn ‘frozen snow’, Arm sārın ‘ice’; *grōdo- ‘hail’ (Lith grūdōs ‘frost’, OCS gradū ‘hail’, and with unusual derivations, Lat grandō ‘hail’, Arm karkut [< *gagrōdo]- ‘hail’); *bhreh₁ẉ (genitive *bhruhnōs) ‘spring’ (e.g. OE brūna ‘spring’ > NE
8.4 Air

The word for the ‘sun’, *séh₂u₂l (genitive *sh₂wén), is old (e.g. Lat sōl ‘sun’, NE sun, Lith sáulé ‘sun’, OCS slínice ‘sun’, Grk hēélios ‘sun’, Av hvar ‘sun’, Skt svár ∼ sár(y)a- ‘sun’); the Old Irish cognate sāil means ‘eye’, a concept also reprised in both Greek and Indic mythology.

The main word for ‘moon’, *mé₂h₁-nōt (or *meh₁-n(é)s-), derives from the verb *meh₁- ‘to measure’, and indicates a functional conception of the moon, i.e. marker of the month. The meaning of the reflexes may be ‘moon’ or ‘month’ or both (e.g. OIr mī ‘month’, Lat mēnsis ‘month’, NE moon, month, Lith mėnuo.

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Language</th>
<th>Language</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>*séh₂u₂l</td>
<td>‘sun’</td>
<td>NE sun, Lat sōl, Grk hēélios, Skt svár</td>
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<tr>
<td>*mé₂h₁-nōt</td>
<td>‘moon’</td>
<td>NE moon, Lat mēnsis, Grk mēn, Skt mās-</td>
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<td></td>
</tr>
<tr>
<td>*(s)kand-</td>
<td>‘moon’</td>
<td>Skt candrā-</td>
<td></td>
<td></td>
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<tr>
<td>*h₂stēr</td>
<td>‘star’</td>
<td>NE star, Lat stēlla, Grk astēr, Skt tāras</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*nébhos</td>
<td>‘mist, cloud; sky’</td>
<td>Lat nebula, Grk néphos, Skt nābhas-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*sneudh-</td>
<td>‘mist, cloud’</td>
<td>Lat nābēs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*vāpōs</td>
<td>‘vapour, steam’</td>
<td>Lat vapor, Skt vāspā-</td>
<td></td>
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</tr>
<tr>
<td>*h₂meigh-</td>
<td>‘drizzle, mist’</td>
<td>NE mist, Grk omikhē, Skt meghā-</td>
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<td></td>
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<tr>
<td>*h₂weh₁-rvās</td>
<td>‘wind’</td>
<td>Skt vāyu-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*h₂weh₁-nt-</td>
<td>‘wind’</td>
<td>NE wind, Lat venus, Skt vāta-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*(s)tenh₂₃-</td>
<td>‘groan; thunder’</td>
<td>NE thunder, Lat tonere, Grk stēnō, Skt stanāyati</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8.4. Air
‘moon, month’, OCS měšćii ‘moon, month’, Alb muaj ‘month’, Grk μην ‘month’, Arm amis ‘month’, Av mā ‘moon, month’, Skt mās- ‘moon, month’, Toch B meñe ‘moon, month’). The other widely found noun, *(s)kand- (Alb heñe ‘moon’, Skt caṇḍra- ‘moon’), derives from the verb *(s)kand- ‘shine’. The word for ‘star’, *h₂stēr (e.g. MIr ser ‘star’, Lat stella ‘star’, NE star, Grk astēr ‘star’, Arm astl ‘star’, Hit hasterza ‘star’, Skt tāras ‘stars’), has long been the subject of debate as to whether it was borrowed from a Semitic source (see Section 6.3.1). Such an origin seems doubtful as one might verify a purely Indo-European etymology for the word and derive it from *h₂eh₂-s- ‘burn’ (i.e. PIE *h₂(h₂)-s-tēr- ‘ember’, with a semantic development like that of Alb yll ‘star’ when compared to OE ysle ‘glowing ash’; both words are from PIE *h₂eus-, a derivative of *h₁eus- ‘burn’).

Words such as *nébhos refer primarily to clouds but have often developed secondary meanings of ‘sky’ (e.g. OIr nem ‘heaven’, Lat nebula ‘mist, fog’, OE nifol ‘dark’, Lith debesis ‘cloud’, OCS nebo ‘sky’, Grk néphos ‘sky’, Skt nábhas- ‘mist, cloud; sky’, Hit nēpis- ‘sky’) while *h₃meigh-, originally ‘drizzle’, comes to mean ‘cloud’ in some languages (e.g. NE mist, Lith miglā ‘mist’, Rus mgla ‘mist, darkness’, Grk omίκλη ‘cloud’, Skt meghā- ‘cloud’) as does the more weakly attested *sneudh- with NWels nudd ‘mist’, Lat nūba ‘cloud’, and Av snaođa- ‘cloud’. Slightly different semantically is the word for ‘steam, vapour’ (*wāpōs) seen at opposite ends of the Indo-European world in Lat vapor ‘vapour, steam’ and Skt vāspa- ~ bāspa- (< *vāpsā-) ‘vapour, steam; tears’.

The atmosphere was not all doom and gloom as derivatives of the verbal root *dei- ‘to shine’ were also employed to indicate both ‘day’ (Chapter 18) and ‘sky’ as well as a sky deity (Chapter 23); in the specific meaning of ‘sky’ (but with different extensions) we have Lat diēm ‘sky’, and Skt dyāus ‘sky’. The words for ‘wind’, *h₂weh₁-yūs (Lith vėjas ‘wind’ and Skt vāyu- ‘wind’) and *h₂weh₁-nt- (e.g. NWels gwyn, Lat ventus, NE wind, Av váta-, Skt váta-, Toch B yente, Hit huwant-, all ‘wind’), both derive from the verb ‘to blow’. A verbal root ‘to groan, to thunder’ is *(s)tenh₂- (e.g. Lat tonāre ‘to thunder’, OE tunor ‘thunder’ (> NE thunder), OCS steno ‘groan’, Grk sténo ‘thunder’, Skt stanāyati ‘thunders’).

The regional words include the following: North-Western *louksnehₐ- ‘moon’ (Lat lūna, OCS luna ‘moon’, OPrus lauxnos ‘stars’); *meldh- ‘lightning’; West Central *(s)kehr₁w(e)r- ‘north wind’ (NE shower, Lat caurus ‘north wind’, Lith šiaure ‘north wind’, šitras ‘cold, northern’, OCS sēveru ‘north’, Arm c’urt ‘cold; shower’); *ghromos ‘thunder’ (possibly an independent formation in those languages where it occurs, OCS gromu ‘noise’, vūz-grīmēti ‘to thunder’, Grk khrómo ‘noise’, from the verb *ghrem- ‘groan’).
8.5 The Physical Landscape of the Proto-Indo-Europeans

The picture provided by the reconstructed lexicon is not very informative concerning the physical environment of the speakers of the ancestral language, although there have been scholars enough who have tried to press the slender evidence into revealing the precise location (or type of location) inhabited by the Proto-Indo-Europeans. That they had words for hills, mountains, or swift rivers may suggest a broken topography but hardly indicates, as has been suggested, that the Proto-Indo-Europeans themselves must have lived atop high mountains. The difficulties inherent in recovering a certain meaning for *mōri- ‘sea’ or ‘lake’ have been often rehearsed and consensus is probably still in support of projecting an original meaning of ‘inland body of water’ that was changed to ‘salt water sea’ in some language groups, e.g. Celtic, Italic, and Slavic. In our earliest attested languages we either find a potential cognate in Hit marmar(r)a- which refers to a body of shallow standing water or, in the case of the Greeks and Indo-Aryans, they borrowed words for ‘sea’ from non-Indo-European sources which has suggested that the Proto-Indo-Europeans did not originally know or have a word for ‘sea’.

As for the rivers, there is a vast literature on the river names of Europe and Asia that has attempted to discern both a system of river names and, often, their origin. Much of modern discussion takes Hans Krahe’s ‘Alteuropäisch’ as its point of departure. Krahe envisaged a hydronymic system that embraced the linguistic ancestor of what we might term the North-West Indo-European languages coupled with Messapic and Venetic. This system was extended back to Proto-Indo-European by W. P. Schmid, while more recently much of the same hydronymic system has been ascribed to Basque by Theo Venneman. All these systems are comprised of a wide variety of river names that are generally derived from exceedingly small bases (conjectural roots such as *el-, *al-, *er-, *or-, etc.) that may belong to any number of different languages or language families and whose underlying meaning simply cannot be verified to any confident degree. The actual number of river names that can be reasonably reconstructed to Proto-Indo-European, as we have seen above, is extremely few.

The terms associated with weather attest a basic range of atmospheric phenomena but nothing decisive as to where precisely the Proto-Indo-Europeans lived. One might compare the fairly basic lexicon associated with cold weather in Indo-European with that of the Indo-Europeans’ northern neighbours who spoke Proto-Uralic and from whose reconstructed lexicon we can recover words for ‘thin ice’ (*čaka), ‘hard snow’ (*čäke), ‘thin snow’ (*kum3), ‘fine snow’ (*kura), and other terms that are clearly associated with a colder environment than one commonly reconstructs for the Proto-Indo-Europeans. But
generally, those concerned with locating the Indo-European homeland through its lexicon tend to employ the evidence of its reconstructed fauna (Chapter 9) and flora (Chapter 10).

Finally, the astral vocabulary of the Indo-Europeans disappoints in its meagreness. While the night sky may alter gradually through time one might have hoped that the Indo-Europeans would have retained their names for stars and constellations reasonably well compared with, for example, terms for flora and fauna that might alter over the course of their migrations into different environments. This does not seem to be so, and whatever the original Proto-Indo-European view of the heavens was, it seems largely beyond recovery. Such potentially major sources of astral knowledge as Greek seem to have been remodelled on the basis of Babylonian astronomy. The most solidly ‘reconstructed’ Indo-European constellation is Ursa Major, which is designated as ‘The Bear’ (Chapter 9) in Greek and Sanskrit (Latin may be a borrowing here), although even the latter identification has been challenged. Eric Hamp has suggested that we can also reconstruct a second constellation, a ‘Triangle’ (and not the constellation Triangulum). This is suggested by Av tištriya- ‘three-star’ that may be cognate with Grk Seĩrios ‘Sirius, the dog-star’ thus suggesting a ‘three-star’ constellation involving Sirius. Hamp proposes a constellation that would embrace bright stars in Orion (Betelgeuse), Canis Major (Sirius), and Canis Minor (Procyon)(hence we may have a celestial ‘Dog’ contrasted with a ‘Bear’; neither of these is in the Babylonian zodiac where we find instead animals such as the lion, bull, and scorpion).

Further Reading

Many attempts to fix the location of the Proto-Indo-European world have depended heavily on the reconstructed vocabulary that pertains to the environment, both floral and faunal. It is often reasoned that if the reconstructed environment is specific enough, it can either indicate where the Proto-Indo-Europeans once dwelled or at least exclude territories that are incompatible with the reconstructed vocabulary. The problem with utilizing such data is logically self-evident. If an item is severely restricted in space, for example, the camel, then any Indo-European group who moved beyond the natural territory of the camel might do one of three things with their original word ‘camel’:

1. They might simply abandon the word altogether as they and their linguistic descendants were not likely to encounter a camel for the next several thousand years.

2. They might use the name ‘camel’ when they came across another animal that they were unfamiliar with but which bore some similarity in appearance or function. From the perspective of the historical linguist, we might then have to confront a situation where the original meaning ‘camel’ was (or was not) retained in those groups who lived where camels have always dwelled while other languages developed a totally different meaning for this word. The other
languages might well outnumber those who retained the original meaning or, worse, no language might retain the original meaning.

3. The population might retain the name and the meaning of ‘camel’ for thousands of years as a gesture of benevolence to future historical linguists.

Now, put so baldly, a scenario such as number three is impossible. However, it is certainly not the case that an animal or plant has to be native to the area where a particular language is spoken for the speakers of that language to have or retain a name for it. The lion has been extinct in Europe since classical times (and before then was, in any case, restricted to the Balkans) and the elephant and leopard have never shared Europe with modern humans. Nevertheless all medieval European languages had words for all three and at least the lion and the leopard played important roles in medieval and modern heraldry. Similarly, although snakes have always been absent from Ireland (even before St Patrick!), the Irish retained two inherited Indo-European names for the snake.

Illustrative of both points two and three is the history of English elk. When the Angles and Saxons invaded Britain from their continental homes, they were familiar with both *Alces alces* (the ‘elk’ of European English and the ‘moose’ of North American English) and *Cervus elaphus* (the ‘red deer’ of European English and the ‘elk’ of North American English) and applied those designations to members of the same two species which were also present in Great Britain. By about AD 900 *Alces alces* was extinct in Great Britain but the loss of local referents did not mean that the word ‘elk’ disappeared since the species was still familiar to some speakers because of its continued existence on the Continent (e.g. Scandinavia, Germany). However, for most speakers the referent was pretty vague, something like ‘large deer’ or the like. By 1600 or so the inherited designation for *Cervus elaphus* had been replaced by the innovative and descriptive *red deer* and by about the same time or so the species itself had disappeared from most of southern Britain except for a small number kept for the chase. At that point for most speakers of southern British English there were two terms for large deer, ‘elk’, and ‘red deer’, without well-known referents.

When some of these southern British English speakers emigrated to New England at the beginning of the seventeenth century they came to live in an environment again with both *Alces alces* and *Cervus elaphus* and they needed names for both. ‘Red deer’ was not suitable for either since neither *Alces alces* nor the North American variety of *Cervus elaphus* was noticeably red. However, ‘elk’ was available and was assigned to the commonest large deer in the new environment, *Cervus elaphus*, while a borrowing from the local Algonquian language, ‘moose’, was pressed into service for *Alces alces*.
In terms of Indo-European as a whole this case is probably not the only one whereby a word, relegated to the periphery of the lexicon and to a vague referent by environmental change, was reassigned to a new referent by yet another environmental change. In any case all three of our options pose real problems in recovering really specific evidence for the one and only Proto-Indo-European world.

### 9.2 Mammals

As a semantic class, the names for animals, at least mammals, are fairly abundant in the reconstructed lexicon. In reviewing the names associated with mammals, it is not always certain whether one is dealing with a domestic or a wild animal and hence all the words associated with mammals are treated together in Table 9.1.

| *kʷetwor-pod* | ‘animal’ | Lat *quadrupēs*, Grk *tetrāpous*, Skt *cātuspad-* |
| *gʷhwer* | ‘wild animal’ | Lat *fera*, Grk *thèr* |
| *pēku* | ‘livestock’ | Lat *pecu*, NE *fee*, Skt *pāsu-* |
| *(s)teuros* | ‘large (domestic) animal’ | NE *steer* |
| *wreṭos* | ‘flock, herd’ | Skt *vrāta-* |
| *demh₂r* | ‘tame, subdue’ | Lat *domò*; NE *tame*, Grk *dāmmēmi*, Skt *dāmāyati* |
| *gʷyēh₂wyom* | ‘animal’ | Grk *zōn* |
| *h₂/swēdṛ* | ‘creatures, (wild) animals’ | Grk *léōn* |
| *lēuh₂ôn* | ‘animal’ | Lat *vitulus*, Grk *ételon*, Skt *sa-vātāra-* |
| ?*per-* | ‘offspring (of an animal)’ | Grk *pórhoν*; Skt *pṛthukap-1* |
| *koph₂ós* | ‘hoof’ | NE *hoof*, Skt *sāpha-* |
| *kṛnom* | ‘horn’ | Lat *cornum*, NE *horn* |
| *kṛḥ₂s* | ‘horn’ | Grk *kēras* |
| *kṛḥ₂ṛ* | ‘horn’ | Lat *crābrō* |
| *kòru* | ‘horn’ | Lat *cervus*, NE *hart*, Grk *kórudos* |
| *kem-* | ‘hornless’ | NE *hind*, Grk *kemās*, Skt. *sāma-* |
| *h₂/eghish* | ‘hedgehog’ | Grk *ekhīnōs* |
| *kasos* | ‘hare’ | NE *hare*, Lat *cānus* |
| *werwer-* | ‘squirrel’ | Lat *vīverra* |
| *bhēbhrus* | ‘beaver’ | Lat *fiber*, NE *beaver* |
| *mūs* | ‘mouse’ | Lat *mūs*, NE *mouse*, Grk *mūs*, Skt *mùs-* |

(Cont’d.)
<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Latin</th>
<th>Greek</th>
<th>Sanskrit</th>
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<tr>
<td>*pélh,us</td>
<td>‘mouse’</td>
<td>Lat: glōs, Grk: galḗ, Skt: giri-</td>
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<td></td>
</tr>
<tr>
<td>*g</td>
<td>hj</td>
<td>is</td>
<td>‘dormouse?’</td>
<td>Lat: volpḗs, Grk: alōpōs</td>
</tr>
<tr>
<td>*w</td>
<td>l(o)p-</td>
<td>‘(red)fox’</td>
<td>Lat: lupus, NE: wolf, Grk: lúkos, Skt: vīk-</td>
<td></td>
</tr>
<tr>
<td>*wlw</td>
<td>os</td>
<td>‘wolf’</td>
<td>Skt: vīk-</td>
<td></td>
</tr>
<tr>
<td>*wlw</td>
<td>ih</td>
<td></td>
<td>‘she-wolf’</td>
<td>Skt: vīk-</td>
</tr>
<tr>
<td>*hž</td>
<td>lkos</td>
<td>‘bear’</td>
<td>Lat: ursus, Grk: ārktos, Skt: ḫa-</td>
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</tr>
<tr>
<td>*k(u)wōn</td>
<td>‘dog’</td>
<td>Lat: canis, NE: hound, Grk: kūn, Skt: śvā</td>
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<td></td>
</tr>
<tr>
<td>*t</td>
<td>drōs</td>
<td>‘otter’</td>
<td>Lat: lutra, NE: otter, Grk: énudris, Skt: udra-</td>
<td></td>
</tr>
<tr>
<td>*kek-</td>
<td>‘polecat’</td>
<td>Skt: kāśa-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*lōk-</td>
<td>‘weasel’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*bhel-</td>
<td>‘± marten; wildcat’</td>
<td>Lat: fēlis, Skt: bharu-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*h</td>
<td>jék</td>
<td>kos</td>
<td>‘horse’</td>
<td>Lat: equus, Grk: hippoc, Skt: aśva-</td>
</tr>
<tr>
<td>*h</td>
<td>jék</td>
<td>wheh</td>
<td></td>
<td>‘mare’</td>
</tr>
<tr>
<td>*s</td>
<td>os(os)os</td>
<td>‘ass’</td>
<td>Lat: asinus, Grk: Ḫonas</td>
<td></td>
</tr>
<tr>
<td>*s</td>
<td>as</td>
<td>‘pig (wild or domesticated)’</td>
<td>Skt: sās, NE: sow, Grk: Ḫūs ~ sās, Skt: sākara-</td>
<td></td>
</tr>
<tr>
<td>*pōrk</td>
<td>os</td>
<td>‘young pig, piglet’</td>
<td>Lat: porcus, NE: farrow</td>
<td></td>
</tr>
<tr>
<td>*t</td>
<td>work</td>
<td>os</td>
<td>‘boar’</td>
<td>Grk: ēlaphos</td>
</tr>
<tr>
<td>*h</td>
<td>j</td>
<td>el</td>
<td></td>
<td>en</td>
</tr>
<tr>
<td>*h</td>
<td>z</td>
<td>ol</td>
<td>is</td>
<td>‘alk/American moose’</td>
</tr>
<tr>
<td>*g</td>
<td>w</td>
<td>ōs</td>
<td>‘cow’</td>
<td>Skt: ahī-</td>
</tr>
<tr>
<td>*h</td>
<td>j</td>
<td>e</td>
<td>gh</td>
<td>‘cow’</td>
</tr>
<tr>
<td>*wok</td>
<td>eh</td>
<td></td>
<td>‘cow’</td>
<td>NE: ox, Skt: ukān-</td>
</tr>
<tr>
<td>*u</td>
<td>kh</td>
<td>os</td>
<td>‘ox’</td>
<td></td>
</tr>
<tr>
<td>*d</td>
<td>omh</td>
<td>y</td>
<td>os</td>
<td>‘one to be tamed, young bull’</td>
</tr>
<tr>
<td>*tauros</td>
<td>‘aurochs; bull’</td>
<td>Lat: taurus, Grk: tāuros</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*us</td>
<td>r-</td>
<td>‘aurochs’</td>
<td>Skt: usrā-</td>
<td></td>
</tr>
<tr>
<td>*h</td>
<td>j</td>
<td>ōwis</td>
<td>‘sheep’</td>
<td>Lat: ovis, NE: ewe, Grk: oıs, Skt: āvi-</td>
</tr>
<tr>
<td>*h</td>
<td>j</td>
<td>owik</td>
<td>eh</td>
<td></td>
</tr>
<tr>
<td>*wr</td>
<td>j</td>
<td>en</td>
<td>‘lamb’</td>
<td>Grk: ărēn, Skt: urān-</td>
</tr>
<tr>
<td>*moi</td>
<td>os</td>
<td>‘ram, sheep; fleece, skin’</td>
<td>Skt: mesā-</td>
<td></td>
</tr>
<tr>
<td>*(s)ke</td>
<td>gos</td>
<td>‘sheep/goat’</td>
<td>NE: sheep, Skt: chāga-</td>
<td></td>
</tr>
<tr>
<td>*h</td>
<td>j</td>
<td>eri-</td>
<td>‘sheep/goat’</td>
<td>Lat: āriēs, Grk: ēriphos, Skt: āreya-</td>
</tr>
<tr>
<td>*d</td>
<td>iks</td>
<td>‘goat’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*h</td>
<td>j</td>
<td>e</td>
<td>igh</td>
<td>‘goat’</td>
</tr>
<tr>
<td>*bhug</td>
<td>os</td>
<td>‘buck, he-goat’</td>
<td>NE: buck, Skt: bukka-</td>
<td></td>
</tr>
<tr>
<td>*h</td>
<td>j</td>
<td>e</td>
<td>gos</td>
<td>‘he-goat’</td>
</tr>
<tr>
<td>*k</td>
<td>apros</td>
<td>‘he-goat’</td>
<td>Lat: caper</td>
<td></td>
</tr>
<tr>
<td>*h</td>
<td>j</td>
<td>el</td>
<td></td>
<td>‘he-goat’</td>
</tr>
<tr>
<td>??*(y)eb</td>
<td>h-</td>
<td>‘elephant’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>??*lebh-</td>
<td>‘ivory’</td>
<td></td>
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</tbody>
</table>
Terms for mammals, both wild and domesticated, are relatively abundant compared with many other semantic categories. There are a number of basic terms for animals that focus on different aspects. For example, *kʷetω-ρ-πόδ- ‘animal’ is transparently a ‘four-footer’ and the word is attested in six different groups (Lat quadrupēs, Lith keturkős, Alb shtazë, Grk tetrápous, Skt cāṭuspad-, Toch B štwerpew). The word *gʰwēr ‘wild animal’ (e.g. Lat fera ‘wild animal’, Lith žvėris ‘wild animal’, OCS zwěři ‘wild animal’, Grk θῆρ ‘wild animal’; cf. the derived verb in Toch B šerīs ‘to hunt’ [wild animals]) contrasts in meaning with *pēku ‘livestock’ which exclusively denotes domestic animals or possessions (e.g. Lat pecu ~ pecus ‘cattle, livestock’, OE feoh ‘livestock, property, money’ [> NE fee], Lith pėkus ‘cattle’, Av pasu ‘cattle’, Skt pāṣu- ‘cattle’). The *(s)teuros ‘large (domestic) animal’ is attested in Germanic (e.g. NE steer), Iranian (e.g. Av stāora- ‘large [domestic] animal [i.e. horse, cow, camel]’), and Alb ter ‘bullock’ (in meaning this word has been drawn to the phonetically similar *tauros ‘aurochs, bull’). The term for an animal collective may have been *wre-τός ‘Xock, herd’ although cognates are limited to Germanic (e.g. OE wrena ‘herd of swine’) and Skt vra-ṭa ‘Xock, swarm’ which may have been formed on the verbal root *wer- ‘bind’. The nuanced meaning of *demh- ‘tame, subdue’ is of considerable interest and difficulty. The word is supported by cognates in seven groups: Celtic (OIr domnaid ‘binds, breaks [a horse]’), Lat domō ‘break, tame’, Germanic (e.g. NE tame), Grk dāmnēmi ‘break’, Hit damaszi ‘presses, pushes’, NPers dām ‘tamed animal’, Skt dāmāyati ‘subdues’. There are specific associations with horse-breaking in Celtic, Latin, Greek, and Indic, e.g. the Sanskrit agent noun damita- ’(horse) breaker’. But the meanings also extend to other animals, e.g. OIr dom ‘ox’, and frequently refer to the subduing of human opponents in Greek and other groups; also the Hittite cognate does not have a specific association with the maintenance of animals. This word has variously been seen to be an independent root or an o-stem derivative of *dem(h)₃- ‘build (a house)’ on the argument that the act of taming is literally ‘domestication’.

PIE *gʷ-yeḥ₂wyom ‘animal’ (Grk ζώον ‘animal’, Toch B šaiyye ‘sheep/goat’) is built on the root *gʷyeḥ₂ > *gʷeiḥ₂- ‘to live’ and hence relates to living beings while the poorly attested (in ON vīnir ‘animal, wolf’ and Hit huetar ‘creatures, [wild] animals, wolfpack’ only) *h₂/₃wed- ‘creatures, (wild) animals, wolves’ also seems to derive from an unattested verb ‘to live’, *h₂/₃wed-; it is a heteroclitic r/n-stem which argues for antiquity and it has some possible Slavic cognates associated with ‘werewolves’ (e.g. Slov vedevć ‘werewolf’). Proto-Indo-European *lēuh₂ōn ‘animal’ rests only on Greek (léon ‘lion’) and Tocharian (e.g. Toch B luwo ‘animal’) evidence and gives us ultimately through a series of loans (Greek > Latin > English) our NE word lion. A yearling, *wētelos, is attested in three stocks (e.g. Lat vitulus ‘calf, yearling’, Grk ételon
'yearling', Skt sa-vātāra- 'having the same calf') and gives us, among other words, the name of Italy, i.e. 'land of young cattle'; a related formation gives NE wether. The status of *per- 'offspring (of an animal)' is doubted because a number of groups may have created nouns from the verbal root *per- 'appear, bring forth' independently (e.g. OE fearr 'bullock, steer', Grk πόρις ~ pórtis 'calf, heifer', Skt prthuka- 'child, young of an animal').

A number of anatomical terms apply specifically to animals. The word for 'hoof', *kopho’s, is attested in Germanic (e.g. NE hoof), Slavic (e.g. Rus kopýto 'hoof'), and Indo-Iranian (e.g. Av saf-a- 'hoof', Sápha- 'hoof, claw'). There are a number of words for 'horn' but all built out of the same basic root, *ker- 'horn', i.e. *ærnom (e.g. Lat cornum, NE horn), *ærh₁₂ (s) (e.g. Grk keras, Toch B karse 'stag' [< *'horned one'], *ærh₂sr (e.g. Lat cræbrō 'hornet', Lith širšuő 'hornet', Toch B krořyã 'horn'), and *kørō 'horn' (e.g. Lat cervus 'stag', Lith kārve 'cow', Rus koróva 'cow', Grk körudos 'crested lark', koruphá 'crest [of mountain or horse]', Av srva- 'horn; claw, talon'). There is a wide range of animals designated *cem- 'hornless' (Skt sāma- 'hornless'), e.g. 'hind' in English and Greek (kemás 'young deer'), 'sheep' in Old Prussian (camstian), and 'horse' in Russian (konť) and Old Prussian (camnet). The hornless sheep in Old Prussian and the 'hornless' horses of Russian and Old Prussian are both presumably in contrast to the other major domesticated animal, horned cattle.

The number of wild mammals' names attributable to Proto-Indo-European is reasonably extensive. If we work our way systematically beginning with the insectivores, we have only the 'hedgehog', *h₁egh₁is, whose name survives in Germanic (e.g., OE igil), Baltic (e.g. Lith ežyš), Slavic (e.g. Rus ež), Grk ekhinos, Arm ozn, Phrygian ezis, and Iranian (Oss wyzy). The sole lagomorph is the *kasos 'hare' (e.g. NE hare, OPrus sasins, Skt sašá-), whose name derives from the adjective 'grey' (or, just possibly, the adjective 'grey' was originally 'hare-coloured' or the like)—compare Lat cānus (< *kasnos) 'grey'.

Several rodents are known and these comprise the 'squirrel', *werwerp-, attested in six groups, e.g. ScotsGael feòrag, Lat viverra, OE āc-weorna (<*oak-squirrel'), Lith vèveris, Rus vèverica, and OPers varvarah; the 'beaver', *bhebhrus (e.g. Gaul bebru-, Lat fiber, NE beaver, Lith bebrús, Rus bobr, Av bawra-), which also exhibits a derivative *bhebhrinos 'pertaining to beavers'. (India lacked the beaver and there we find a babhrú- 'mongoose'.) There are three words for the mouse, i.e. the ubiquitous (nine groups) *mús 'mouse' (e.g. Lat mūs, NE mouse, OCS myšić, Alb mị, Grk mūs, Arm mukan, NPrs mūs, Skt mūṣ-, all 'mouse', and Toch B maścīṣi 'mice, rats') that derives from the verb *meus- 'steal'; *pélh₁,us, another name presumably derived from the adjective 'grey' (e.g. OIr luch, Rus polokhōk, Shughni [an Iranian language of the Pamirs] pūrγ); and *gžis (Lat gēs 'dormouse', Grk galēē 'weasel' [< *mouser].
Bakhtiari [an Iranian language] girza ‘rat’, Skt girı́ ‘mouse’) which possibly specified the ‘dormouse’.

The major carnivores, at least those that preyed on livestock or were a potential threat to humans, are well represented although often showing substantial independent re-formation. This is the case with *w(l)op- ‘fox’ (e.g. Lat vulpēs, Lith ląpē, Grk alópeks ∼ alōpōs, Arm alūēs, Hit ulip(pa)na- ‘wolf’, Av urupiś ‘dog’, raopi- ‘fox, jackal’, Skt lopāśā- ‘jackal, fox’), for example, which boasts at least six different potential proto-forms. The word for ‘wolf’, *wīk’os and its feminine i-stem derivative, are widely attested (*wīk’os is found in ten groups: Lat lupus, NE wolf, Lith vilkas, Rus volk, Alb ujk, Grk lúkos, Av vəhrka-, Skt ṣṭōka-, Toch B walkwe). The word uniformly means ‘wolf’ in all groups but Anatolian (e.g. Luv walwa/i-) which preserves a meaning ‘lion’, and the word has been variously explained as a nominalization of the unattested adjective ‘dangerous’ (*wīk’o-) or derived from a verbal root *wel- ‘tear’. In either case, the different semantic specifications of ‘the dangerous one’ or ‘the tearer’ in Anatolian and the rest of Indo-European may suggest semantic shift as one (the Anatolians) or the other (residual Indo-Europeans) moved into a new territory (as Greece and the Balkans also possessed lions, it is perhaps more likely that it is the Anatolians who innovated). The word for ‘bear’, *h2ratkos (e.g. OIr ard, Lat ursus, Alb ari, Grk árktos, Arm ar, Av arōša-, Skt jōksa-, all ‘bear’, and Hit harr(ag)ga- ‘a cultic official, bear-man’), has been similarly explained as a nominalized ‘destroyer’. The root, *h2retk-, is otherwise seen only in Skt rāksas- ‘destruction, damage; night demon’. The Bear also is used to designate Ursa Major (the Plough or Big Dipper) not only in Latin but also in Greek and Sanskrit. The word for ‘dog’, *k(u)wōn, is one of the most widely attested words in Indo-European (OIr cuain, Lat canis, OE hund [> NE hound], Lith šūō, Rus sūka ‘bitch’, Grk kýōn, Arm šun, Av spā, Skt śvā, Toch AB ku, all ‘dog’, Hit kuwan- ‘dog-man’). While it may seem somewhat surprising that in contrast to words for cattle, sheep, goats, and pig, we have only one solidly attested word for the dog, the oldest domesticated animal, in Indo-European, English is similarly served and once we have worked our way through the usual ‘pooch’, ‘bow-wow’, ‘puppy’, ‘bitch’, ‘cur’, and ‘mongrel’ in Roget’s International Thesaurus most of the remaining words are attributive, e.g. ‘police dog’, ‘sniffer dog’. The selective breeding of dogs does not appear to have begun till the later prehistoric period.

The smaller carnivores include the *udrōs ‘otter’ (attested in seven groups: e.g. Lat lutra, NE otter, Lith ūdra, Rus výdra, Grk énudris, Av udra-, Skt udrā-) which is formed from the word for ‘water’, *wōdṛ, the *kek-, attested in only Baltic (e.g. Lith šėškas) and Indic (Skt kāṣa-), refers to a ‘polecat’ or ‘weasel’ respectively. The original referent may have been specifically the ‘polecat’ if one accepts the Balto-Slavic-Iranian correspondence (e.g. Latv luoss, Rus lāska,
NPers rāśū) that presupposes Proto-Indo-European *lōk- which uniformly designates the ‘weasel’. Far more ambiguous is the root *bhel- which is found in NWels bele to mean ‘marten’, Lat félis to mean any small carnivore (from marten to wild cat), and just possibly Skt bharuja- ‘jackal’. It could mean either a ‘marten’ or a ‘wild cat’ or possibly some other small carnivore.

The ungulates are the best attested of the mammals. The word for ‘horse’, *h₁ēkwos, is nearly universal (e.g. OIr ech, Lat equus, OE eoh, Grk hippos, Av aspa-, Skt áśva-, Toch B yakwe, HierLuv aza(wa)-, all ‘horse’, Lith ašvienis ‘stallion’, perhaps Arm čēs [this may be an unrelated loanword for ‘ass’], and perhaps surviving in Alb sasē ‘horsetail rush, Equisetum spp’ [presuming a compound where *h₁ēkwo- is the first element]). absent only in Slavic for sure, while the feminine form, *h₁ēkwehₐ- ‘mare’, is known from four groups (Lat equa, Lith ešvā ~ aśvā, Av aspā, Skt áśvā-). The status of the animal, whether wild or domesticated, is a major issue of Indo-European studies and will be dealt with later. The word for the ‘ass’ (ʔ*os(ơ)nos) is a long shot that requires a genetic relationship between Lat asinus, Grk oñoς, and Luv ṭarkasna- (if from a compound *tarka-asna- ‘draft-ass’), when there are grounds to suspect that the word was borrowed among these different languages. Far more solid attestation comes for the words for the ‘pig’, *sās (eight groups: e.g. Lat sās ‘pig’, NE sow, Latv suvēns ‘young pig’, Alb thi ‘pig’, Grk sās ~ hūs ‘pig’, Av hū- ‘pig’, Skt sūkarā- ‘pig, boar’, Toch B suwo ‘pig’), and its young, *pōrkōs ‘young pig, piglet’ (e.g. MIr orc ‘young pig’, Lat porcus ‘young pig’, OE fearh ‘pig’ [cf. NE farrow], Lith paršas ‘young pig; castrated male hog’, Rus porosēnok ‘young pig’, Av pōrāsa- ‘young pig’), which appears to derive from a root *pērk-‘dig, root up the earth’ (which is not attested as a verb but which also appears in NE furrow); this word was also borrowed into the Uralic languages (e.g. Finnish parsas ‘pig’). Less certain (only an OIr torc and Av θβωρασ-, cognate) is *tworkōs ‘boar’.

The ‘red deer’ or ‘elk’ (to North Americans), *h₁elh₁ēn, is well attested in eastern and central Europe and has an Asian cognate in Tocharian which designates ‘gazelle’ (e.g. Lith élnis, Rus oleni, Grk élaphos, all ‘red deer’, Arm eln ‘hind’, Toch B yal ‘gazelle’); the larger ‘elk’ or for North Americans, ‘moose’, *h₁ólēkis, shows a similar pattern of semantic shift where it means ‘elk’ in the European languages but refers to ‘wild sheep’ or ‘antelope’ among the Asian groups (e.g. NE elk [Lat alcēs is borrowed from West Germanic], Rus losi ‘elk’, Khot rūs- ‘Ovis poli’, Skt ūṣya- ‘male of antelope’). This whole group of words is presumably related to *h₁elu- ‘dull red’ (Section 20.4) and the animals denoted by the colour of their hair (cf. the British English designation ‘red deer’).

Terminology relating to cattle is abundant and includes three different words for ‘cow’, i.e. *gʷōus (e.g. OIr bō, Lat bōs, NE cow, Latv guovs, ?Alb ka, Grk
boûs, Arm kov, HierLuv wawa-, Av gāuš, Skt gāu-, Toch B keu, all ‘cow’, OCS govęždi ‘of cattle’; *h₁egʰ- (e.g. OIr ag ‘cow’, Arm ezn ‘cow’, Skt ahr- ‘cow’); and *wokêh₂- (Lat vacca ‘cow’, Skt vaśā- ‘cow’) with no clear semantic difference between the three although the first is found in virtually all major groups of Indo-European. The male is more specifically designated by *uk(w)sên- ‘ox’ as in OIr oss ‘stag, cow’, NWels ych ‘ox’, NE ox, Av uxsan- ‘bull’, Skt ukṣān- ‘bull’, Toch B okso ‘ox’ (another term for ‘bull’, *domh₂yos ‘one to be tamed; young bull’, is known only from Alb dem ‘bull, steer’ and Skt damya- ‘[young bull] to be tamed’, and they may be independent creations). The name of the wild cattle of Eurasia, *tauros (e.g. OIr tarb ‘bull’, Lat taurus ‘bull’, OPrus tauris ‘bison’, Lith avius ‘sheep’, OCS ovı˘nu˘ ‘sheep’, Grk o´is ‘sheep’, Arm hoviw ‘shepherd’, Luv ha¯wa/i- ‘sheep’, Skt ávi- ‘sheep’, TochB āu ‘ewe’). The feminine derivative, *h₂o-wike’h₂a- ‘ewe’, is found in three groups (e.g. NWels ewig ‘hind’, OCS ovı˘ci ‘ewe’, Skt avika¯- ‘ewe’) while the young, *wrh₁e¯n- ‘lamb’, is found in Grk are¯n, Arm gäin, Indo-Iranian (Av varan-, Skt uran-), and perhaps Tocharian (Toch B yrṭye) and may be a later regional term. A product of the sheep is suggested by *moisós which can mean both ‘ram, sheep’ but also ‘fleece, skin’ (e.g. Lith maïšas ‘bag’, Rus mekh ‘skin’, Av maēša- ‘ram’, Skt mesā- ‘ram, sheep; fleece, skin’, Hit maista- ‘strand of wool’). Reconstruction of a PIE *(s)kêgos ‘sheep/goat’ depends on relating a series of Germanic words (e.g. NE sheep, OE hēcen ‘kid’) to a strong set of Indo-Iranian ones (e.g. Oss sëy- ‘she-goat’, Skt chāga- ‘he-goat’). Another word for ‘sheep/goat’ (*h₁eri-) gives words for ‘lamb/kid’ in Grk ériphos ‘young of a goat’, Baltic (OPrus eristian ‘lamb’, Lith ėras ‘lamb’), Arm oroj ‘lamb’, and
perhaps Tocharian (Toch B ยรี ‘lamb’) and words for ‘ram’ in Italic (e.g. Lat ariēs), Indic (Skt देवर ‘lamb’), and Tocharian (Toch Barīwe); in Celtic the same word is extended to fallow deer (OIr heirp ‘she-goat; fallow deer’).

Words for ‘goat’ are never quite so abundantly attested as those for the economically more important ‘sheep’ but four words can be assigned to Proto-Indo-European antiquity. PIE *diks ‘goat’ can designate the ‘she-goat’ in several languages (e.g. OE ticcen ‘kid’, Alb dhë ‘she-goat’, ?Grk δίζα ‘she-goat’, Ishkashmi [an Iranian language of the Pamirs] de ‘goatskin bag’) and a similar range of meaning is associated with *h₃eigōs ‘goat’ with a range of cognates such as Alb edh ‘kid’, Grk aiks ‘she-[goat]’, Arm ayc ‘[she]-goat’, and Av ḳaṃēnā ‘goathide’. All the other terms relate to the male, i.e. *bhugēs ‘buck, he-goat’ (OIr boc ‘buck’, NE buck, Arm boc ‘lamb’, Av būza- ‘[he]-goat’, Skt bukkha- ‘[he]-goat’); *h₃eigōs, which would appear to derive from the verbal root *h₃eig- ‘drive’ (e.g. Lith ožyš ‘he-goat’, Av aza- ‘he-goat’, Skt ajā- ‘he goat’); *kāpros (e.g. OIr gabor ‘he-goat’, Lat caper ‘he-goat’, OE heifer ‘he-goat’, NPers kahra ‘kid’) which derives from *kāpr ‘penis’; and *h₄eli (Toch B āl ‘ram, he-goat’, Hit aliyan(a) ‘roebuck’—one should note that roebuck have very underlike horns, horns that are closer to those of goats than to those of other deer).

Words associated with the elephant receive some attestation, i.e. *(y)ebh- ‘elephant’ (Lat ebur, Skt ibha-) and *(y)ebh- ‘ivory’ (Myc e-re-pa, Grk ἄλοξ and Hit lahpa-). There are those who would claim that they are both Proto-Indo-European (and indicate an Asian homeland), but the word for elephant is close enough to the Egyptian word (3bw) to suggest a Wanderwort and objects of ivory were widely traded in the eastern Aegean during the Bronze Age, and borrowing is usually, and surely correctly, suspected here as well.

Regional sets of cognates for mammals include the following: [North-Western] *korman- ‘weasel, ermine/stoat’ (e.g. OHG harmo ‘stoat’, Lith ᵊarmuo ‘wild cat; ermine, weasel’); *melī- ‘badger’ (Lat mêlēs, Slovenian melc ‘badger’); *kat- ‘cat’ (Lat cattus, but a late loanword perhaps associated with the spread of the domestic cat from Egypt, cf. Nubian kadīs ‘cat’, which was in turn widely borrowed by many other European languages); *máros ‘horse’ (e.g. OIr marc ‘horse’, NE mare) and attested only in Celtic and Germanic—some would attempt to relate it to words of east Asia, e.g. Mongol morin; *keul- ‘pig’ (Celtic [MWels Cúthych, a mythological figure associated with swineherds and boar-hunting] and Baltic [Lith kiaule ‘pig’]); *h₁elh₂nih, ‘hind/cow-elk’ (e.g. NWels elain, Lith élne, OCS lani ~ alni, all ‘hind’), the feminine derivative from the more widely attested PIE *h₁elh₁en ‘red deer’, *wis- and/or *g(h)ombhros ‘bison’ (the first is found in Germanic, e.g. OHG wisan [whence by borrowing Lat bisōn], the second in some of the Baltic languages, e.g. Lith stuńbras, Latv subsr, and Slavic, e.g. Rus zubr, while OPrus wis-sambris ‘bison’, combines the two); and *ghaidos
‘goat’ (e.g. Lat haedus, NE goat). Those words with a West Central distribution include *meh,l- ‘small animal’ (e.g. OIr mtl ‘(small) animal), NDutch maal ‘young cow’, with an initial s-mobile, this root gives us NE small, Grk melon ‘sheep, goat’); *dibvro- ~ *dibbro- ‘(sacrificial) animal’ (Gothic tibr ‘sacrifice’, OE tiber ‘offering’, MHG ungezibere ‘vermin’ [< ‘animals unsuited for the sacrifice’]), OHG zebra ‘offering’ [the only form requiring *dibbro-], Arm tvar ‘male sheep, herd of cattle’), perhaps a compound whose second member is *bher- in the latter’s meaning of ‘offer sacrifice’ but the initial part is obscure; *ghér ‘hedgehog’ (Lat ēr, Grk kheér), the regional word in Latin and Greek; *sw(o)-or *sworaks ‘shrew’ (e.g. Lat sōr, Latv sussuris, Bulg sΔar, Grk χυράκ, all ‘shrew’); possibly *skoli- ‘young dog’ (e.g. Lith kaλe ‘bitch’, Alb këlysh ‘young dog’, Grk skulaks ‘young dog, young animal’); *walos ‘wolf’ (an Irish-Armenian isogloss, OIr faēl ‘wolf’, Arm gayl ‘wolf’, possible from the ‘wail’ of the wolf); *dhōhəs ‘wolf’ (Phryg daōs ‘wolf’, Grk thōs ‘jackal; wild dog; panther’, a derivative of which gives Lat faunus ‘deity of forests and herdsmen’ with its neo-Lat fauna); *h₁wiselo- ‘weasel’ (e.g. Nir fial ‘ferret’, NE weasel) may be a North-Western word if one does not accept a potential Greek cognate (aielouros ‘cat; weasel’); *luk- ‘lynx’ (e.g. OIr lug, OE lox, Lith lāsis, Rus rysɨ, Grk lūkς, Arm (pl.) lusamunk’, all ‘lynx’; NE borrows its lynx from Greek rather than continues the inherited form in OE lox); *li(w)- ‘lion’ (in Slavic, e.g. Rus lev, and Greek, i.e. lis, the latter suspected by some to be a borrowing from Hebrew layiw ‘lion’); *mū(k)skos ‘ass/donkey’ (e.g. Lat mālus ‘mule’, ORus mäskä ‘mule’, Grk μυχλός ‘he-ass’); *h₁eperos ‘boar’ (e.g. Lat aper, OE eofor, Rus veprɨ), a North-Western word whose distribution may be extended by a possible Thracian cognate (ébros ‘buck’); *hrenztos ‘stag’ (Germanic-Messapic isogloss, e.g. Swed brinde ‘stag’, Messapic bréndon ‘stag’), a Celtic-Greek *yórks ‘roedeer’ (e.g. NWels iwrch, Grk zórks); *lohgo- ‘cow’ (Baltic-Albanian, i.e. Latv šuōps ‘cow’, Alb lopē ‘cow’); *h₁eg”hmos ‘lamb’ (Lat agnus, NE yeam, OCS (j)agne, Grk amnós); and possibly *koghēh₁- ‘goat’ (Slavic-Albanian, e.g. OCS koza ‘she-goat’, Alb këdh ‘kid’). There are a handful of words confined to the Indo-European centre such as *mendyos ‘horse’ (where the Romanian mînz preserves a Dacian word and is compared to Alb mëz ‘foal’) and *ghor- ‘young pig’ (Alb derr ‘pig, hog, swine’, Grk khoiōros ‘young pig; swine’). There are also several isoglosses that span the centre and east, e.g. *ghéyos ‘horse’ (Arm ji ‘horse’ and Skt háya- ‘horse’, both derived from *ghēi- ‘impels, drives’). Several big cat words have exclusively Central and Eastern distributions, e.g. *singhōs ‘leopard’ (where it means ‘leopard’ in Arm inj ~ inc but ‘lion’ in Skt simhā-); and *perd- ‘panther, lion’ (where there are several Iranian cognates, e.g. NPers palang, and Grk párðalis which may be a loanword). Finally, there is *gordebhōs ‘wild ass’, an Eastern word which is attested in Skt gardabhā- and Toch B kercapo.
The primary word for ‘bird’ (*h₄ewei-) is well attested and found in Celtic (e.g. NWels hwyad ‘duck’), Italic (e.g. Lat avis ‘bird’), Alb vida ‘dove’, Grk aietós ‘eagle’, Arm haw ‘bird; chicken’, Indo-Iranian (e.g. Av vīš, Skt vi-). As we can see, it reveals semantic shifts to a variety of very different species, e.g. ‘duck’, ‘dove’, ‘chicken’, and ‘eagle’. The word for the young bird, *pipp-, is transparently onomatopoeic (e.g. the Latin derivative means ‘peep’) and is attested in Slavic (e.g. Slov pípa ‘hen’), Alb bibē, Grk pīpos ‘young bird’, and Indic (Skt pīppakā-) as well. The word for ‘egg’, *h₄ο(w)i-om (attested in Celtic (e.g. NWels wy), Italic (e.g. Lat õvum), Germanic (e.g. German Ei), Slavic (e.g. OCS ajīce), Grk õiôn, and Iranian (e.g. Av -ăvaya ‘having eggs’), is suspiciously close to the primary word for ‘bird’ (*h₄ewei-) and, indeed, a fairly transparent derivative of it; if so, it provides a proxy answer to the age-old question since here the bird came first and the egg second. NE egg does not derive directly from the proto-form (as did āg in OE) but is a loanword from Old Norse (see Section 13.2 for ‘nest’).
The name of the ‘crane’ (*ger-*) is one of the better-attested bird names and is found in Celtic (e.g. NWels garan), Italic (Lat grūs), Germanic (e.g. NE crane), Baltic (e.g. Lith gērve), Slavic (e.g. Rus žeravlī ‘crane, goose’), Arm kṙunk, and, securing an Asian cognate, Oss zyrmeg. The word for ‘crow’, *kVr-C-*, is more problematic in that it is clearly onomatopoeic and the root vowel is unclear. It is attested in Italic (e.g. Lat corvus), Germanic (e.g. NE rook), Slavic (Bulg krókon), Grk kóракs, and Skt karatā- ~ karāva-. The same root, probably independently, gave rise to other bird names such as MIr cerc ‘brood hen’ (see below). The second word for ‘crow’, *wer-*, is found in Baltic (e.g. Lith várna), Slavic (e.g. Rus voróna), and Tocharian (Toch B wrauña). Almost the ultimate in onomatopoeia is the name for the ‘cuckoo’, *kuku¯*, attested in Celtic (e.g. OIr cu¯ach), Italic (e.g. Lat cucu¯lus), Germanic (e.g. NE cuckoo), Baltic (e.g. Lith kukūoti ‘to cuckoo’), Slavic (e.g. Rus kukūša), Grk kŏkkuxs, Arm k(u)ku, and Indo-Iranian (e.g. NPers kuku, Skt kokilā-). Similar words are found in other language families, e.g. Akkadian kugu and Turkish guguk.

There are two words for ‘duck’. The first, *h₃h₄dh₃ti-*, is found in Italic (Lat anas), Germanic (e.g. OE ened), Baltic (e.g. Lith āntis), Slavic (e.g. Rus útká), Grk nēssa, Iranian (e.g. Oss acc ‘wild duck’), and Indic (Skt ātī-); the second, *pad-*, is less certain as it is attested primarily in modern languages, e.g. Spanish pato and SC patka are the sole representatives of Italic and Slavic respectively; it is also known from Arm ba‘drake’ and NPers ba. Similar sounding names occur in Arabic and Georgian (e.g. batti) and this similarity suggests onomatopoeia. In other words, Indo-European ducks probably did not say ‘quack, quack’ but rather ‘pad, pad’.

The name of the ‘eagle’, *h₃or-*, is preserved with the meaning ‘eagle’ in five groups, i.e. Celtic (e.g. OIr irar), Germanic (e.g. NE erne), Baltic (e.g. Lith erēlīs), Slavic (e.g. Rus orēl), and Anatolian (Hit hāras); derivatives are also found in Grk ōrnis ‘bird’, and Arm urur ‘kite’, oror ‘gull’, and ori ‘raven’. The word does survive in Modern English but citation of ern e would send most readers to an English dictionary.

The precise meaning of *teter-* is uncertain but the range of meanings suggests a large gamebird such as the capercaillie, pheasant, or partridge; it is attested in Celtic (MIr tethra ‘hooded crow’), Germanic (e.g. ON þíðurr ‘capercailie’), Baltic (e.g. Lith tetravā ‘capercailie’), Slavic (e.g. OCS tetrēvī ‘pheasant’, Rus tetroev ‘capercailie’), Grk tetrāōn ‘capercailie’, Iranian (NPers tadharv ‘pheasant’), and Indic (Skt tittirā- ‘partridge’). The ‘goose’, *g₃han-s, is well attested and is found in Celtic (e.g. OIr geis), Italic (e.g. Lat ānsēr), Germanic (e.g. NE goose), Baltic (e.g. Lith žasīs), Slavic (e.g. Rus gusī), Grk khēn, and Indic (Skt hamsa- ‘waterfowl’); some have derived it from the verbal root *g₃han- ‘gape, yawn’. The ‘hen’, *kerk-*, which appears in Europe c. 3000 BC, is found in Celtic (MIr cerc ‘brood hen’), dialectal Grk kérkos ‘rooster’,
Iranian (Av kahrka- ‘hen’), Indic (Skt kṛkara- ‘a kind of partridge’, kṛkavāku- ‘rooster’), and Tocharian (Toch B krañko ‘chicken’); obvious is the suggestion that the name of the bird may be onomatopoeic (compare NE cluck) and so its reconstruction is not entirely certain. Unquestionably onomatopoeic is the name of the ‘hoopoe’. *ḥ₁epop, which is found inItalic (Lat upupa), Germanic (e.g. NE hoopoe), Baltic (e.g. Lith pupūtis), Slavic (e.g. Pol hupek), Grk épops, Arm popup, and Iranian (NPers pūpū). In Aristophanes’ Birds, the hoopoe cries ‘epopoī popopoĪpopopoĪpoī’ The name of the ‘jay’, *kīk-(y)eh₂r, is found in Italic (only in Italian cissa), Germanic (e.g. OE hig(e)ra), Grk kissa, and Skt cīsa- ‘roller’. The names of the ‘owl’ are expectedly onomatopoeic, i.e. *ḥ₂/ṣth₁e/o-lo- in NE owl, NHG Eule ‘owl’, and Hit huwalas ‘owl’; *ḥ₁(e)h₁- in Italic (Lat būbō), Slavic (Bulg buk), Grk būas, Arm bu ~ bueč, and Iranian (NPers būm) and *ḥ₁u- (Italic, i.e. Lat uluc(c)us, and Indic, i.e. Skt ālāka-). ‘Sparrow’ is probably too specific for *sper- which means ‘sparrow’ only in Germanic but ‘crow’ in Celtic (Corn frau), ‘starling’ in dialectal Grk sparásion, and some form of unidentified bird in Tocharian (e.g. Toch A spār). The name of the ‘stork’, *(s)ter-, would be confined to Germanic (e.g. NE stork) if it were not for the cognate form tarlā which occurs in Hittite; under one proposal there may also be cognates in Greek and Indic. Finally, *(s)p(e)iko/eh₂r- means ‘woodpecker’ in Italic (Lat pīcus ‘woodpecker’ but pīca ‘jay; magpie’) and Germanic (e.g. OHG speh ‘woodpecker’) but ‘Indian cuckoo’ in Indic (Skt pikā-).

There are about a dozen regional names of birds. From the North-West we have *ḥ₁emes-l- ‘blackbird’ (e.g. NWels mwylach, Lat merula, OE ḍīrle [> NE ousel]); *kap- ‘hawk, falcon’ (e.g. NE hawk, Rus kōbec [type of] falcon) derived from *kap- ‘seize’; *kărkh₁eh₂r- ‘magpie’ which is found only in Baltic (e.g. Lith šārka) and Slavic (e.g. Rus soróka); the onomatopoeic *kāu- ‘howl; owl’ (NWels cuan, OHG hūvo); *storos ‘starling’ (Lat sturnus, NE starling, OPrus starnite ‘gull’); and *trosdos ‘thrush’ (e.g. Lat turdus, NE thrush, Lith strāždas, Rus drozd, and perhaps Grk strō̂thos). From the West Central area we have *bhel- ‘coot’ (e.g. Lat fulica, OHG belihha) which has a Greek cognate as well (phalaris); *(s)pingo- ‘finch’ (NE finch, Grk spíggos ‘finch’) but perhaps Proto-Indo-European if one accepts Skt phingaka ‘shrike’ as cognate; *ḥ₁orh₁eh₂r- which is some form of waterbird such as the ‘heron’ (e.g. Lat ardea ‘heron’, ON arta ‘teal’, SC rōda ‘stork’, Grk (e)rōdiós ‘heron; stork’); and *ḥ₁el- ‘waterbird, swan’ (e.g. OHG ela, Lat olor) which has a questionable Greek cognate indicating the ‘reed warbler’ (elēā); *kopso- ‘blackbird’ is confined to Slavic (e.g. OCS kosú) and Grk kòpsikhos. *g’lur- ‘vulture’ is found in Lat voltur ~ volturis ~ volturus, and Greek blosur-ŏpis ‘vulture-eyed’. A Greek-Armenian-Indo-Iranian isogloss is found in *k̑yeino- ‘bird of prey, kite?’ (Grk ıktnos, Arm ćin, Av saēna- ‘eagle’, Skt śyenā- ‘eagle’) while the name of the ‘quail’, *wortokʷ- is a Greek-Indic isogloss (Grk ṥrτukς, Skt vartaka-).
9.4 Fish, Reptiles, and Amphibians

The reconstructed vocabulary pertaining to fish in Proto-Indo-European is quite small, and even when words are reconstructable, the precise meaning may be quite ambiguous. It is an area of the Indo-European vocabulary where Asian cognates are so few that one cannot even reconstruct a generic word for ‘fish’ that meets our full requirements of Proto-Indo-European. The general word for ‘fish’ with the widest potential distribution is *pĭkskos ‘fish’ with cognates in Celtic (e.g. OIr ēasc), Lat piscis, Germanic (e.g. NE fish), and Skt piccha- ‘calf of the leg’. The Indic cognate is semantically far removed but is commonly justified on the widespread folk association of the calf of the leg with the belly of a fish filled with roe. The word is generally derived from *pĭk-ško- ‘spotted’ or the like, a derivative of *peik- ‘paint, mark’, and the original referent is taken to be the ‘trout’ which, given its ubiquity across Eurasia, developed into the more general meaning of ‘fish’. Other cognate sets include a word for ‘carp’, *kŏph,elos, which is attested in Baltic and Old Indic only (e.g. Lith šapałas ‘chub’, Latv sapalis ‘chub, Dvina-carp’, Skt śaphara- ‘carp’). A PIE *ghērsos is attested in Germanic (e.g. Norw gjør ‘pikeperch’), Slavic (e.g. Rus zerekh ‘asp’), and possibly Indic with a wide range of meanings (e.g. Skt jhasa- ‘a kind of large fish’). Equally problematic is ?*kŏnkus which depends on comparing the ON hár ‘shark’ with an Indic word referring to some kind of aquatic animal or fish (Skt śankū-). Far more secure is *lōks which is attested in Germanic (e.g. OE leax ‘salmon’, OHG lahs ‘salmon’ [> NE lox]), Baltic (e.g. Lith lāsis ‘salmon’), Slavic (e.g. Rus losósi, ‘salmon’), Arm losdi ‘salmon trout’, Iranian (Oss læseg ‘salmon trout’), and Tocharian (e.g. Toch B laks, where it has become the general word for ‘fish’), although its specific referent, be it the Atlantic salmon (Salmo salar) or the salmon trout (Salmo trutta), has been the subject of major debate, similar in many ways to the beech-argument summarized in Chapter 10. Proponents of the first meaning employed the reconstructed word for ‘salmon’ to set the Indo-European homeland adjacent

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<tr>
<th>Word</th>
<th>Meaning</th>
<th>Language</th>
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<tr>
<td>*pĭkskos</td>
<td>‘trout, fish’</td>
<td>Lat piscis, NE fish, Skt piccha-</td>
</tr>
<tr>
<td>*kŏph,elos</td>
<td>‘carp’</td>
<td>Skt śaphara-</td>
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<tr>
<td>*ghērsos</td>
<td>‘asp’ or ‘pikeperch’?</td>
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<tr>
<td>?*kŏnkus</td>
<td>‘a kind of fish’</td>
<td>Skt śankū-</td>
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<tr>
<td>*lōks</td>
<td>‘salmonid, salmon(trout)’</td>
<td>cf. NE lox</td>
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<tr>
<td>*(s)k”ălos</td>
<td>‘sheatfish, wels’</td>
<td>Lat squalus, NE whale</td>
</tr>
<tr>
<td>*h₁ōg”his</td>
<td>‘snake’</td>
<td>Grk ēkhis, óphis, Skt áhi-</td>
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to the Baltic Sea while those preferring the anadromous types of salmon trout took it to indicate the Black or Caspian seas. Attempts to also include a range of Indic cognates (e.g. लाक्षाः- ‘lac’, if $< ^*\text{‘reddish’} < ^*\text{‘salmon-coloured’}$) have also been widely discussed. The precise meaning of $(s)k^{\prime}\text{álos}$, reconstructed on the basis ofItalic (Lat *squalus ‘± shark’), Germanic (e.g. NE *whale), Baltic (OPrus *skalis ‘sheatfish’), Greek (dialectal Grk *áspalos ‘fish’), and Iranian (e.g. Av *kara- ‘a kind of fish’), is not entirely secure, but the large ‘sheatfish’ whose meaning is attested in Middle High German and Baltic is far more probable than ‘whale’; the Greek and Iranian cognates simply refer to some kind of fish.

The only reptile securely reconstructed is the ‘snake’, $h_1^{\prime}\text{ogh}^{\prime}\text{his}$, which is retained in Celtic (e.g. NWels *euod ‘sheepworm’), Germanic (e.g. OHG egala ‘leech’), Greek (e.g. *ékhis ‘viper’, *óphis ‘snake’), Arm iž ‘snake, viper’, Iranian (e.g. Av aži- ‘snake’), Indic (Skt āhi- ‘snake’), and probably Tocharian (Toch B auk).

There are some regional cognate sets for some of the fish, reptile, and amphibian names. From the North-West we have: *krek- ‘fish eggs, frogspawn’ in Germanic (e.g. ON *hrogn ‘roe’), Baltic (e.g. Lith *kurkulai ‘frogspawn’), and Slavic (e.g. Rus *krjak ‘frogspawn’); the NE roe is a loanword from Old Norse which does exhibit the cognate form; $^?h_e^{\prime}\text{ek}^{\prime}\text{u}^{\prime}$- ‘perch’ is found in Germanic (e.g. ON *egr ‘sea-bass’) and Baltic (e.g. Lith esërîs ~ asërîs ‘perch’) but, as the word derives from $h_e^{\prime}\text{ek}^{\prime}$- ‘sharp’ (the perch has spiny fins), it may have been independently created in the two groups. The same root underlies $h_e^{\prime}\text{ek}^{\prime}\text{e}^{\prime}$(tro)- ‘sturgeon’ (e.g. Lat *acipéns, Lith *eskétras, Rus osëtr); $stî(h_e^{\prime})\text{yon}$- means ‘sturgeon’ in Germanic (e.g. OE styri(g)ā) but refers to the ‘salmon’ in Celtic (Lat sariô, borrowed from Gaulish). An alternative name for the ‘snake’, $nëh_{1,\text{tr}}$- $\sim h_{1,\text{tr}}$ ‘snake’, is found in OIr *nathir [gen. *nathrach] ‘snake’ (which indicates retention of a name that transcended Irish geography although not necessarily experience as snakes are native to neighbouring Britain). Lat *natrix ‘watersnake; penis’, Goth *nadsrs ‘snake, viper’, OE *nædдр ‘adder’ [ME a nadder > NE an adder]; a Western innovation meaning ‘the twister’ from $sne\text{h}_1$- ‘twist, turn’.

In the West Central region we have a generic word for ‘fish’, $dhghuh\_\text{-}$, in Baltic (e.g. Lith *žuvis, Grk *ikhthûs, and Arm *jukn which exhibits an archaic shape that suggests it may have been the word for ‘fish’ in Proto-Indo-European but was replaced by other words on the extremities of the Indo-European world. The root $*mnh\_\text{-}$ (e.g. NE *minnow, Rus menî ‘burbot’, Grk mainê ‘Maena vulgaris’) appears to have meant something like ‘minnow; small fish’. The word for ‘eel’, $h\_\text{Vnghel}$- is, reasonably widely attested with cognates in Italian (Lat anguilla), Baltic (e.g. Lith unguryïs), Slavic (e.g. OCS *ogulja), and Grk *ékghelus. A second word for the ‘sheatfish’, *kâmos, is found in Baltic (e.g. Lith
Šamsas), Slavic (Rus som), and Grk kamasēnes [pl.] ‘a kind of fish’. The distribution of a word for the ‘tench’, *(s)lei-, is built on the root of the same shape meaning ‘slimy’ and is well attested in Baltic (e.g. Lith lūnis) and Slavic (e.g. Rus linit), possibly in Grk lineis ‘blemy’; Germanic uses the same root to form the word for ‘tench, mullet’ (e.g. OE slīw) but this may be an independent creation. The name of the ‘frog’, *worh₃d-i/o-, is found in Baltic (Latv varde) and Arm gort; a similar word (*worh₄do-) gives us the words for ‘wart’ in Germanic (e.g. NE wart), Baltic (e.g. Latv ap-vird ‘abscess’), Slavic (e.g. Rus vēred ‘abscess’), and Iranian (e.g. NPers balu¯ ‘wart’) which suggests that the association between warts and frogs is quite old. Another regional name for ‘snake’, i.e. *h₃éng₃his, is found in Celtic (OIr esc-ung ‘watersnake’), Italic (Lat anguis), Germanic (OHG unc ‘snake’), Baltic (e.g. Lith angis ‘snake’), Slavic (Rus už ‘snake’), Illyr ābeis ‘snakes’, and Arm awj ‘snake’ while *ghēlu₅s ‘tortoise’ is found in Slavic (e.g. OCS žely) and Grk khēlus. If we were able securely to reconstruct the tortoise to Proto-Indo-European, we would have another marker for the Proto-Indo-European homeland, in that the tortoise is not found further north than southern Scandinavia and central Russia. However, there are abundant reasons otherwise for not assuming a far northern homeland for the Proto-Indo-Europeans and thus the reconstructibility of the tortoise does not tell us much. Finally, playing loose with our strictly zoological classification, we can note that *dër₃- ‘dragon’ is attested in Celtic (MIr muirdris ‘sea-monster’) and Grk drákōn ‘dragon’ (whence, via Latin, NE dragon); it derives from the verbal root *derk₃- ‘see’ as the dragon fixes its opponent with its baleful gaze.

### 9.5 Insects, Worms, and Shellfish

The reconstructable names of IE insects are largely a list of nuisances rather than an indication of economic importance. The nuisance factor suggests a certain emotional valence associated with a number of the insects which may well account for many of the phonologically irregular outcomes and metaphorical shifts to other referents. For example, there is no single stable word for ‘ant’ but rather three different (and clearly related) forms: *morwi- supplies Celtic (e.g. OIr moirb), Slavic (e.g. OCS mravi), and Iranian (Av maoirī); *morm-underlies the forms in Lat formica and Grk mīrmos; *mouro-gives us the Germanic (ON maurr); while even more distorted is *worm- which gives us an alternate Greek form hōrkikas, Skt valmikā-, and Toch B warme. Despite the variety of forms, all are agreed in indicating the ‘ant’. There has also been considerable change in the articulation of *plus- ‘flea’. The Latin word, for example, requires metathesis from *plusek- to *puslek- to achieve the historical
form of *pūlek; and the possible Greek cognate would seem to require a development *plusy(e)h₃ > *psuly(e)h₃ > psúlla. Baltic and Slavic go one further (e.g. Lith blusà, OCS blu˘cha) and require *blusyeh₃. The precise designation of the *moko- eludes us although all cognates are agreed in using this word to designate some stinging insect. Lith māšalas and Skt mašaka- can both mean ‘gnat’ (the Sanskrit word can also refer to the mosquito) but MPers makas refers to the ‘fly’ and Latv masalas to the ‘horsefly’. Again we find dialectal variation in a by-form without a palatal, i.e. *moko- which gives Lith mākatas ‘gnat’ and Skt máks- ‘fly’. An Indo-Iranian form was borrowed into Finno-Ugric to provide the name for the ‘bee’, e.g. Hungarian méh ‘bee’. A word for the ‘leech’, *gelu-, depends on a Celtic-Indo-Iranian cognate set, e.g. OIr gil and Skt jalākā-, both ‘leech’, which apparently derives from a verbal root *gel- ‘swallow’. The word for ‘louse’, lu-, has seen massive reshaping with more expected outcomes from Celtic (NWels llau) and Germanic forms such as NE louse but dialectal forms such as Lith vievesa, Rus vošt, and Skt yûkā. The young of the louse, the ‘nit’ (*rik-), is reconstructed on the basis of an Italic-Indo-Iranian set, e.g. Lat ricinus, Skt likšā. Well attested is the *h₂₃wobhseh₃- ‘wasp’ with cognates in Celtic (e.g. MWels gw(y)chi ‘drones’), Italic (Lat vespa), Baltic (e.g. OPrus wobse), Slav (e.g. OCS osa), and Iranian (e.g. MPers vaβz-); the noun derives from the verbal root *h₂₃webh- ‘weave’, i.e. one who weaves a wasp nest. The PIE *kʷpimis is perhaps best translated as a ‘wug’, i.e. a category that comprises both worms and bugs. It has a ‘worm’ meaning in many of the cognates, e.g. Celtic (OIr cruim), Baltic (Lith kirmis), Slavic (OCS čřivř), Alb

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**Table 9.4. Insects, shellfish, etc.**

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>*morwi-~ *morm-~</td>
<td>‘ant’</td>
<td>Lat formica, Grk mūrmos, Skt valmīka-</td>
<td></td>
</tr>
<tr>
<td>*mouro-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*plus-</td>
<td>‘flea’</td>
<td>Lat pūlex, ??Grk psúlla, NE flea, Skt pluṣi-</td>
<td></td>
</tr>
<tr>
<td>*moko-</td>
<td>‘gnat, stinging insect’</td>
<td>Skt mašaka-</td>
<td></td>
</tr>
<tr>
<td>*gelu-</td>
<td>‘leech’</td>
<td>Skt jālākā-</td>
<td></td>
</tr>
<tr>
<td>*lu- (*lus-)</td>
<td>‘louse’</td>
<td>NE louse, Skt yûkā</td>
<td></td>
</tr>
<tr>
<td>*rik-</td>
<td>‘nit, tick’</td>
<td>Lat ricinus, Skt likšā</td>
<td></td>
</tr>
<tr>
<td>*h₂₃wobhseh₃-</td>
<td>‘wasp’</td>
<td>Lat vespa, NE wasp</td>
<td></td>
</tr>
<tr>
<td>*kʷpimis</td>
<td>‘worm, insect’</td>
<td>Skt kirmi-</td>
<td></td>
</tr>
<tr>
<td>*mat-</td>
<td>‘ ± worm, maggot, insect’</td>
<td>NE moth, Skt matkunā-</td>
<td></td>
</tr>
<tr>
<td>*kh₃h₃₄ros</td>
<td>‘crayfish’</td>
<td>Grk kāmaros</td>
<td></td>
</tr>
<tr>
<td>*kark-</td>
<td>‘crab’</td>
<td>Lat cancer, Grk karkinos, Skt karkaṭa-</td>
<td></td>
</tr>
<tr>
<td>*konkh₄os</td>
<td>‘mussel (-shell) etc’</td>
<td>Grk kogkhos, Skt šaṅkā-</td>
<td></td>
</tr>
</tbody>
</table>
krimp, and Indo-Iranian (e.g. Skt kṛmī-) but it can also designate anything from a ‘mite’ (OPrus girmis) to a ‘dragon’ (Lith kirmis). The PIE *mat- also has a wide range of meanings and yields both OE māda ‘worm, maggot’ and OE mohpe (> NE moth) as well as Arm mat’il ‘louse’ and Av maḍa-xa- ‘grasshopper’.

The *kmhₚros is reflected with absolute phonological regularity in both Grk kāmaros and ON humarr. In both languages it means ‘lobster’ but such a meaning cannot be correct for Proto-Indo-European, almost no matter where it was originally spoken. The only reasonable hypothesis is that the word meant ‘crayfish’ in Proto-Indo-European, and in both Germanic and Greek, as these groups adopted a maritime orientation, the word was transferred to the larger, and more important, lobster. A reconstructed *kark- ‘crab’ is based on Lat cancer (< *karkro-?), Grk karkīnos, and Skt karkaṭa- (< *karkto-) and karkī- ‘cancer (as a sign of the zodiac)’. Another possible crustacean is the *konkhₜos ‘mussel’ and any related shellfish. The main cognate set is Grk kógkhos ‘mussel(shell)’ and Skt śaṅkā- ‘(conch)shell’ (with Latv sence ‘mussel’ as a derived form).

The North-West offers *bhi-kʷó- ‘bee, stinging insect’ on the basis of cognates in Baltic (e.g. OIr bech), Germanic (e.g. NE bee), and Slavic (e.g. OCS bīcţela) and, with a different suffix in *-tihₜ- we have Baltic cognates such as Lith bītė; the underlying etymology is *bhei(hₚ)- ‘strike, attack’. We also have a word associated with the product of the ‘bee’, *wos(hₚ)-ko- ‘wax’ (NE wax, Lith vāškas ‘wax’, OCS vosku˘ ‘wax’). For the ‘butterfly’ we have *pelpel- with related forms in Lat pāpiliō and Germanic (e.g. OE ėfālde) that have been clearly altered. Etymologically transparent is *kʰₚhrₚoro-(hₚ)-on ‘hornet’ from *kʰₚhrₚ- ‘horn’ with cognates in Lat crābrō, Germanic (NDutch horzel), Baltic (e.g. Lith šīršē), and Slavic (e.g. OCS sīrsent), all ‘hornet’. Finally, there is *webhel- ~ *wobhel- ‘weevil, beetle’ seen in Germanic (e.g. NE weevil), Baltic (e.g. Lith vābalas), and Slavic (Rus veblıça ‘intestinal worm’). The West Central area offers a range of insect names: there are several words for the ‘drone’ such as the clearly onomatopoeic *dhren- ‘drone’ (< ‘buzz’) found in Germanic (e.g. NE drone, Grk thronaks) and *kmhₚₜₜ-hₜₜ- ‘drone’ which is meagrely attested in OHG humal and Grk kēphēn; *mus/hₚ- ‘fly; gnat, midge, mosquito’ with cognates in Italic (Lat musca), Baltic (e.g. Lith muša), Slavic (e.g. OCS mųšica), Grk muúa, and Arm mun; *kōris ‘ ± biting insect’ where the root *(s)ker- ‘cut’ is believed to underlie OCS kori ‘moth’ and Grk kōris ‘bed-bug’; *h₁empis ‘gnat, stinging insect’ which is debatedly attested in OE ymbe ‘swarm of bees’ and a possible cognate Grk empis ‘gnat’; *gʷelôn ‘insect’s stinger’ found in Baltic (e.g. Lith geluţ ‘stinger’) and Grk déllithes ‘wasps’; *k(o)nid- ‘nit, louse egg’ which is well attested with cognates in Celtic (e.g. OIr sned ‘nit’), Germanic
(NE nit), Baltic (e.g. Lith glīnda), Slavic (Rus gnida), Alb thērije, Grk konīs, and Arm anic; *h₄orki- ‘tick’ with cognates in Baltic (e.g. Lith ėrkė), and Arm ork‘iwn; *di[h]- ‘tick’ found in Celtic (MIr dega ‘stag beetle’), Germanic (e.g. OE ticia), and Arm tiz; *sleimak- ‘snail, slug’ from a root *(s)lei- ‘be slimy’ which gives Rus slimāk ‘snail’ and Grk leimaks ‘slug’; and *wpmis ‘worm, insect’ which overlaps phonologically with one of the ‘ant’ words above but also yields Lat vermis, NE worm, Lith vačmas ‘mosquito’, OCS vermiye ‘grass-hoppers’, and Grk rhómoks ‘woodworm’. Finally, there are several words restricted to the Central region: *melit’h- ‘honey-bee’ where one of the words for honey, *mēlit, provides the basis for Alb bletē and Grk mēlissa, both ‘honey-bee’; *h₄orgehi- ‘nit’, a regional variant of *h₄orki- which is seen in Alb ergjēz and Arm orjil; and *demelis ‘worm’ or whatever will cover the proto-meaning of Alb dhemjē ‘larva, caterpillar, maggot’ and Grk demelēas ‘leeches’.

9.6 Indo-European Fauna

The roster of animal names reconstructed to Proto-Indo-European is more extensive than that for plants and we can ascribe about seventy-five names to various animal species. This roster does not come anywhere close, however, to the numbers encountered in the lexicons of traditional societies. Brent Berlin examined a sample of seventeen languages which yielded an average of 435 names of animals per language. Be that as it may, Proto-Uralic also has a sizeable number with about sixty names altogether. It is instructive then to compare the structure of the two reconstructed lexicons in terms of the major orders of animals identified (excluding general names) (Table 9.5).

The differences between the two reconstructed lexicons derive primarily from the difference in the respective economies. The Proto-Indo-Europeans possessed a Neolithic economy with extensive references to domestic livestock

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<tr>
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<th>PIE</th>
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<th>URALIC</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Mammals</td>
<td>42</td>
<td>56</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>Birds</td>
<td>17</td>
<td>23</td>
<td>20</td>
<td>33</td>
</tr>
<tr>
<td>Fish</td>
<td>6</td>
<td>8</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Reptiles/amphibians</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Insects etc.</td>
<td>9</td>
<td>12</td>
<td>14</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td>60</td>
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</tbody>
</table>
(cattle, sheep, goat, pig; possibly horse) while the Proto-Uralics were primarily hunter-gatherer-fishers. It is natural then that the Proto-Uralic vocabulary would reflect these differences with a limited number of mammals (four words for reindeer, marten, hare, fox, squirrel, etc.), and a more extensive vocabulary pertaining to birds (about a third of the words refer to some form of duck) and fish.

The designation of animals has been the focus of taxonomic studies and Cecil Brown has proposed a stadial sequence of expected animal names. Stage 1 lacks any ‘life form’ term (or word naming a large general category of living beings such as ‘mammal’, ‘fish’, etc.) while stages 2 to 4 see the addition of ‘fish’, ‘bird’, and ‘snake’ (in any order) and stages 5 and 6 see the introduction of a specialized term for ‘mammal’ and ‘wug’. We have already used this term to define PIE *kẉmis as an animal that comprises both worms and bugs (it might be noted that insect did not appear in English until after 1600 and from 1650 it defined a ‘wug’). Earl Anderson suggests that Proto-Indo-European was a stage 4 language where it lexicalized terms for ‘bird’ (*h₂ewei-), fish (*dḥg̣wuh₂-, *pi̯kskos), and ‘snake’ (*h₁ógʷhis) and had a covert category, i.e. one without a linguistic label, for ‘mammal’ whose existence is predicated by the fact that Proto-Indo-European made a further (Level Ia) distinction between ‘wild animal’ (*ghẉr) and ‘domestic animal’ (*pékū). In some instances we may be in doubt as to whether the word had a generic or more specific meaning. For example, NE deer, which today specifies a cervid, derives from OE déor which also covered the meaning ‘wild animal’ (cf. the cognate NHG Tier ‘animal’). Multiple meanings or polysemy have been widely observed in animal taxonomies where the name of a focus animal may serve at both the species and a much higher level. That *pi̯kskos may have originally designated the ‘trout’ and was then abstracted to ‘fish’ in general is a possible example. Similarly PIE *lōks ‘salmon trout’ becomes Toch B laks ‘fish’.

In their major study of Indo-European culture, Gamkrelidze and Ivanov proposed a hierarchical classification of plant and animal life forms in Proto-Indo-European that makes the distinction seen above between ‘wild’ (*ghẉr) and ‘domestic animal’ (*pékū). The wild animals are then divided into three classes depending on mythic location, i.e. an Upper World (birds), Middle World (beasts), and Lower World (vermin, snakes, fish). The domestic animals (which includes humans) are distinguished into rational and speaking humans (with their own subclasses) and quadrupeds. The latter are distinguished as those which are ritually close to humans and which may then be divided into those that are horned (cattle, ovicaprids) and not-horned (horse, donkey); the ritually distant animals are the dog, pig, and cat. Anderson regards such a system as too complex in comparison with those evident throughout the world and finds it unusual for any system to classify humans (and gods)
along with animals. On the other hand, it does encompass a series of oppositions or polarities that may have formed either covert or lexicalized slots in Proto-Indo-European, e.g. *kérh₂s and related words for ‘horn’ vs. *kem-‘hornless’

As for the wild mammalian fauna, our ability to reconstruct words hardly recovers all the animals likely to have been distinguished in the proto-language. Certain species are found so widely over Eurasia that they should have been familiar to the Proto-Indo-Europeans irrespective of where their homeland lay. These would include the mole, bat, a variety of rodents (voles, mole rats, etc.), the badger, and the wild cat. The twenty or so bird names (compare this with the fact that the ancient Greeks knew over 500 bird names!) comprise those that were probably economically salient, e.g. ducks and geese, those that were culturally salient, e.g. eagle, and those where onomatopoeia has supported their survival, e.g. hoopoe.

The ten or so fish and shellfish names are extremely meagre (the ancient Greeks knew at least 570 names and even such a damaged resource as Old Prussian can return twenty-five) nor are they particularly revealing of the location of the IE homeland, although names such as ‘salmon’ and ‘eel’ have been employed to do just that. The salmon or ‘Lachsargument’ as it is known in German was, along with the beech-argument (see Chapter 10), one of the pivots of a north European homeland for the Indo-Europeans under the presumption that PIE *lóks indicated specifically the Atlantic salmon (Salmo salar) that frequented the waters of the Baltic and North Atlantic. More recent opinion has suggested that *lóks simply indicated a salmonid for which the salmon trout (Salmo trutta) was the more likely original referent and that it was later extended to include the Atlantic salmon by the ancestors of the Germans, Balts, and Slavs. Salmon trout are much more widely found across Eurasia than the Atlantic salmon.

The extensive vocabulary concerning domestic animals is pivotal in establishing, along with the words for cereal agriculture, that the Proto-Indo-Europeans possessed a mixed economy based on livestock and arable agriculture, i.e. had achieved at least a Neolithic mode of subsistence. The presence of two words for what was probably the domestic pig, i.e. *sūs and *pórkos, suggests that the economy was not, at least originally, that of pastoral nomads, as swine are notoriously difficult to herd over long distances. On the other hand, within any culture, and especially an area as large as that probably inhabited by the earliest Indo-Europeans, there might have been a wide range of economic regimes that also included various degrees of mobility.

In addition to the pig, ovicaprids, the sheep and goats, are also of special interest because these were not native (in their wild state) to much of the later Indo-European world prior to the expansion of the Neolithic economy from
South-West Asia. The route by which sheep spread into Europe certainly included the Balkans and probably also the Caucasus (to the steppelands); much less likely, although sometimes suggested, was the eastern Caspian steppe (to account for early Neolithic sheep in the southern Urals). Terms for sheep such as *h₂öwis (and also ‘wool’ as we will see in Chapter 14) are virtually ubiquitous across the IE world and that ubiquity can only be explained with reference to the spread of a language whose speakers possessed stock-raising (and wool-procuring) skills.

Of all the (potentially) domestic animals, the main focus of debate has often been the status of *h₁ëk’wos ‘horse’. That some form of horse can be ascribed to the earliest Proto-Indo-Europeans (and with Anatolian cognates in Hieroglyphic Luvian azu(wa) and Lycian esbe- we may include the concept of Indo-Hittite) seems secure. Also secure is the importance of the horse in the cultures of the earliest IE groups and their mythologies and rituals. What is not secure, however, is whether we can reconstruct *h₁ëk’wos as ‘domestic horse’ or simply ‘horse’ and, in the event that we can reconstruct the proto-meaning as ‘domestic horse’, whether we can locate in space and time the location of the earliest domestic horses. The linguistic evidence for ‘domestic horse’ is not strong (nor could it be since there is no absolutely clear linguistic marker of a domestic animal) and relies primarily on the contrast between the feminine form, also of PIE date, which employs an *-eh₁- suffix (i.e. *h₁êk’weh₁- ‘mare’) which stands in opposition, some argue, to the feminine of a more certain wild animal, the ‘she-wolf’ (*wl₉k₁w₁h₁- with an *–ih₁- suffix. All other arguments rest on non-linguistic matters such as the presumed location of the homeland, the nature of its economy, and the apparent ‘depth’ at which the concept of a domestic horse appears to be embedded in Indo-European culture, e.g. in rituals, personal names. In terms of the prehistoric exploitation of the horse, the major centre would appear to be across the steppe and forest-steppe from the Dnieper east to the Ural and somewhat beyond, and this is generally the region where most would place the earliest domestication of the horse in the fifth or fourth millennium BC (there are heated arguments as to precisely when and what constitutes clear evidence). Remains of presumably wild horses are known outside the steppelands in Iberia, Atlantic, and northern Europe to the Danube; some horse remains have also been recovered from Early Neolithic Anatolia. There is a general absence of horse remains until the Bronze Age in Greece, most of the Balkans, and Italy. The lack of the horse in these regions has been pressed by some to suggest that the Indo-Europeans were hardly likely to have been resident in these areas until the Bronze Age.
Further Reading


The word for ‘bird’ and ‘egg’ is treated in Schindler (1969); other species include the blackbird (Hamp 1982a), duck (Hamp 1978), hen (Schlerath 1953), thrush (Hamp 1981a), and birds from both an Indo-European and archaeological viewpoint in Mallory (1991).


The ‘bee’ is the subject of Hamp (1971a).

For folk taxonomies see Anderson (2003), Berlin (1992), Brown (1984); the count of Greek bird and fish names is based on Thompson (1895, 1947); the Uralic evidence is derived from Häkkinen (2001).
10
Indo-European Flora

10.1 Trees

As with animals, there is also an extensive reconstructed vocabulary relating to the various forms of plant life in Proto-Indo-European.

The general name for ‘tree’, *dóru, is attested in eleven different groups, either under its root form (e.g. OIr daur ‘oak’, Grk dóru ‘tree trunk; wood; spear’. Hit tāru ‘tree, wood’. Av dāuru ‘tree, tree trunk; wooden weapon’. Skt dāru ‘wood’. Toch AB or ‘wood’) or in derivation (NE tree is a derived form as are, e.g. Grk drús ‘tree, oak’, OCS drúva ‘wood’, Alb dru ‘wood, tree’, drushk ‘oak’, OCS drëvo ‘tree’). In Celtic and Greek, it tends to mean specifically the ‘oak’ and has religious connotations, e.g. a druid is a ‘tree-knower’. The word for ‘forked branch’, *kóh₁kóh₂ (e.g. Goth hōha ‘plough’, Lith šakà ‘branch’, Rus sokhà ‘(primitive) plough’, Arm c’ax ‘branch’, NPers šāx ‘branch’, Skt šākha ‘branch’), has secondary meanings as ‘plough’ in a number of languages as primitive ploughs were originally made from forked branches. The concept of plough also extended to another of the ‘branch’ words, *kankan- (e.g. OIr cēcht ‘plough’, NWels cainc ‘branch’, ON hār ‘thole-pin’, Lith atšankē ‘barb; crooked projection from a tree’, Rus suk ‘branch, knot’, Skt šankū- ‘peg’).

The third word for ‘branch’ reconstructable to Proto-Indo-European is *h₂ōsdos (e.g. OHG ast ‘branch’, Grk ózos ‘shoot’, Arm ost ‘branch’, Hit hasduēr ‘twigs, branches’) which has been analysed by some as a compound of the verb sed- ‘sit’, i.e. *h₂o-sd-os ‘what one sits upon’, the branch from the
bird’s point of view so to speak. The fourth word for ‘branch’, *h₁log-, also seems at times to cover the notion of ‘vine, tendril’ as well (e.g. Rus lozā ‘vine, tendril, shoot’, dialectal Grk ológinos ‘branchy’, Av razura- ‘forest, thicket’, Hit alkista(n)-‘branch’). The place where the branch joins the tree, the ‘knot’ or ‘joint’, was *h₁ósghos (e.g. OIr odb ‘knot’, Grk óskhos ‘sucker, sprout, vine branch’, NPers azy ‘branch’. Skt ádga- ‘knot, joint’). The word for ‘leaf’, *bhll₄d-, is restricted to Germanic (e.g. NE blade) and Tocharian (e.g. Toch B pilta ‘leaf’). The word for some type of ‘fruit’, *h₁ógeh₄-, probably underlies

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Language</th>
</tr>
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<tbody>
<tr>
<td>*dóru</td>
<td>‘wood, tree’</td>
<td>NE tree, Grk dóru, Skt dāru</td>
</tr>
<tr>
<td>*kó₁kó₂</td>
<td>‘(forked) branch’</td>
<td>Skt žākha</td>
</tr>
<tr>
<td>*kanka-</td>
<td>‘branch’</td>
<td>Skt śākka-</td>
</tr>
<tr>
<td>*h₁ódos</td>
<td>‘branch’</td>
<td>Grk ózos</td>
</tr>
<tr>
<td>*h₁lo-</td>
<td>‘branch’</td>
<td>Grk ológinos</td>
</tr>
<tr>
<td>*h₁ósghos</td>
<td>‘knot (in wood)’</td>
<td>Grk óskhos, Skt ádga-</td>
</tr>
<tr>
<td>*bhll₄d-</td>
<td>‘leaf’</td>
<td>NE blade</td>
</tr>
<tr>
<td>*h₁ógeh₄-</td>
<td>‘± berry, fruit’</td>
<td>NE acorn</td>
</tr>
<tr>
<td>*g₄el₄-</td>
<td>‘acorn’</td>
<td>Lat glāns, Grk bālanos, Skt gula-</td>
</tr>
<tr>
<td><em>sap₁</em>₄sab₁-</td>
<td>‘sap’</td>
<td>NE sap, Lat sapa, Skt sabur-dhuk-</td>
</tr>
<tr>
<td>*g₄étu</td>
<td>‘pitch’</td>
<td>NE cud, Lat bitūmen, Skt jātu</td>
</tr>
<tr>
<td>*sok₄ós</td>
<td>‘sap, resin’</td>
<td>Grk opós</td>
</tr>
<tr>
<td>*wero/eh₄-</td>
<td>‘alder’</td>
<td>Skt varana-</td>
</tr>
<tr>
<td>*h₁élsos-</td>
<td>‘alder’</td>
<td>NE alder, Lat alnus</td>
</tr>
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<td>*h₁ebVl-</td>
<td>‘apple’</td>
<td>NE apple</td>
</tr>
<tr>
<td>*meh₁om</td>
<td>‘apple’</td>
<td>Lat múlum</td>
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<tr>
<td>*h₁es(k)-</td>
<td>‘ash’</td>
<td>NE ash, Lat ornus, Grk oksūē</td>
</tr>
<tr>
<td>*h₂zosp-</td>
<td>‘aspen, poplar’</td>
<td>NE aspen, ?Skt sphyā-</td>
</tr>
<tr>
<td>*bherh₁gós</td>
<td>‘birch’</td>
<td>NE birch, Lat farnus/fraxinus, Skt bārjā-</td>
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<tr>
<td>*wi(n)g-</td>
<td>‘elm’</td>
<td>NE wych-[elm]</td>
</tr>
<tr>
<td>*pteleyeh₄-</td>
<td>‘elm?’</td>
<td>Lat tilia, Grk pteleā</td>
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<tr>
<td>*dhom-</td>
<td>‘fir’</td>
<td>NHG Tannenbaum</td>
</tr>
<tr>
<td>*peúks</td>
<td>‘(Scotch) pine, conifer’</td>
<td>Grk peüke</td>
</tr>
<tr>
<td>*kóss</td>
<td>‘(Scotch) pine’</td>
<td>Grk kōnos</td>
</tr>
<tr>
<td>*pit(u)-</td>
<td>‘(some form of) conifer’</td>
<td>Lat pīnus, Grk pītus, Skt pītu-</td>
</tr>
<tr>
<td>*h₁ed(h)-</td>
<td>‘hawthorn’</td>
<td></td>
</tr>
<tr>
<td>*h₁ékt</td>
<td>‘maple’</td>
<td>Lat acer, Grk ákastos</td>
</tr>
<tr>
<td>*mórom</td>
<td>‘blackberry’</td>
<td>Lat mōrum, Grk mōron</td>
</tr>
<tr>
<td>*weit-</td>
<td>‘willow’</td>
<td>Lat vītis, Grk tēēa, Skt veta-</td>
</tr>
<tr>
<td>*h₁eiwos</td>
<td>‘yew’</td>
<td>NE yew</td>
</tr>
<tr>
<td>*laksos</td>
<td>‘yew’</td>
<td>Lat taxus, Grk tōkson</td>
</tr>
</tbody>
</table>

Table 10.1. Trees
NE acorn (and e.g. Lith įoga ‘berry’, Rus jągoda ‘berry’, Toch A and B oko ‘fruit’). The ‘acorn’ itself, *gʷelhₐ- (e.g. Lat glāns, Lith įilė, Rus želud’), Grk bálanos, Arm kalin, Skt gula-), has the secondary connotation of the ‘head of the penis’ (glāns penis) in Latin (and medical English) and Indic (where it is the only meaning; and, no, we have no evidence for circumcision in Proto-Indo-European) and the presence of this word assures us that the Proto-Indo-European community was acquainted with the ‘oak’, even though a general Proto-Indo-European word specifically meaning ‘oak’ is not recoverable. One word for ‘sap’, *sap- (e.g. Lat sapa ‘must, new wine boiled thick’, OHG saf ‘sap’), has a variant *sab-, which gives NE sap and a possible Indic cognate (sabur-dhúk- ‘yielding nectar or milk’) which would give this word Proto-Indo-European status. A second ‘sap’ or ‘pitch’ word is *gʷétu (e.g. Lat bitúmen ‘mineral pitch, bitumen’, OE cidu > NE cud), Skt játu ‘lac, gum’) and shows relationships with the birch tree in NWels bedw ‘birch’ and Lat betulla ‘birch’ (< Gaulish) wherein the latter is the ‘sap-tree’ because of the use of birch sap as a food or as a glue. Finally we have *sokʷós ‘sap, resin’ seen in Lith sakai [pl.] ‘resin’, Rus sok ‘juice, sap, sapwood’, Alb gjak ‘blood’, Grk opós ‘sap, resin’, and Toch B sekwe ‘pus’. 

The number of trees strongly attested to the level of genus or species is not great because, as we have seen above, the environments of Europe and Asia often differ significantly so that recovery of a common tree name is made more difficult. An additional difficulty with the Asian side of the equation is that the attested records of Tocharian provide almost no tree names so our Asian evidence is restricted to Indo-Iranian.

The word for ‘alder’, *werno/ehₐ- (e.g. MIr fern ‘alder’, Alb verr ‘alder’, Arm geran ‘alder’), does have an Indic cognate (i.e. Skt varan- ‘Crataeva roxburghiï’) whereas the secure Proto-Indo-European status of *hₐèliso- (e.g. Lat almus, Lith aliksnis, Rus ólíkhna) depends on acceptance of Hit alanza(n) ‘type of tree’ as cognate (and that would depend on the exact meaning of the Hittite word which is not yet recoverable); a Proto-Germanic *aluzo- gives us NE alder. Some argue that *hₐèliso-, if not reflected in Hittite, is actually a substrate term picked up by the Indo-Europeans in central and western Europe.

Both words for ‘apple’ may be regional terms of the West and Centre of the Indo-European world and are only extended to Proto-Indo-European if one accepts in the case of *hₐebvl- (e.g. OIr uball, NE apple, Lith obuolys, Rus jábloko, all ‘apple’) some possible Indo-Iranian cognates (e.g. Pashto maná ‘apple’, if from *amarna- ‘abarna-’) and in the case of *meh-lom, the Hittite word mahla- which may only mean ‘grapevine’ (cf. also Lat mālum, Grk mélon, Alb mollë [borrowed from Latin or Greek?] all ‘apple’).

Similarly, the status of *h₃es(k) ‘ash’ outside of the West Central region (e.g. OIr uinnis ‘ash’, Lat ormus ‘mountain ash’ (Sorbus aucuparia), NE ash, Lith
úosis ‘ash’, Rus jáseni ‘ash’, Alb ah ‘beech’, Grk oksíē ‘beech; spearshaft’) depends on acceptance of Hit hassikk- ‘some form of tree with edible fruit’. As the ash was a preferred wood for shafts, it often also carries the meaning ‘spear(shaft)’.

The word for ‘aspen’, *h₂ osp- (e.g. NE aspen (Populus tremula, P. alba), Lith apuš‘ash (P. nigra)’, Rus osina ‘ash (P. tremula)’, Arm op‘i ‘poplar (P. alba)’, is Proto-Indo-European if one accepts Indo-Iranian cognates that denote an ‘oar’ or ‘shovel’ (e.g. NPers fih ‘oar’, Skt sphyá- ‘oar, pole, shovel’).

The ‘birch’ word, bher’hgos (e.g. Lat farnus/fraxinus ‘ash’, NE birch, Lith bėržas ‘birch’, Rus berëza ‘birch’, Oss bœrz ‘birch’, Skt bu¯rja‘birch’), is generally derived from an adjective meaning ‘bright, shine’ and has a long association in several Indo-European groups with virginal purity. Gamkrelidze and Ivanov have used this connection to suggest that Hit parku- ‘ritually pure; innocent’ actually derives from the word for ‘birch’ although the Hittites had lost the arboreal term itself.

A Kurdish (Iranian) cognate, viz ‘a kind of elm’, helps secure wi(n)g- ‘common elm (Ulmus glabra)’ to Proto-Indo-European rather than a West Central word (cf. NE wych-elm, Lith vinkšna ‘elm’, Rus vjaz ‘elm’, Alb vdih ‘elm’). There may be a second word for ‘elm’ in ptelelh₂/ptelelew₂ (e.g. MIr teile ‘linden’, Lat tilia ‘linden’, Grk pteleá ‘elm’, ptelas ‘wild rowan’, Arm t’eli ‘elm’, Oss færwe ‘alder’) but the wide range of meanings makes one cautious.


The word for ‘hawthorn’, *h₂ edh- (h-), is secured by an Old Irish (*ad-, genitive aide)-Hittite (hat(t)-alkismas) set, both of which also have ritual or magic connotations.

There is one word at least for ‘maple’, *h₂ ūkr, attested by Lat acer ‘maple’, OHG ahorn ‘maple’, Grk ōkastos ‘maple’, Hit hîqgar ‘± maple’. The word for ‘blackberry’, *mórom, in many languages also serves for the ‘mulberry’ (NWels

‘Willow’, *weir-, is well attested in nine groups and frequently displays a meaning ‘withies’ or anything that might be produced from bending osiers, e.g. felloes of a tyre (e.g. OIr féith ‘some kind of twining plant’, Lat vītis ‘vine’, NE withy, Lith vytis ‘branch’, Rus vitina ‘branch’, Grk téta ‘willow’, Av vaēiti- ‘willow’, Skt veta- ‘reed’).

The primary word for ‘yew’ (* h1eiwos) is restricted to naming the tree (e.g. OIr eō ‘yew’, OPrus iuwis ‘yew’, Lith ieva `bird cherry’, Rus ĭva ‘willow’, Hit eya (n) ‘yew’). The second of the ‘yew’ words, *taksos, has shifted in meaning to ‘bow’ in Greek and Iranian (e.g. Lat taxus ‘yew’, Rus tis ‘yew’, Grk tokson ‘bow’, NPers taxš ‘bow’). This shift is not surprising, given the well-known excellence of yew-wood for the manufacture of bows.

If one does not accept some of the more dubious Eastern cognates, some of the Proto-Indo-European tree names are only North-Western or West Central in distribution. There are also many regional words in their own right. From the North-West we have *widhu ‘tree, forest’ (e.g. OIr Wd ‘tree’, NE wood); *kʷrēsnos ‘tree; brush(wood)’ (e.g. OIr crann ‘tree’, Grk priu nos ‘holm-oak [Quercus ilex]’); *skwēis ‘± needle and/or thorn’ (e.g. OIr sceadh ‘hawthorn’, Lith skuja ‘fir-needle and cone’, Rus khojá ‘needles and branches of a conifer’); *ghabhlo/eha- ‘fork, branch of tree’ (e.g. OIr gabul ‘fork’, OE gafol ‘fork’ [> NE gavel]); *kneu- ‘nut’ (e.g. OIr cnā ‘nut’, Lat nux ‘nut’, NE nut); *h₁ėlėm ‘mountain elm (Ulmus mantana)’ (e.g. MIr lem ‘elm’, Lat ulmus ‘elm’, NE elm, Rus ilem ‘mountain elm’); *kōs(V)los ‘hazel’ (e.g. OIr coll ‘hazel’, Lat corulus ‘hazel’, NE hazel, Lith kasūlas ‘hunter’s stick, spear; bush’); *klēinus ‘maple’ (e.g. OE hlēn, Lith klēvas, Rus klēn, Maced klinó(s)trokhos—possibly West Central if a potential Greek cognate, glīno- ‘a type of maple’, is accepted); *pērk”us ‘oak’ (Gaulish ērkos ‘oak-forest’, Lat quercus ‘oak [particularly Quercus robur]’, ON fjör ‘tree’); *pērk(w)eh₁ ‘pine’ (Italian forca, NE fir); a questionable *dhergh- ‘sloetree, blackthorn’ (e.g. OIr draigen ‘sloetree’, OHG dīrn-baum ‘cornel cherry’, Rus derēn ‘cornel cherry’); *sai(l)k- ‘(tree) willow’ (e.g. OIr sail ‘willow’, Lat salix ‘willow’, OE sealh ‘willow’).

From the West Central region comes *nēmos- ‘(sacred) grove’ (e.g. OIr neimid ‘sacred grove’, Lat nemus ‘sacred grove’, Old Saxon nimidas ‘sacred grove’, Grk nēmos ‘wooded pasture, glade’); *h₁ōiwo/eh₁ ‘± berry, fruit’ (Lat āva ‘bunch of grapes, fruit’, Grk ōā ‘service-berry’, Arm aygi ‘grapevine’); *sre/eh₁g ‘± berry, fruit’ (Lat frāga ‘strawberries’, Grk hrōks ~ hrāks ‘berry, grape’); *lōubho/eh₁ ‘bast, bark’ (e.g. Lith luobas ‘rind, bark’, Rus lub ‘bast, bark’, Alb labē ‘rind, bark, crust’), and related Lat liber ‘bast; book’ [because bast, especially beech-bast, provided an early writing medium], OHG louth ‘bark, bast’); *wr(h₁)d- ‘root; branch’ (e.g. Lat rādix ‘root’, rāmus ‘branch’, Grk hrādix
branch; palm-frond’, ON rôt ‘root’ [NE root is borrowed from Old Norse], OIr fre¯n ‘root’. OE wyrt ‘herb, plant’ [> NE -wort], Grk hríza ‘root’, and perhaps Toch B witsako ‘root’; *gwêdós ‘branch’ (e.g. OHG questa ‘tuft of branches’, OPol gwozd ‘mountain forest’, Alb gjeth ‘leaf’); *gol- ‘branch’ (Rus goljá ‘branch’, Arm kôr ‘branch’); *wôb ‘branch, sprig, twig’ (e.g. Lat verbêna ‘leaves and saplings for sacral use’, Lith virbas ‘twig, switch’, Grk hrâbdos ‘twig, rod’); *bhôliom ‘leaf’ (e.g. Lat folium, Grk phûllon ‘leaf; plant’; *gwe´sos ‘branch’ (e.g. OHG questa ‘tuft of branches’, OPol gwozd ‘mountain forest’, Alb gjeth ‘leaf’); *gol- ‘branch’ (e.g. NWels dail ‘leaf’, Alb dal ‘arise, appear, emerge’, Grk thâllô ‘bloom’, Arm dalar ‘green’); *hôr ‘nut’ (e.g. Lith ruosˇuty˜s ‘nut’, Rus ore´kh ‘nut’, Alb arre¨ ‘walnut, nut tree’, dialectal Grk ârula ‘nut’) perhaps Proto-Indo-European if Hit harau- ‘poplar’ is cognate but the Hittite meaning is certainly distant; *ghôwo- ‘resin, pitch’ (i.e. the plant’s ‘living material’ from *g”yeh- ‘live’; cf. OIr bì ‘pitch’, Rus živicá ‘soft resin, Arm kiv ‘tree pitch, mastic’); *pik- ‘pitch’ (Lat pix ~ picea ‘tar, pitch’, OCS picûla ‘tar, pitch’, Grk pìssa ‘tar, resin’—this word may be related to one of the designations for conifers (*pek-) in Proto-Indo-European); *kle-haître ‘alder’ (dialectal NHG Lutter ‘mountain alder’, Grk kle¯´thra¯ ‘sticky alder’); *bheh-gôs ‘beech’ (e.g. Gaul bâgos ‘?beech’, Lat fa¯gus ‘beech’, OE bo¯c ‘beech; book’ [> NE book], bêce [> NE beech], Alb bung ‘durmast oak [Quercus petraea]’, Grk phêgos ‘Valonia oak [Q. aigilops]’, and perhaps Rus buz ‘elder’ but phonologically and semantically irregular; *kymom ‘cherry’ (Lat cornus ‘cornel cherry’, Lith Kîrnis ‘divine protector of the cherry’, Grk krânos ‘cherry’); *(s)greh,b(h)- ‘hornbeam’ (e.g. Umb Grabovius ‘oak god’, OPrus wosi-grabîs ‘spindle-tree’, Lith skrôblas ‘hornbeam’, Grk grubána ‘hornbeam’, and possibly Lat carpínus ‘hornbeam’); *hlelew- ‘juniper, cedar’ (Rus jâlovek ‘juniper’, Grk elâtê ‘pine, fir, Arm elevin ‘cedar’); *lenteh- ‘linden’ (e.g. NE linden, Lith lentâ ‘(linden) board’, Rus lut ‘(linden) bast’, Alb lêndê ‘wood, material’); *hlebî- ‘fir’ (e.g. Lat abîês ‘silver fir’, dialectal Grk abis ‘fir’); *wikso- ‘mistletoe, birdlime’ (e.g. Lat viscum ‘birdlime’, OHG wîchsilâ ‘black cherry [Prunus cerasus]’, Rus višnja ‘cherry’, Grk iksoš ‘mistletoe’); *hleig- ‘oak’ (NE oak, Grk aigîlops ‘Turkey oak (Quercus cerris)’, and perhaps Lat aesculûs ‘mountain oak [Quercus farnetto]’); *weliko/eh- ‘willow’ (NE willow, Grk eîkê ‘willow’).

10.2 Wild Plants

The vocabulary of the wide variety of non-arboreal taxa of the Proto-Indo-European world has barely survived except for those plants specifically associated with agriculture which we will examine separately. A series of vague meanings, e.g. ‘marsh-grass’, ‘flower’, ‘field’, contribute to the vagueness of the proposed semantics of *hândhes- ‘± flower’ (e.g. Fris ândul ‘marsh-grass’,
There are at least two words for ‘reed’: *\( h₂ \)-generally preserves the general meaning of ‘reed’ or ‘rush’ (Lat harundo¯ ‘reed’, Grk a´ron ‘arum’, Khot arar- ‘reed, rush’) while *nedo´s sees the Arm cognate net make the unsurprising shift to ‘arrow’ (cf. also Lith ne´ndre _ ‘reed’, Luv na¯tatta- ‘reed’, NPers nai ‘reed’, Skt nada´ – ‘reed’). The ascription of ‘thorn’ as the proto-meaning of *\( t₇n \)- relies heavily on the evidence from Germanic (e.g. NE thorn) and Slavic (e.g. OCS trānū ‘thorn’) as Indo-Iranian exhibits a meaning ‘grass’ (e.g. Khot tarra- ‘grass’, Skt \( t₇n \)am ‘grass’; Finnish tarna ‘sedge, grass’ is borrowed from some early form of Indo-Iranian). The word for ‘stalk’ or ‘stem’, *\( k₇ōh \)_om, is found in six groups, including Tocharian (e.g. Lat culmus ‘stalk, stem, straw’, OE healm ‘stalk, stem, straw’, Latv salms ‘stalk, stem, straw’, Rus solóma ‘stalk, stem, straw’, Grk kálamos ‘reed’, Toch A kalmants- ‘reed, rush’). A possible word for ‘shoot’, PIE *\( h₆ \)enkulos, rests on a pair of cognates comprising ON o¯ll ‘bud, shoot’ and Skt ainkurā- ‘young shoot’ that may derive from the verbal root *\( h₆ \)enk- ‘bend’.

Other plant names are more regionally confined as follows. [North-Western] *kwéndhr/no- ‘angelica’ (e.g. SGael contran ‘wild angelica’, Lat combretum [an unidentified aromatic plant]. ON hvom ‘Angelica silvestris’). Lith svéndras ‘reed; reed-mace’; *\( bhlo,h\)_elho- ‘flower’ (e.g. MIr bláth ‘flower’, OHG bluot ‘flower’, a derivative gives us NE blossom); *bhel- ‘henbane’ (Gaul belénion, OE beolone, Rus belená); *mēus ‘moss, mould’ (e.g. Lat muscus ‘moss’, NE moss, Lith mūsos [pl.] ‘mould’, Rus mokh ‘moss’); *yoīnis ‘reed, rush’ (e.g. MIr aín ‘reed’, Lat iuncus ‘reed’, iūmiprus ‘juniper’, ON einir ‘juniper’); [West Central] *kemeros ‘± hellebore’ (e.g. OHG hemera ‘hellebore’, Lith kemėras ‘marigold’, ORus čemėrũ ‘hellebore’, Grk kámaros ‘larkspur’); *ned- ‘nettle’ (e.g. MIr nenaid ‘nettle’, NE nettle, Grk adikē ‘nettle’, Lith nörėro ‘nettle’, Slovenian nát ‘nettle’): *meh₉-k- ‘poppy’ (OHG maho ~ mago, OPrus moke, Rus mak, Grk mêkõn, all ‘poppy’); *₁trus- ‘reed, rush’ (e.g. Lith tr(t)ušis ‘reed, horsetail’, Rus troštĩ ‘reed, cane’, Grk thrún ‘reed, rush’); *₂don- ‘reed’ (Lat duonis ‘reed’, Grk dónaks ‘reed’); *kaulós ‘stalk’ (e.g. Lat caulis ‘stalk’, OPrus caules
‘thorn’, Lith kąulas ‘bone’, Grk kaulós ‘stalk’; *wreh–gh– ‘thorn’ (e.g. MiIr fraig ‘needle’, Lith rāžas ‘dry stalk, stubble; prong of fork’, Grk hrakhós ‘thorn-hedge’, hrakhís ‘spine, backbone’); *alogh– ‘thorn’ (e.g. SC glog ‘thorn’, Grk glökhes [pl.] ‘beard of grain’, glökhis ‘point, end’, glössa ‘tongue’); and [Eastern] ?*g(h)rewom ‘reed, rush’, which is attested only in Av grava- and Tocharian (e.g. Toch A kru).

10.3 Domesticated Plants

There are two words for ‘field’. The first, *h₂érh₂w (e.g. OIr arbor ‘seed’, Lat arvum ‘ploughed field’, Grk àroura ‘field’, Arm haravunk’ ‘field’), can be assigned to Proto-Indo-European if one accepts the somewhat irregular Indo-Iranian cognates, e.g. Skt urvāra- ‘fertile soil’, and its underlying meaning is a ploughed field as it derives from *h₂érh₂w- ‘plough’. The second term (*h₂égros) has caused much discussion as the European cognates indicate a cultivated field (e.g. Lat ager, OE aecer [> NE acre], Grk agrós, Arm art, all ‘field’) while the Skt ájra- means simply ‘plain’ with no indication of agriculture. This divergence of meaning led to the proposal that the Indo-Iranians separated from the Europeans before they had gained agriculture so that we might posit a pastoral Indo-Iranian world and an agricultural European. Such a distinction is not borne out by the abundant evidence that Indo-Iranians also shared in an agricultural vocabulary, e.g. the Iranian descendants of *kāpos indicate a cultivated field, e.g. Roshani (an Iranian language of the Pamirs) sēpe ‘cultivated field’ (compare OHG huoba ‘piece of land’, Grk képos ‘garden’). The word for ‘meadow’, *wēlsu- (e.g. Hit wēllu-), includes the Grk Elysian (élúsios) fields and would appear to be derived from one of the Proto-Indo-European words for ‘grass’, namely *wel- (e.g. NWels gwelt ‘grass’, OPrus woltis ‘head of grain’, Hit wellu(want)- ‘grass’), as ‘grassy place’ or the like.

There are a number of words for ‘grain’ that are difficult to specify further. For example, *h₂ed- gives Lat ador ‘emmer wheat’, Goth atisk ‘grain field’, Arm hat ‘grain’, Sog ädük ‘crop, cereals’, but Lyc χθθahe ‘hay, fodder’, Toch B atiyo ‘grass’; *ses(y)ó- gives ‘barley’ in NWels haidd but ‘rye’ in Ligurian (asia) and ‘grain’ in other languages (e.g. Hit sesa(na)- ‘fruit’, Av hahya- ‘providing grain’, Skt sasyám ‘grain, fruit’). The meanings of *yw(e)w(e)- are similarly disparate and although it does indicate ‘barley’ in Hit ewan, NPers jāv, and Skt jáva- ‘grain, especially barley’, it means ‘wheat’ in Grk zeiai ‘einkorn or emmer wheat’ and ‘millet’ in Oss jēw and Toch B yāp (if from *yēbom by manner of dissimilation from *yēwom) as well as the less specific ‘grain’ in other languages (e.g. Lith javai, Av yava-). The word derives from the verbal root *yeu- ‘ripen, mature’ while another root *gerh₃ ‘ripen’ underlies *grh₃nom ‘grain’ (e.g. OIr
grān, Lat grānum, NE corn, Lith žirnis ‘pea’, OCS zříno, Alb grurē ‘wheat’, Pashto zannai ~ zarai ‘kernel, seed’). PIE *dhoḥ₂nēh₃- is found in Baltic (e.g. Lith diūona ‘bread’), Iranian (e.g. NPers dāna ‘grain’), Skt dhānās [pl.] ‘kernels of grain, fried grain reduced to powder’, and Toch B tāno ‘grain, kernel’). It has been argued that in distinction from terms indicating a species of grain such as *yēwos, *dhoḥ₂nēh₃- refers specifically to grain processed for consumption, i.e. ‘cereal’ in the sense of ‘breakfast cereal’. A fifth word for ‘grain’, *dr̥h₂weh₂-, may not be a word for ‘grain’ at all but rather for ‘tare’ (e.g. Gaul dravoca
‘darnel, ryegrass’, NDutch tarwe ‘wheat’, Skt dūrva- ‘panic-grass’ [related to millet]). A sixth possible word for ‘grain’ (or perhaps ‘barley’ or even ‘millet’) is *h₂e₁g₁(ə)l̥g(ə)- (Hit halki- ‘barley; grain’, NPers arzan ‘millet’, Grk álîks ‘spelt’ [borrowed from some Anatolian language??]); Toch B lyekşye ‘barley’ has also been suggested as a possible cognate. Another ‘grain/millet’ word is seen in Slavic, e.g. Rus próso ‘millet’, and Toch B proksa [pl.] ‘grain’, reflecting PIE *prok̑som [sg.] ~ *prok̑seh₁ [pl.]. The word for ‘ear of grain’, *hₑ₁e₁k̑es-, is attested in three European languages (e.g. Lat acus, NE ear, Grk ákhnē) and Tocharian (e.g. Toch B āka [pl.] ‘barley’) and comes from the root *hₑ₁e₁k̑- ‘point, sharp’. A derivative, *hₑ₁e₁kst₁₁-, gives the word for ‘awn, bristle’ (e.g. NWels eithin ‘furze’, Lith ākst₁₁ ‘spit (for roasting)’, Rus ostï˘ ‘awn, bristle’, and perhaps Toch B ās´ce ‘head’). A second word for ‘millet’ may be *kéres- found in both Germanic (e.g. NHG Hirse ‘millet’) and Indic (e.g. Kalasha karasha ‘millet’); in Italic, however, we have Lat cerēs ‘bread, grain’ (also Cērēs ‘goddess of agriculture’) with a much more generic meaning. ‘Rye’ is found mostly in the North-West (e.g. NE rye, Lith rugšys, Rus rožï˘) but also in the Iranian Pamir languages (e.g. Shughni ro´z ‘ear of rye’). The word for chaff *pelo/eh₁₁r (e.g. Lat pala, Lith pala [pl.], dialectal Rus pelá, Skt palāvās [pl.]), is attested in Old Indic and appears to be related to words for ‘dust’.

Of the actual plants that were brought into cultivation at various times over Eurasia, there is generally some uncertainty about the specific meaning of the proto-form. *gʰr̥esdl̥h(i), for example, means ‘barley’ in Lat hordeum, Germanic (e.g. German Gerste), and Grk krí ~ krīthē; ‘wheat’ in its possible Hittite cognate (karas); and cereal grain in Alb drithē. PIE *h₁élḥiḥt ‘barley’ (Grk álphi ‘barley-meal’, Alb elb ‘barley’) exhibits the same suffix found in Hit seppit ‘wheat’. *meig̊(h)- ‘barley’ (‘grain?’) can be counted Proto-Indo-European rather than North-Western (OIr míach ‘measure of grain, bushel’, Lith mėžiši) only if one accepts a Khotanese word for ‘field’ (mässa-) as cognate. A word for ‘millet’, *pano-, rests on a Latin-Iranian isogloss (Lat pānicum, Shughni [an Iranian language of the Pamirs] pînj). The weed, *hₑ₁e₁rêh₁o- ‘± ryegrass’, survives in Proto-Indo-European (Latv aîres ‘ryegrass’, Grk aîrai ‘ryegrass’, Skt erakā- ‘sedge’). As *ālu- ‘± esculent root’ is only found in Lat ālīum ~ allīum ‘garlic’ and Skt ālu- ‘Arum campanulatum (an esculent root)’ and, as its meanings are disparate, it is uncertainly reconstructed. The cognates of *kêh₁kom ‘edible greens’ (e.g. ON hā ‘aftermath, second cutting of hay’, Lith šekas ‘green fodder’, Skt śaka- ‘potholders, vegetables’) reveal that it was consumed by animals in the West and people in Asia. The distribution of *kaulōs ‘± cabbage’ is confined to the Mediterranean world (Lat caulis ‘stalk of the [cabbage] plant’, Grk kaulōs ‘cole, kail, cauliflower’, Hit kauli(s)ṣaṣa ‘some sort of vegetable’).

Wheat was the premier cereal of both the ancient and modern world but is not all that well attested. The word *sepit ‘wheat’ is only found in Hittite and
has no other cognates, but the archaic and unproductive morphology would argue that the word could not have been created in Anatolian but must be earlier, while *ga/ondh- ‘wheat’ is confined to Anatolian (Hit kant- ‘[einkorn?]wheat’), Indo-Iranian (e.g. Av gantuma- ‘wheat’), and Tocharian (Toch B kant ‘bread’) and may have some Asian source. Although included here among the domesticated plants, it is likely that the original referent for *h₁ewis indicated the wild rather than domesticated oats as domesticated oats do not appear in the archaeological record until the second millennium BC. The word is attested in Lat avēna ‘(wild) oats’, Baltic (e.g. Lith ėvīzos ‘oats’), Slavic (e.g. OCS ovı˘su˘ ‘oats’), and Iranian (Khot hau ‘some form of cereal’). The word for ‘wine’, *wo´inom, is found in Lat vı¯num, Alb verē, Grk oıˆnos, and Anatolian (e.g. Hit wiyana-) and would appear to be old in Indo-European; it may derive from the verbal root *weι(h₁)- ‘twist’, hence originally ‘that of the vine’ (see below).

There is a considerable number of regional terms associated with the plants that might grow in them. [North-Western] *lendh- ‘open land, waste’ (e.g. NE land, OIr lann ‘open land’, OPrus lindan ‘valley’, Rus ljadá ‘overgrown field’); *polkóh₁- ‘± fallow land’ (e.g. Gaul olca ‘fallow land’, NE fallow, Rus polosá ‘strip of arable land’); *seh₁men- ‘seed’ (e.g. Lat sēmen, OHG sa¯mo, OPrus semen, OCS seˇme from the root *seh₁-); [West Central]: *rēpēh₁- ‘turnip’ (e.g. Lat rāpum, OHG ruoba/C24 ra¯ba, Lith rópe`, Grk hráp(h)us); *póh₁iweh₁- ‘open meadow’ (Lith piève ‘meadow’, Grk po´a¯ ‘grass, grassy place’) which is possibly from the verb *peh₂- ‘nourish’; *h₁et(e)n(no- ‘kernel’ (MIr eitne ‘kernel’ [< *h₁etieniyom; NIr eitne and dialectally eithne], Grk étanos ‘thin soup made from peas or beans’). The semantic equation is excellent, but the usual Irish -t- is phonologically irregular (expected is -th-); *kino- ‘grass’ (Lith šienas ‘hay’, OCS sēno ‘hay, fodder, grass’, dialectal Grk koiná ‘hay’); *kweh₁t- ‘chaff’, ‘bran’ (e.g. MIr cāith ‘bran, needle’, dialectal Grk pérda ‘chaff’); *bhārs ‘grain’ (e.g. NE barley, Lat fār ‘grain; coarse meal’, Rus bórošno ‘ryemeal’), a North-Western word with possible Greek (phēros ‘food of the gods’) and Albanian (bar ‘grass’) cognates—it has been derived from both the Near East and a European substrate; *bhabheh- ‘bean’ (e.g. both Lat fāba ‘bean’, NE bean [reflecting a Proto-Indo-European *bhabhneh₂-], OPrus babo ‘bean’, Rus bob ‘bean’—cf. also Alb bathē ‘bean’ and Grk phakós ‘bean’ from PIE *bhakós/eh₂-); *kikar- ‘chickpea’ (Lat cicer ‘chickpea’, Maced kikerroi ‘birds’ pease’, Arm sisen ‘chickpea’); these would be phonologically regular from the proposed PIE form but are also usually taken as borrowings from some non-Indo-European language); *linom ‘flax’ (e.g. NWels llin ‘linen, flax’, Lat linum ‘linen, flax’, Lith līnaï [pl.] ‘linen, flax’, Rus len ‘linen’, Grk līnon ‘flax, thread, linen’); *kannabis ‘hemp’ (both Lat cannibis and NE hemp); *melh₂- ‘± grain, millet’ (Lat milium), problematic since the cognates may
simply be independently formed from the verb ‘to grind’ (*\(melh_2\)) (see below); *\(h_1\text{ereg}\) → ‘pea’ (e.g. Lat \(ervum\) ‘pea’, OHG \(araweiz\) ‘pea’, Grk \(\text{ó}\)\(\rho\)\(\text{obos}\) ‘pea’), seen by many as a Near Eastern loanword. There is *\(kremh\)\(_{us}\) ‘(wild) garlic’ (e.g. MIr \(c\)rem ‘wild garlic’, Grk \(kr\v{e}m(m)u\)\(o\)n ~ \(kr\v{o}\)(m)\(u\)\(o\)n ‘onion’, a derivative gives us, e.g., dialectal NE \(\text{ramsom}\) ‘(bulb of the) broad-leaved garlic’, Lith \(k\)\(r\)\(e\)m\(u\)\(s\)ˇ\(e\) ‘(wild) garlic’, Rus \(c\)\(e\)\(r\)\(em\)\(s\)ˇ\(a\) ‘wild garlic’); *\(m\)\(+\)\(k\)\(_{8}\) – ‘carrot’ (e.g. dialectal NE \(\text{more}\) ‘carrot’, Rus \(m\)\(o\)\(r\)\(k\)\(o\)\(v\)\(i\)˘, Grk \(b\)v\(r\)\(a\)\(k\)\(a\)\(n\)a ‘wild vegetables’); *\(p\)\(+\)\(h\)\(_{r}\)\(\acute{\rho}\)\(s\) – ‘wheat’ (e.g. Lith \(\text{pūra\~i}\) ~ ‘winter wheat’, Slov \(p\)\(i\)ˇ\(r\) ‘spelt’, Grk \(p\)\(ū\)\(r\)\(os\) ‘wheat’); *\(tr\)\(_{1}\)\(+\)\(v\)\(_{i}\) – ‘(reed, shoot, sapling, seedling)’, Cretan Grk \(\text{thrin}ι\acute{a}\~\) ‘vineyard’). Dialectal Greek preserves another word for ‘grapevine’, namely, \(\text{ui}\v{e}\~\)\(n\) (< Proto-Indo-European *\(wih\)\(\acute{e}\)\(n\)), which may well be old as it would seem to be the underlying noun from which the word for ‘wine’, *\(\text{wōinom}\), is derived (see above).

### 10.4 Agricultural Terms

There are a number of terms associated with the processing of presumably domesticated cereals. Taken in order of processing, we can begin with *\(h_{1/4\text{ek}}\) – ‘rake, harrow’. It appears as a verb in Lith \(\text{a}\k\(e\)\(t\)\(i\) ‘harrow’ and in derivatives meaning either ‘rake, harrow’ (e.g. NWels \(og\)\(e\)\(d\), Late Lat \(o\)\(c\)\(c\)\(a\), OE \(e\)\(g\)\(e\)\(d\), \(e\)\(c\)\(g\)\(a\), dial Grk \(o\)\(k\)\(s\)\(i\)\(n\)a) or ‘furrow’ (e.g. Grk \(\alpha\)\(g\)\(m\)\(o\)\(s\), Oss \(\alpha\)\(d\)\(e\)\(g\)\[< *\(\alpha\)\(g\)\(d\]\)). Hit \(\text{akkala}\) is semantically indeterminate; it may mean ‘furrow’ or ‘type of plough’. PIE *\(s\)\(+\)\(h_{1}\) – ‘sow’ is, an extension of the meaning ‘throw’ which is seen in Hit \(s\)\(ā\)\(i\)\(-\) ‘sow, throw’. The other verbal cognates are restricted to Lat \(s\)\(e\)\(r\)\(ō\), Germanic (e.g. NE \(s\)\(o\)\(w\)), Baltic (e.g. Lith \(s\)\(ė\)\(j\)\(u\)), and Slavic (OCS \(s\)\(e\)\(j\)\(o\)); a derived noun *\(s\)\(_{oh}\)\(_{1}\)\(_{g}\) has produced words for ‘millet’ in Baltic (e.g. Lith \(s\)\(ō\)\(r\)\(a\)) and the word for ‘to plant’ in Toch AB \(s\)\(ā\)\(r\)\(y\)\(-\). An extended form of this root, *\(s\)\(_{eh}\)\(_{i}\),

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<th><strong>Table 10.4. Agricultural terminology</strong></th>
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<tr>
<td>*(h_{1/4\text{ek}})</td>
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<tr>
<td>*(s)(<em>{eh})(</em>{1})</td>
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<tr>
<td>*(k)(<em>{e})(</em>{r})</td>
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<tr>
<td>*(h_{2\text{meh}})(_{1})</td>
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<td>*(p)(<em>{e})(</em>{i})(_{s})</td>
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<td>*(w)(<em>{e})(</em>{r})</td>
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<tr>
<td>*(h_{2\text{seh}})(_{2})</td>
</tr>
<tr>
<td>*(m)(<em>{eh})(</em>{2})</td>
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</table>
however, appears in a number of derivatives in both the east and west of the IE world, e.g. Skt śīra- ‘(seed-) plough’, śītā- ‘furrow’, Toch B šito ‘± grainfield’, Grk sītos ‘grain (both wheat and barley)’ (with s- preserved as in śūs ‘pig’). Another basic verbal root *(s)ker- ‘cut’, underlies *kerp- ‘pluck, harvest’. The semantics of the cognates vary from instruments that might be employed in cutting, e.g. MIr corrān ‘sickle’, Latv cirpe ‘sickle’, Skt kṛpaṇt ‘sword’, to the act of plucking, e.g. Lat cārpō ‘pluck’, to the object being gathered, e.g. Grk karpōs ‘fruit’, to the actual act (NE harvest) or the period of the harvest (OE hærfest ‘autumn’). A word for ‘mow’ (*h₂meh₁-) is secured with cognates in Germanic (e.g. NE mow), Grk amāō, and Hit hāmēsa- ‘spring, ± early summer’ (i.e. ‘mowing [time]’, *h₂meh₁-šh₂-o-) and provides the basis for several regionally attested terms. The process of ‘threshing’ is indicated by several words. A PIE *peis- is supported by cognates in Italic (Lat pīnsō ‘thresh’), Baltic (e.g. Lith paisyti ‘thresh’), Slavic (e.g. OCS pīchatī ‘hit’), Grk pīssō ‘winnow’, and Indo-Iranian (e.g. Skt pīnāstī ‘grinds, threshes’). We also have the semantically more ambiguous *wers- ‘± thresh’ seen in Lat verrō ‘sweep (grain after threshing)’, Baltic (Latv vārsmīš ‘unwinnowed heap of grain’), Slavic (OCS vřěštī ‘thresh’), and Hit warsi ‘plucks, harvests’. A root *h₂eh₂-er- ‘thresh, rake’ is attested only in Lat ārea ‘threshing floor; open field’ (and source of the more generalized in meaning NE area) and Hit hahhar(a)- ‘rake’. Finally, the actual grinding of the cereal is indicated by the widely attested *melh₂- ‘grind’ which is found in most IE groups, i.e. Celtic (e.g. OIr meilid), Italic (Lat molō), Germanic (e.g. NE meaf), Baltic (e.g. Lith malū), Slavic (e.g. OCS meljō), Grk múlē ‘mill’, Arm malem, Hit mall(a)-, Indo-Iranian (e.g. Skt mṛṇāti), and Tocharian (e.g. Toch B mel-). There are also a number of regional terms associated with agriculture. From the North-West we have two words for ‘furrow’: *prkēh- and *l(o)iseh-. The first is attested in Celtic (e.g. NWels rhych), Lat porca ‘a ridge between two furrows’, and Germanic (e.g. NE furrow); it has related forms in other languages, e.g. Skt pāṛśāna- ‘chasm’, but only the North-West region evidences a specifically agricultural meaning. The term is related to the word for ‘pig’ (*porkos) and there is the widespread notion of the pig as an animal that leaves a furrow-like track as it roots up the ground. With regard to *l(e/o)iseh₂ Lat lītra preserves the meaning ‘furrow’ (or ‘track’ and ‘to go off the track/out of the furrow’ is de-līrus, i.e. ‘insane’, the source of NE delirious). OE līste ‘fringe, border’ (> NE list) is also cognate along with OPruš līsa and OCS lēcha, both ‘field bed’. All of these would appear to be derivatives of an unattested verbal root *leis- ‘± leave a trace on the ground’. In the North-West we have *h₂meθ- ‘mow’, an enlargement of an unattested *h₂em-, like *h₂meh₁-, which is seen in Celtic (e.g. OIr meithel ‘reaping party’), Lat metō ‘mow, harvest’, and Germanic (NE meadow). From the West Central region we have *worwos ‘furrow’,
which is seen in Lat urvāre ‘to mark out a boundary with a furrow’ and Grk οὐρον ‘range (of area that could be ploughed up in a day)’; *ʰəmerg- ‘gather, harvest’, another enlargement on putative ʰsəm- which is attested in Lat mergae ‘reaping boards’ and Grk ἀμέργο ‘gather, harvest’; *neik- ‘winnow’ with cognates in Celtic (NWels nithiaf), Baltic (e.g. Lith niekōti), and Grk likmāō, all ‘winnow’. The aberrant initial of the Grk form (l instead of n) is due to dissimilation. From this region we also have *ghrendh- ‘grind’ seen in Lat frendō ‘gnash the teeth’, Germanic (e.g. NE grind), Baltic (Lith gręndu ‘scrape, scratch (off)’), and Grk khōndros ‘grain’ with another example of dissimilation (from *khrondrōs). From the Graeco-Aryan region we have *ʰaəl- ‘grind down’ with cognates in Grk ἀλέο ‘grind’, Arm ʿalam ‘grind’, and Skt aṃu- ‘fine (< ground down); Panicum miliaceum’.

10.5 Proto-Indo-European Flora

As with the ethno-zoological system (see Chapter 9), the reconstructed vocabulary associated with plants is not extensive if we compare this semantic class with that of living ‘natural’ languages in the world which tend to average about 500 generic taxa, roughly the same number that the Greek philosopher Theophrastus (372–287 BC) managed to describe. On the other hand, it may be the right order of magnitude for a reconstructed language. The Uralic-speaking peoples who occupied the forest zone of Eurasia provide evidence of fewer than thirty species of plants (largely trees) from their proto-lexicon and about another twenty-five words identifying the parts of plants.

Linguistic-anthropologists have examined the ethno-botanical systems of many peoples in an attempt to determine whether there existed any universals in their folk taxonomies. What has been observed is a series of stages where we might expect the creation of specific words (lexicalization) for various degrees of botanical distinction. For example, at stage 1 there would be no generic name for life forms. At stage 2 the one generic word would be ‘tree’ (and in two-thirds of the languages that lexicalize ‘tree’, the same word also means ‘wood’). At stage 3 a new word will appear to designate either ‘grass’ or non-grassy herbaceous plants (i.e. a grerb < grass + herb). At stage 4 a third generic plant name would be introduced—‘grass’, ‘grerb’, ‘vine’, or ‘bush’. Modern English possesses a stage 6 taxonomy with its basic plant forms of tree, plant, grass, vine, and bush. Earl Anderson has suggested that Proto-Indo-European was a stage 2 language with one life form lexicalized, i.e. *dōru which, according to expectations, does mean both ‘tree’ and ‘wood’. As the word means specifically ‘oak’ in Celtic and Greek, he suspects that this was originally its meaning (in a
pre-PIE Stage 1 system, where there was no generic name for ‘tree’ but only specific names for the different species of trees) and that it shifted to fill out the stage 2 taxon (note that many North American Indian languages possess a word meaning both ‘tree’ and ‘fir’). More controversially, he suggests the existence of a covert taxon, grerb. A covert taxon is a classification that is not lexicalized (no word exists for it) yet is recognized by its speakers. There is a variety of ways in which such a covert category might be discerned, e.g. when types are routinely grouped together or in a consistent pattern that suggests a kinship between the objects being referred to even if there is no specific word to describe the group. For example, although we may commonly lump frogs and toads or alligators and crocodiles together into related groups, we do not actually employ any specific term for these groupings, e.g. crocogators. In Anderson’s scheme, grerb would comprise both the terms for wild plants (note, however, the paucity of these words in Proto-Indo-European) and also, under another taxon, \(*h_{2}ed\)–‘grain’. Actually, assessment of the generic term for ‘grain’ is difficult in that there is not a single term that does not also refer to a species, e.g. Lat ador refers more commonly to ‘emmer wheat’ and there would certainly be other candidates for the generic term, e.g. \(*\gammah_{2}\nobm\) ‘grain’ which serves as the basic form in Germanic. Indeed, there very well may be a more complex system of folk taxonomy evident in the distinctions between the uses of the different cereals grains, e.g. \(*dhoh,\néh_{2}\)–‘(harvested) grain’. The two principal grains were wheat and barley and although barley may have frequently overtaken wheat in terms of production (it is a much hardier plant and tolerant of poorer soils and temperature), wheat was also the preferred grain, and where we find the two paired in early Indo-European literature, we generally find that wheat is mentioned first, e.g. Hit seppit euwann-a, Grk pu roi kai krithê both ‘wheat and barley’.

What can we tell about the environment of the Proto-Indo-Europeans from their arboreal vocabulary? The more extensive treatments of this semantic class reveal very different takes on the nature of the Indo-European forest. Paul Friedrich’s *Proto-Indo-European Trees* (1970) sees the arboreal evidence very much at home in the forests of eastern Europe while Thomas Gamkrelidze and Vyacheslay Ivanov set their arboreal landscape in the highlands of South-West Asia. In fact, most of the Indo-European arboreal vocabulary is not geographically very diagnostic—trees such as the alder, ash, and birch are known broadly over much of Eurasia from at least the Rhine to the Urals and through the Caucasus and highlands of west Asia. On occasion, some plants are not attested in the southern Mediterranean, e.g. the birch is absent in general from southern Italy, and here we find that the ancestors of the Latins shifted the meaning of the ‘birch’ word, \(fraxinus\), to ‘ash’.

The possibility of reconstructing a word for the ‘beech’, \(*bheh,\gós\), has historically been used as an argument for restricting the possible Proto-Indo-European
homeland to an area west of a line drawn from Kaliningrad (= Königsberg) to Odessa since that line demarcates the easternmost range of the common beech (*Fagus silvatica*). However, this traditional ‘beech-line argument’ ignores (1) the presence of closely related species of beech in the Crimea (*Fagus taurica*) and the Caucasus and northern coast of Anatolia (*Fagus orientalis*) and the presence of *Fagus silvatica* itself in the forests that line the major rivers of the Ukraine and southern Russia; (2) the possibility that *bheghós* referred to a variety of oak in Proto-Indo-European (as it does in Albanian and Greek which were spoken in territories where the beech itself is abundantly attested); and (3) the absence of cognates of *bheghós* in Anatolian or any of the other Asiatic groups which robs it of a secure Proto-Indo-European ancestry. Any of these reasons prevents the ‘beech-argument’ from restricting the potential Proto-Indo-European homeland to central and western Europe.

If there really does not seem to be a single diagnostic tree name that nails down the location of the Proto-Indo-European speakers, can the arboreal evidence be utilized in any other way to help locate the proto-language? While we cannot employ negative evidence, i.e. the absence of arboreal terms, to shed light on the prehistoric situation, it has been suggested that we can perhaps draw some conclusions from semantic shifts. We have already seen that Latin shifts what is unequivocally the word for ‘birch’ in all the other Indo-European languages to ‘ash’ and we have also seen that there are good ecological grounds to explain this shift, i.e. the ancestors of the Latin speakers migrated into a land that lacked birch trees. Paul Friedrich has argued that an even stronger case for semantic shift can be found in Greek. In some cases we find semantic shifts that pertain to species, e.g. PIE *h₂es(k)-(Grk oksúē) ‘ash’ shifted to ‘beech’ and PIE *bheghós*, the so-called ‘beech word’ (Grk *pheghós*), became ‘oak’. Other shifts see replacement of the arboreal meaning with a technological one, e.g. PIE *taksos ‘yew’ becomes tôkson ‘bow’ in Greek (they borrowed an apparently non-IE word *snīlaks* to designate the yewtree); and PIE *h₃es(k) ‘ash’ not only designates the ‘beech’ but also becomes ‘spear’. In terms of species shifts, Albanian also agrees with Greek with respect to changes in both the ‘beech’ word and ‘ash’. These would be admittedly limited arguments that the earliest Indo-Europeans did not live in Greece and the southern Balkans—assuming, of course, that these were real shifts of meaning and that they were motivated by a regional ecology different from that of the Proto-Indo-Europeans.

The reconstructed vocabulary for domesticated plants forms a restricted part of the botanical vocabulary as a whole although it is clear from the approximately twenty lexical items that the Proto-Indo-European community was familiar with cereal agriculture, particularly with wheat and barley, and there are at least half a dozen strongly reconstructed terms associated with planting,
harvesting, and processing cereal grains. While this has little geographical importance it does indicate that Proto-Indo-Europeans must have had at least a Neolithic subsistence base, i.e. date no earlier than c. 8000 BC, and that there is no question of their adhering to some form of (largely mythic) pure pastoral economy. Assigning exact referents to the several words meaning ‘grain’ or ‘wheat’ or ‘barley’ is not easy, in large part because of the ease by which the designation of a specific grain may become the word for grain in general or vice versa (PIE*ǵh₁h₂nom > American English corn, i.e. maize), and also because the natural development of these words is likely to have been disturbed by interdialect borrowing as new varieties, or even new species, were passed from group to group. In this context it is significant too that at least two of the ubiquitous weeds that infest wheat and barley, that is, ryegrass and (wild) oats, are also reconstructable. The rest of the Neolithic ‘agricultural package’, namely flax, pea, and chickpea, were probably also present in the Proto-Indo-European community, but the reflexes of their designations are found only regionally in the surviving Indo-European branches, principally those of the Mediterranean (Latin, Greek), which raises at least the possibility that they may derive from a non-IE substratum. ‘Millet’ as either an original meaning or a specific designation of a more generic word for ‘grain’ is interesting since it is not normally assigned to the early Neolithic package that entered Europe from the Near East but may have rather originated in central or east Asia (it is also found in the Harppan culture of India) and entered Europe across the steppe-lands.

Further Reading

11

Anatomy

11.0 The Body

We are able to reconstruct a substantial number of words for human and animal anatomy. This ability reflects both the natural human interest in the human body and the practical knowledge gained by butchery. Nevertheless, it is not altogether surprising that the vocabulary for the various parts of the external anatomy is better represented than that referring to internal organs. The terms for the external features were, of course, known to everyone while those concerned with at least some of the internal organs were a rather more restricted portion of the population. The number of words we can reconstruct in this area also reflects the relative stability of this particular set of words. Most of them are among the first words an infant learns and are thus particularly resistant to replacement.

11.1 The Head

There are four words attested for ‘head’. The most widely distributed is *k̑rēh₂ and its derivatives that are found in seven different groups, including Anatolian (e.g. ON hjarsi ‘crown of the head’, Lat cerebrum ‘brain’ [< *(marrow) of the head’ as opposed to ‘bone-marrow’], Alb krye ‘head’, Grk káre ‘head’, karárā
Table 11.1. The head

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<th>PIE</th>
<th>Sanskrit</th>
<th>Latin</th>
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<tr>
<td>*kṛr̥ēh₂</td>
<td>'head'</td>
<td>Lat cerebrum, Grk krānion, Skt śiras-</td>
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<tr>
<td>*ghebhōl</td>
<td>'head'</td>
<td>NE gable, Grk kephalē</td>
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<tr>
<td>*kapōlo-</td>
<td>'± head, skull'</td>
<td>Skt kapāla-</td>
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<tr>
<td>*mh₂dh-o-</td>
<td>'crown of the head'</td>
<td>Skt mūrdhān-</td>
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<tr>
<td>*h₁ēni-h₂kʷ-ō/eh₂r-</td>
<td>'face'</td>
<td>Grk enōpē, Skt āntka-</td>
<td></td>
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<tr>
<td>*prōti-h₂(ō)kʷ-ō/eh₂r-</td>
<td>'face, front'</td>
<td>Grk prósōpon, Skt prātka-</td>
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<tr>
<td>*h₂ent-</td>
<td>'forehead'</td>
<td>Lat ante, Grk anti, Skt ānti</td>
<td></td>
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<tr>
<td>*bhōlom</td>
<td>'forehead'</td>
<td>Skt bhālam</td>
<td></td>
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<tr>
<td>*h₂okʷ</td>
<td>'eye'</td>
<td>Lat oculus, NE eye, Grk ōmma, Skt ākṣi-</td>
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<tr>
<td>*bhṛuh₂s</td>
<td>'eyebrow'</td>
<td>NE brow, Grk ophrūs, Skt bhṛu-</td>
<td></td>
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<tr>
<td>*h₂nāss</td>
<td>'nose'</td>
<td>Lat nāris, NE nose, Skt nāsā</td>
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<td>*h₂ōus-</td>
<td>'ear'</td>
<td>Lat auris, NE ear, Grk ōus</td>
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<tr>
<td>*h₁/ōh₂(e)s-</td>
<td>'mouth'</td>
<td>Lat ās, Skt ās-</td>
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<tr>
<td>*h₂oust-eh₂r-</td>
<td>'mouth, lip'</td>
<td>Lat ōstium, Skt osṭha-</td>
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<tr>
<td>*stōmy</td>
<td>'mouth'</td>
<td>Grk stōma</td>
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<tr>
<td>*dug̥huh₂r</td>
<td>'tongue'</td>
<td>Lat lingua, NE tongue, Skt jihvā-</td>
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<tr>
<td>*h₂dōnt-</td>
<td>'tooth'</td>
<td>Lat dōns, NE tooth, Grk odōn, Skt dānt-</td>
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<tr>
<td>*gōmbhos</td>
<td>'tooth, set/row of teeth'</td>
<td>NE comb</td>
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<tr>
<td>*gēnu-</td>
<td>'jaw'</td>
<td>Lat gena, NE chin, Grk génus, Skt hānu-</td>
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</tr>
<tr>
<td>*smek-</td>
<td>'chin, jaw'</td>
<td>Lat māla</td>
<td></td>
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<tr>
<td>*men-</td>
<td>'chin'</td>
<td>Lat mentum</td>
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<tr>
<td>*monis</td>
<td>'neck'</td>
<td>NE mane, Lat montle, Skt mānyā-</td>
<td></td>
</tr>
<tr>
<td>*gʷrih₂w-eh₂r</td>
<td>'neck'</td>
<td>Skt grīvā-</td>
<td></td>
</tr>
</tbody>
</table>

*head*, krānion ‘crown of the head’ [> via Latin into NE cranium], Av sāra- ‘head’, sarah- ‘head’, Skt śiras-‘head’, Toch B kraiīye ‘neck’ [< ‘occiput’], Hit kitkak ‘headlong’). The second word, *ghebhōl*, is found in at least three groups (e.g. ON gafl ‘gable, gable-side’ [whence, via Old French, comes NE gable], Grk kephalē ‘head’, Toch A špāl ‘head’) and yields the meaning ‘gable’ as well as ‘head’ or ‘skull’ in the Germanic languages. PIE *kapōlo-* is attested only in OE hafola ‘head’ and Skt kapāla- and in the latter it means both ‘head’ and ‘cup’, an association found elsewhere among the Indo-European languages, e.g. French tête ‘head’ derives from Lat testa ‘pot’. The ‘crown of the head’, *mh₂dh-o-*, is found in at least three groups (e.g. OE molda ‘crown of the head’, Av karmārōṣa-‘head of a demonic being’, Skt mūrdhān- ‘head’).

There are two words, both compounds indicating ‘what is in front of the eye’, that describe the ‘face’, i.e. *h₁ēni-h₂kʷ-ō/eh₂r-* (e.g. OIr enech ‘face’, Grk enōpē
‘face’, Av *ainika-‘face’, Skt *ánika-‘face, front’) and *próti-h₂(ō)kʷ/o/eh₂ (e.g. Grk prósópon ‘face’, Skt práttka-‘face’, Toch B pratsako ‘chest’). There are also two words for ‘forehead’, the first, *h₂ent-, being the ‘front, the part before’ (e.g. OIr ētan ‘forehead’, Lat ante ‘in front of, before’, Grk anti ‘in front of, opposite’, Hit, hant- ‘face, forehead, front part’, Skt ánti ‘in front of, opposite’, ánta- ‘end, limit’, Toch B ánte ‘surface, forehead’) while *bhólov ‘forehead’ (OPrus ballo, Alb ballē, Skt bhālam, all ‘forehead’) may derive from the verbal root *bhel- ‘shine’. Such a basic concept as ‘eye’, *h₁slokʷ (e.g. OIr enech ‘face’, Lat oculus, NE eye, Lith akis, OCS oko, Grk ὀμμα, Arm ək, Av aši-(dual) ‘eyes’, Skt áksi-, Toch B ek, all ‘eye’), is attested in ten Indo-European groups while *bhrūh₃s, ‘eyebrow’, can be found in at least nine groups (e.g. OIr forbrū, NE brow, Lith bruvis, Rus brovî, Maced abroûtes, Grk ophrūs, Av brvat-, Skt bhrā-, Toch B pārwāne, all ‘brow(s)’). Two other major sense organs, *h₁náss ‘nose’ (e.g. Lat nāris ‘nostril’, nārēs [pl.] ‘nose’, NE nose, Lith nōsis ‘nose’, OCS nosā ‘nose’, Av nāh- ‘nose’, Skt nāsā [dual] ‘nostrils’) and *h₂ówus-‘ear’ (e.g. OIr ē, Lat auris, NE ear, Lith ausis, Rus ūkho, Alb vesh, Grk oûs, Arm unkn, Av uši [dual], all ‘ear(s)’), are attested in at least nine Indo-European groups. For ‘mouth’ we find three words of antiquity: *h₁/₄ōdh₁(e)s- (MIR ā ‘mouth’, Lat əs ‘mouth’, ON Óss ‘mouth of a river’, Hit a(ys)is-‘mouth’, Av ādh- ‘mouth’, Skt āś- ‘mouth’), *h₂oust-eh₄- (Lat ōstium ‘mouth of a river’, OPRus austo ‘mouth’, Lith uostā ‘mouth of a river’, OCS uesta [pl.] ‘mouth’, Av ausīt(r)a- ‘lip’, Skt oṣṭha- ‘lip’), and *stómyn (NWels safn ‘jawbone’, Grk stóma ‘mouth’, Hit istaman- ‘ear’, Av staman- ‘maw’), which tempt one to find some semantic distinction between the different words. The first two mean both ‘mouth’ and ‘mouth of a river’ with the second word also including ‘lip’ in Indo-Iranian. The third word, *stómyn, means ‘mouth’ in Celtic, Greek, and Iranian but ‘ear’ in Anatolian (where the presumed proto-Anatolian meaning may be ‘orifice’). The word for ‘tongue’, *dn̥ghuh₃, is widely attested (e.g. OIr tengae, OLat dingua, NE tongue) but also widely remodelled, probably by the initial sound in the verb ‘to lick’ (we have three words and they all begin with an ‘l’), e.g. Lat lingua but in Old Latin it was dingua while Lith liežūvis and Arm lezu also begin with an initial ‘l’. There is also metathesis, e.g. Proto-Tocharian *kān(ə)wō (Toch A kāntu, Toch B kantwo) reverses the syllable-initial consonants of the expected *tānkwo. Both OPRus insuwis and OCS jezykā show the loss of the Proto-Indo-European *l-before *y, while Av hizū- and Skt jihvā- show even more reformation. There are two words for ‘tooth’. The presumably older (attested in nine groups) is *h₁dōnt- (e.g. OIr dēt, Lat dēns, NE tooth, Lith dantis, Grk odōn, Arm atamm, Av dantan-, Skt dant-, all ‘tooth’, and Rus desná ‘gums’) which was originally a participle from the verb *h₁jed- ‘eat’ (cf. Hit adamt-‘eaten’); *gōmbhos is found in seven groups (e.g. NE comb, Latv zūobs ‘tooth’, OCS zōbǔ ‘tooth’, Alb dhēmb ‘tooth, tusk’, Grk γομφος ‘large

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*W
wedge-shaped bolt or nail’, Skt jāmbha- ‘tooth’, Toch B keme ‘tooth’). There are several words for ‘jaw’ and ‘chin’. Clearly old is *gênu- (nine groups: OIr gin ‘mouth’, Lat gena ‘cheek’, NE chin, Grk génu ‘chin, jaw’, Phryg azēn ‘beard’, Av zānu- ‘jaw’, Skt hānu- ‘jaw’, Toch A šānwem [dual] ‘jaws’). We have already seen how *smek- may mean ‘chin’ as well as ‘beard’; the reconstruction of *men- requires acceptance that the apparently cognate forms in Celtic (MWels mant ‘mouth, jaw’), Italic (Lat mentum ‘chin’), and Anatolian (Hit mēnī- ‘chin’) were not independent derivatives from *men- ‘project’. The two words for ‘neck’ seem to offer some semantic distinction in that *monis (e.g. OIr muin ‘neck’, Lat monı¯le ‘necklace’, NE mane, OCS monisto ‘necklace’, Av manaodērt ‘neck’, minu- ‘necklace’, Skt mānyā-’nape’), possibly also a derivative of *men- ‘project’, yields derivatives meaning ‘necklace’ (the neck viewed from the outside) while *gwrih₃eh₃- (e.g. Latv griva ‘river mouth’, Rus grı´va ‘mane’, Av grı¯va-‘neck [of a demonic being]’, Skt grı¯va-‘neck’), possibly derived from the verb *gw₃er (h₃)- ‘swallow’, suggests the neck viewed from the inside, i.e. the throat.

The regional Indo-European vocabulary is not nearly so extensive. From the North-West we have *káput ‘head’ (e.g. Lat capit and less clearly derived NE head); *leb- ‘lip’ (e.g. Lat labium ‘lip’, NE lip, cf. Hit lipp- ‘lick’); *ghēh₃(u)-mᵣ₃ ‘interior of mouth (gums, palate)’ (e.g. NE gums, Lith gomuryš ‘palate’); and *köl₃sos ‘neck’ (e.g. MIr coll ‘head, chief’, Lat collus, OHG hals ‘neck’). From the West Central area are *gonh₃a-dh-o-s ‘jaw’ with cognates in Baltic (e.g. Lith žändas ‘jaw, cheek’), Grk gnáthos ‘jaw, mouth’, and Arm cnawt ‘jaw’; *ghelu-neh₃- ‘lip’ (e.g. ON gjólnar ‘jaws’, Grk khelānē ‘lip’, Arm jelun ‘palate’) and *h₃,eng₃h₃(₃)ēn₃- ‘neck’ (e.g. Rus vjazj ‘nape’, Grk ámphēn ~ aukhēn ‘nape’, Arm awjik’ [pl.] ‘neck’; from *h₃,eng₃h₃-’narrow’). A Greek-Indic isogloss (Grk oujlon, Skt bārsva-) is seen in *wōlswom ‘gums’ (from *wels- ‘bulge’).

11.2 Hair

The abundance of words pertaining to ‘hair’ is quite striking and in this section we will include both head hair and body hair as the two concepts occasionally overlap (or are too difficult to distinguish). The hair of the head was *kripo- (e.g. Lat crīnis ‘head hair’, Alb krip ‘short’ head hair, facial hair’, krife ‘mane’, Av srīfā- ‘plume’, Skt śīprā [dual] ‘moustache and beard’) while the oldest word for ‘beard’ was *smōkw♭ (e.g. Alb mjēkēr ‘beard, chin’, Arm mawruk ‘beard’, Hit z(a)munkur ‘beard’, Skt śmāṣru ‘beard, [especially] moustache’) which also might mean ‘chin’ (e.g. Lith smakrā ‘chin’, Alb mjēkēr ‘beard, chin’, and in OE smēras [pl.] it came to mean ‘lips’). Body hair in general, including especially pubic hair, was *pou-m-s-, and in several traditions marks the coming of
adult age, e.g. Lat pūbēs also designates ‘adult, one able to bear arms’ while the Sanskrit cognate pūman means ‘man, male’ (cf. also dialectal Lith paustis ‘animal hair’, Rus pukh ‘down’, Alb pushem ‘begin to grow a beard, body hair’, Grk poğon ‘beard’, Shughni pūm ‘down, XuvV’). Related in some way are various words for ‘a single hair’, *pulos and *pilos (e.g. MIr ulu ‘beard’, Grk puligges [pl.] ‘hairs of the body’, Kurd pūr ‘head hair’, Skt pulakaś [pl.] ‘bristling hairs of the body’, and Lat pilus, Grk pilos)*

The word for ‘mane’ (the meaning in most cognate sets except Latin where caesarīs means ‘long flowing hair’) was *k(e)hďisVr- (e.g. Skt kēsara-). Less secure in original meaning is *ghait(so)- ‘hair, mane’ (Skv khaitē). The body hair, probably of animals, seems to underlie words like *yoku (e.g. Arm asr ‘wool’, Skt yāśu ‘pubic hair’, Toch A šišīri). Less secure in original meaning is *ghait(so)- ‘hair, mane’ (Skt yāśu).

The root *wendh- designated ‘(a single) hair’ (e.g. MIr Wěnd ‘a single hair’, OHG wint-braēwa ‘eyelash’, Grk ionthos ‘hair root, young beard; acne’) while the inclusion of a suffix seen in *we/ondhso- indicated ‘facial hair’ (e.g.

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Table 11.2. Hair

| *kripo-   | ‘+head and facial hair’ | Lat crīnis, Skt śīprā |
| *smokuř | ‘chin, beard’ | Skt śmāśru |
| *pou-m-s- | ‘(human) body hair’ | Lat pūbēs, Grk pōgōn, Skt pūman- |
| *pulos | ‘(a single) hair’ | Grk pōligges, Skt pulakās |
| *pilos | ‘(a single) hair’ | Lat pilus, Grk pilos |
| *k(e)hďisVr- | ‘mane’ | Lat caesarīs, Skt kēśara- |
| *ghait(so)- | ‘hair, mane’ | Grk khaitē |
| *yoku | ‘(animal) body hair’ | Skt yāśu |
| *görį | ‘(animal) body hair’ | Skt guṇā- |
| *réumŋ- | ‘horsehair’ or ‘fleece’ | Skt rōman- |
| *wendh- | ‘(a single) hair’ | Grk ionthos |
| *we/ondhso- | ‘facial hair’ | Grk thrīks |
| *dhriŋh- | ‘+a (coarse) hair’ | NE tail, Skt daśā- |
| *deŋ- | ‘thread, hair’ | Skt kēśa- |
| *koik- | ‘cut hair’ | Skt kēśa- |
| *weŋ- | ‘shave, shear’ | NE fox, Skt pūcaha- |
| *wölōs | ‘tail hair (of a horse)’ | Skt vāla- |
| *puk(eh₃)- | ‘tail’ | NE fox, Skt pūcaha- |
| *wãŋhe₃worth | ‘wool’ | Lat lāna, NE wool, Grk lēnos, Skt ārṇā- |
MIR fēs ‘lip; beard; pubic hair’, OPrus wanso ‘first beard’, OCS vōsū ‘mustache’, Khot vatea ‘facial hair’). The quality of hair can be seen in *dhrigh- ‘± a (coarse) hair’ (e.g. MIR gairb-driuch ‘bristle, rough hair’, Grk thrîks ‘a single hair’, Khot dro ‘hair’) while *dekē-, which originally meant ‘thread’, was extended to mean ‘hair’ (e.g. OIr dúal ‘lock of hair’, NE tail, Goth tagl ‘a single hair’, ON tāg ‘thread, fibre’, Khot dasa- ‘thread’, Skt dasā- ‘fringe’, Toch A sāku ‘head hair’). Finally, we have two words associated with the cutting of hair, i.e. *koikē- ‘cut hair’ (in Baltic, e.g. Lith kaišiu ‘scrape, shave’, Alb qeth ‘cut hair, shear’, and Indic, i.e. Skt kēṣa- ‘head hair’) and the poorly attested (an Armenian-Tocharian isogloss) *wergē- ‘shave, shear’ (e.g. Toch B wark- ‘shear’, Arm gercum ‘shave, cut hair’). The hair of animals is also attested in the sense that we have two words for ‘tail’, *wołos (e.g. Lith valai [pl.] ‘tail of a horse’, Skt vála- ~ vāra- ‘tail of a horse; horsehair’) and *puk- (e.g. NE fox, Tocharian puśˇ ‘fox’, Skt pučcha- ‘tail’, Toch B pākā- ‘tail, chowrie’). The first is attested only in Lithuanian and Old Indic and in both languages specifies the ‘tail hair of a horse’. The second is found in Germanic, Indic, and Tocharian and gives us our word ‘fox’. Nine different groups (including Anatolian) attest the Proto-Indo-European word for ‘wool’, *wlēh- (e.g. NWels gwlan, Lat lana, NE wool, Lith vīlna, Rus vōlna, Grk lęnos, Hit hulan-., Av varānā-., Skt āṛṇā-., all ‘wool’).

From the North-West we have *bhardh-ehā ‘beard’ (e.g. Lat barba, NE beard, Lith barzdā, all ‘beard’, Rus borodá ‘beard, chin’); *ker(es)- ‘± (rough) hair, bristle’ (e.g. NE hair, Lith šīrs ‘bristle, animal hair’, Rus šerstī ‘wool, animal hair’).

11.3 The Upper Body and Arms

There is a single word for the ‘body’ in general, *kreps, which is attested in Celtic (OIr crē ‘body, flesh’), Italic (Lat corpus ‘body’), Germanic (e.g. OE hrif ‘belly, womb’ [> NE mid riff]), and Indo-Iranian (Av kṛṣ ‘body’, Skt kṛp- ‘form, beauty’). Of very indeterminate meaning (and not only with respect to body parts) is *poksós ‘side, flank’ but with meanings as variable as Latv paksis ‘corner of a house’, Rus pākh ‘flank, loins’, pakhā ‘armpit’, Oss fāks ‘side’, Skt paksā- ‘wing, flank, side’, and possibly OIr ucht and Lat pectus, both ‘breast’. The semantic range of words relating to ‘skin’, be it human or animal, is not always clear. The word *twēks means ‘skin’ in Indic (Skt tvāk-), ‘self’ in Hit tuēkka- (also ‘body, person’), and ‘shield’ (< skin shield) in Grk sāku(k)os. Both *(s)kwēh,tis (e.g. NWels es-gid ‘shoe’ [< ‘foot-hide’], NE hide, Lith kiūtis ‘skin’, Grk skūtos ‘skin, leather, hide’, Toch A kāc ‘skin’) and *hjowes- (e.g. Lat ōmentum ‘fatty membrane or caul covering the intestines’, Toch B ēwe ‘inner skin, hide’) derive from verbs meaning ‘to cover’, i.e. *(s)keuh,t- and
Table 11.3. The upper body and arms

| *kréps    | ‘body’            | Lat corpus, NE midriff, Skt kṛp- |
| *poksós   | ‘side, flank’     | ?Lat pectus, Skt paksá-               |
| *twêks    | ‘skin’            | Grk sakkos, Skt tvák-                |
| *(s)kwêh,tis | ‘skin, hide’      | NE hide, Grk skūtos                |
| *h₁jowes- | ‘(inner) skin’    | Lat omentum                         |
| *kérmen-  | ‘skin’            | Skt cárman-                         |
| *h₆eɡínom | ‘hide’            | Skt ajinam                          |
| *h₁/4ómsos | ‘shoulder’        | Lat humerus, Grk ómos, Skt ámsa- |
| *(s)kup-  | ‘shoulder’        | Skt šúpti-                           |
| *h₆eksz-  | ‘shoulder (joint); axle’. | Lat axis, Grk áksôn, Skt áksa-          |
| *p(e)t-   | ‘shoulder (blade)’ | Grk ōmopláte                         |
| *h₂épeses- | ‘limb, part of the body’ | Lat āla, NE axle          |
| *kóks-o/eh₉ | ‘hollow of (major) joint’ | Skt āpsa-                          |
| *h₇érh,mos | ‘arm, forequarter’ | Lat coxa, Skt kákṣa-             |
| *bhághus  | ‘(fore)arm, foreleg’ | NE bough; Grk pékhus; Skt bāhú- |
| *dous-    | ‘(upper) arm, shoulder’ | Skt dōṣ-                         |
| *h₂elVn-  | ‘elbow, forearm’  | Lat uhna, NE ell, elbow            |
| *gḥés-r-  | ‘hand’            | Lat hīr, Grk kéir-                  |
| *gḥós-to-s | ‘hand’            | Lat praestō, Skt hāsta-            |
| *mēh₉ | ‘hand’             | Lat manus, Grk márē               |
| *h₁nogh₉(w)- | ‘(finger- or toe-)nail’ | Lat unguis, NE nail, Grk önukṣ, Skt nakhā- |
| *pet(e)ᵰ- | ‘wing, feather’   | Lat penma, NE feather               |
| *(s)pornóm | ‘wing, feather’   | NE fern                            |
| *pérkus   | ‘± breast, rib’   | Skt pārsā-                         |
| *psteenós | ‘woman’s breast, nipple’ | Grl sténion, Skt stāna-         |
| *h₁/2ouh,dhr | ‘breast, udder’   | Lat über, NE udder, Grk υūθar, Skt ēdhar- |
| *pap-     | ‘± mother’s breast, teat’ | Lat papila, Skt pippala-          |
| *kuh₉,los | ‘back’            | Lat cáulus, Skt kūla-              |
| *h₂nabh-  | ‘navel, nave’     | Lat umbilicus, NE navel, Grk omphalós, Skt nābhi- |

*h₁jeu- respectively, while *kérmen- (e.g. OPrus kermens ‘body’, Av ċarman- ‘animal] skin, leather’, Skt cárman- ‘skin’) derives from the verb *(s)ker- ‘cut (off)’. Clearly associated with animal hide is *h₆eɡínom (OCS (j)azno ‘hide, leather’, Skt ajínam ‘hide’) which derives from *h₆eɡós ‘goat’ thus originally ‘goat-hide’.

There are several words to indicate the ‘shoulder’. The primary one, attested in seven groups from Italic to Tocharian, is *h₁/4ómsos (e.g. Lat (h)umerus
'shoulder', Goth ams 'shoulder', Grk ômos 'shoulder', Arm us 'shoulder', Hit an(as)sa- 'hip, buttocks; upper back', Skt âmsa- 'shoulder', Toch B ântse 'shoulder'); *(s)kup- is also reasonably widely attested (MLG schuft 'shoulder blade of cow or horse', Alb sup 'shoulder', Av supti- 'shoulder', Skt śupti- 'shoulder'). The 'shoulder joint' is found in *hₑₜʰḵʌs- and its derivative *hₑₜʰs-lehr₂-. The first indicates both the 'axis' and the 'axle' of a vehicle while the derivative is more closely associated with the 'shoulder' itself (e.g. Lat axis 'axis, axle', âla 'shoulder, wing', axilla 'armpit', OE eax 'axle, axis', eaxl 'shoulder', Lith âsis 'axle, axis', OCS osi˘ 'axle, axis', Grk äkso¯n 'axle, axis', Av aks- 'shoulder'). The adjectival root *plet- 'broad' gives a noun *plet₂- in Celtic, Slavic, Greek, and Anatolian that means 'shoulder' or 'shoulder blade' (MIr leithe 'shoulder', Rus plecˇo´ 'shoulder', Grk o¯mo-pla´te¯ 'shoulder blade', Hit palta¯na- 'shoulder'). There are a few general terms for 'limb' or 'joint', i.e. *h₂e´pes- (e.g. Hit hapessar 'limb, joint, part of the body', Oss æfcæg 'projecting part of the body, neck', Skt a´psas- 'protruding part of the body, breast, forehead, tusk', Toch A a¯psa¯[pl.] 'limbs'), an admittedly banal derivative of *h₂ep- 'to attach' and several languages attest a meaning 'shoulder' which suggests that the semantic field for this word may have originally been the 'upper arm' (e.g. Lat armus 'forequarter, shoulder [of an animal]', NE arm, OPrus irmo 'arm', OCS ramo 'shoulder', Av arcoma- 'arm, forearm', Skt ĭrmā- 'arm'). But *bhā-ghus which can also indicate the shoulder is also reasonably well attested (e.g. OE bōg 'shoulder, arm, bough' [= NE bough], Grk pēkhus 'elbow, forearm', Av bāzu- 'arm; foreleg', Skt bhāhú-'forearm, arm, forefoot of an animal', Toch B pokai- 'arm; limb') and *dous--, attested in five groups, may mean 'upper arm' or 'forearm' (e.g. OIr doē 'arm', Latv pa-duase 'armpit' [= 'that under the arm'], Slovenian paz-dua 'armpit', Av daoš- 'upper arm, shoulder', Skt dōṣ- 'forearm, arm'). Six groups attest *h₃elVn- 'elbow, forearm' (e.g. OIr uilen 'corner', Lat ulna 'forearm, ell', NE ell, elbow, Grk oléne¯ 'forearm', dialectal Grk óllon 'elbow', Arm ohn 'spine', Toch B aliye 'palm'; note that in both Latin and Germanic it also indicates the 'ell', a unit of measurement) and there are some semantic shifts, e.g. Tocharian 'palm'. Six groups, including Hittite, give us *ghēs-r- 'hand' (e.g. Lat bōr 'hollow of the hand', Alb doré 'hand', Grk kheîr 'hand', Arm jeĕn 'hand', Hit kissor 'hand', Toch B sar 'hand') while a derivative, *ghōs-to-s, is found in four groups (Lat praestō [< *prai-hestōd] 'a hand',
Lith pa-žastis ‘armpit’, Av zasta- ‘hand’, Skt hástá- ‘hand’). Another word for ‘hand’, *mēh₄₃ (oblique stem *meh₄₃n-), has been seen to have an underlying semantic connotation of ‘power’ as in ‘hand over’ (e.g. Lat manus ‘hand’, OE mund ‘[palm of the] hand, protection’, Goth manwus ‘at hand, ready’, Grk máre ‘hand’, iónos ‘having arrows at hand’, and the related Alb marr ‘take, grasp’, Hit māniyahh- ‘hand over’, māri ‘manual tool, weapon’). The word for ‘nail’, *h₃rogh(w)-, is nearly ubiquitous across the Indo-European world (e.g. OIr ingen, Hit ma¯niyahh, Lat unguis, NE nail, Lith nāgas, OCS nogu˘tī, Grk ónuks, Skt nakhā-, Toch B mekwa [pl.], ‘nail’). In some groups the meaning has been generalized to ‘foot’ (e.g. Lith nagā ‘foot’, Rus nogá ‘foot, leg’, Skt ánghri- ‘foot’). For birds we have two words associated with ‘wing’ or ‘feather’, *pet(e)r-rn- (e.g. OIr ēn ‘bird’, Lat penna ‘feather’, NE feather, Grk pterón ‘wing’, Arm t’iè’im ‘fly’, Hit pittar ~ pattar ‘wing’) and *(e)pornóm (e.g. NE fern, Lith spa˘nųs ‘wing’, Av par¯ena- ‘feather’, Skt pánapa- ‘feather’; also OCS pero ‘feather’, Toch B parwa [pl.] ‘feathers’). The first derives from the verbal root *pet- ‘fly’.

The mid section has *pérkus which may mean either ‘breast’ or ‘rib’ (e.g. dialectal Lith pîršys ‘forepart of a horse’s chest’, Rus përsi [pl.] ‘breast, chest [especially of a horse]’, Alb parz ~ parzêm ‘breast’, Av parəs¯u- ‘rib’, Skt pàrśu- ‘rib’, pàrśvà- ‘region of the ribs, side’) while a ‘woman’s breast’ is indicated by cognates extending from Greek eastwards in *pståνos (e.g. dialectal Grk sté-nion, Arm stin, Av fštàna-, Skt stána-, Toch B pàsçane [dual], all ‘woman’s breast’; we will find a derivative in the North-Western languages). For animals largely we have *h₁ουdh₃th ‘breast, udder’ (e.g. Lat über ‘udder, teat, [lactating] breast’, NE udder, Lith pa-ūdre ‘abdomen’, Grk ouθhar ‘udder’, Skt ādhar- ‘udder’); the root *pap- (e.g. Lat papilla ‘teat, nipple, breast’, MHG buoben ‘breast’, Lith pàpas ‘breast’, Skt pippala- ‘nipple’) looks like a continually reinvented children’s word (cf. NE pap and boob). The word for ‘back’, *kūh₃-los (OIr cül ‘back’, Lat calus ‘rear-end’, Skt kūla- ‘slope, back; rear of army’), is derived from the root *keuh₃- ‘be bent (convexly)’ (apparently distinct from *keuh₃- ‘hollow’; see also ‘hernia’ [Section 11.7]). Finally, *h₃nobh- ‘navel’ also yields the meaning ‘nave’, and although ‘navel’ is the original meaning, a number of languages form their word for ‘navel’ by applying an extension, e.g. OE nafu ‘nave’ but OE nafel ‘navel’ (cf. also OIr imbliu ‘navel’, Lat umbilicus ‘navel’, umbō ‘boss on a shield’, OPrus nabis ‘nave, navel’, Grk omphalós ‘navel’, Skt nabh- ‘nave’, nabhya- ‘nave’).

The regional vocabulary includes North-Western words such as the Celtic-Germanic isogloss *letrom ‘leather’ (e.g. OIr lethar ‘leather’, NE leather); *pōlik(o)s ‘finger, thumb’ (e.g. Lat pollex ‘thumb’, Rus pàlec ‘finger, toe’); *pŋ(kk)`st- ‘fist’ (e.g. NE fist, Lith kūmstę [< *punkste] ‘fist’, OCS pesť ‘fist’) which may derive from the word for ‘five’ (*penkʷe’); and *speno- ‘(woman’s) breast, nipple’ (e.g. OIr sine ‘teat’, OE spanu ‘breast’, Lith spenyṣ ‘teat’) which
appears to be a metathesized and simplified Western version of Proto-Indo-European *pstenos listed above. The West Central region also exhibits several words for ‘skin’, i.e. *peln- ‘animal skin, hide’ (e.g. Lat pellis ‘animal skin, hide’, NE fell and also film, Lith plenę ‘film [on milk], scab’, Rus plená ‘pelt’, Grk erusi-pelas ‘red inflammation of the skin’); and possibly *nak(ে)- ‘± pelt, hide’ (e.g. OE nesc ‘dressed fawn’s skin’, OPrus nognan ‘leather’, Grk nakoš ‘pelt’, OE lendenu ‘loins’). Other isoglosses include *mèles- ‘limb’ (e.g. Breton mell ‘knuckle’, Grk mélos ‘limb’); *h3elek- ‘elbow, forearm’ (a regional variant of the more widespread *h3elv- (e.g. Lith uolektis ‘ell’, alkune ‘elbow’, Rus lokotě ‘elbow, ell’, dialectal Grk álaks ‘forearm’, Arm olok ‘shin, leg’); *pönhığ ‘palm of the hand’ (e.g. OIr lam ‘hand’, Lat palma ‘palm’, OE folma ‘palm, hand’, Grk palme¯ ‘palm’); *dhēnr ‘palm (of the hand)’ (OHG tenar ‘palm’, Grk the¯nar ‘palm, sole [of the foot]’), *dhehlus ‘nourishing, suckling’ and *dhhileh ‘teat, breast’ (e.g. Lat fēlix ‘fruitful, prosperous, happy’, Grk thēlus ‘nourishing’, Skt dhru¯ ‘suckling’, MIr deil ‘teat’, OE delu ‘nipple, teat’), both banal derivatives of the verb *dheh(i) ‘suckle’; and possibly teg ‘± side’ with OIr töib ‘side’ and Arm t’ekn ‘shoulder’.

Finally, there is the Indo-Iranian-Tocharian isogloss *mustı ‘fist’ (Av mušti-, Skt mušṭī-, Toch B mašce, all ‘fist’).

11.4 The Lower Body and Legs

There is no unambiguous word for ‘hip’ although *klōnis may mean ‘hip’ in some languages where it also may indicate the ‘haunch’ or ‘thigh’ (e.g. NWels clun ‘haunch’, Lat clēnis ‘buttocks, haunch [of animals]’, ON hlaun ‘buttocks, loin’, OPrus slaunis ‘hip’, ?Alb qënje ‘belt’, Grk klēnis ‘os sacrum’, Av sraoni-‘buttock’, Skt śrṇī- ‘buttock, hip, loin’); the other possible word for ‘hip’ is *srēno/eha but this is limited to Baltic (e.g. Lith strēna ‘loin’) and Iranian (e.g. Av rāna- ‘thigh’). The part of the body covered by *sök’t certainly seems to include ‘(upper) leg’ (as it is in Hit sakutt(a) ‘upper leg’) but it may also mean ‘hip’ in Slavic and Avestan (e.g. Rus stegnō [< *segdno < *sektno] ‘hip, groin, thigh’, Av haxti- ‘hip’, Skt sākthi ‘thigh’). There are two words for ‘loins’, *isghis- (e.g. Grk iskhion ‘hip’, ikṣus ‘loins, groin’, Hit iskis(a)- ‘loins’, Lat ńsk [pl.] ‘abdomen below the ribs, groin, flanks’) and *lōndhu (e.g. Lat lumbus ‘loin’, OE lendenu [pl.] ‘loins’, Rus ljadveja ‘loin, hip’, Skt rāndhraṁ ‘loins’). The first is found both in the form given and metathesized as *īṣ-, e.g. Grk ikṣus. There are two words for ‘rear-end’ or ‘rump’: *hjōrs(a)- (e.g. NE arse/ass, Grk ērros ‘rump’, Arm ōr ‘rump’, Hit ārra- ārri- ārru- ‘rump’) and *bulis (e.g. Lith bulis ‘rump’, Skt buli- ‘vulva; anus’).
The word for ‘knee’, *gônu, is a textbook word, attested in ten groups (e.g. OIr glûn, Lat genu, Alb gju, Grk goûν, Arm cunr, Hit gênu, Toch B kenî(ne) [dual], all ‘knee’). The back of the knee or ‘hock’ is represented by a less widely attested word *kenk- (e.g. NE hock, Lith kenkle~ ‘hock, back of the knee’, Skt kanka¯la- ‘bone, skeleton’). For ‘(human) foot’ in general we have the extremely well-attested *po¯ds (e.g. Lat pe¯s ‘foot’, NE foot, Lith pa˜das ‘sole of foot’, Rus pód ‘ground’, Grk poûs ‘foot’, Arm otû ‘foot’, Hit pata- ‘foot’, Av pad- ‘foot’, Skt pàd- ‘foot’, Toch B paiyye ‘foot’) while for ‘(animal) foot, paw’ there is the less widely attested *leh,ô-p-eh,ô- (e.g. ON löﬁ ‘palm’, Lith lôpa ‘paw’, Rus lâpa ‘paw’, Kurdish làpka ‘paw’) and three words for ‘heel’: *pérsn-eh,ô- (e.g. Lat perna ‘haunch’, OE fiersn ‘heel’, Grk ptérna ‘heel’, Hit parsna- ‘upper thigh’, Av pâśna- ‘heel’, Skt pàrṣṇī- ‘heel’, Toch B porsnai- ‘ankle’), *pênt- (e.g. OPrus pentis ‘heel’, Rus p’jatá ‘heel’, Pashto pûnda ‘heel’), and *spr,ô-h,ô- (e.g. OE spor ‘footprint’ [> NE spoor], spure ‘heel’, spur

Table 11.4. The lower body and legs

| *kloûnis | ‘± haunch, hip’ | Lat clûnis, Grk klônis, Skt śrônî- |
| *srêno/eh,ô- | ‘± hip, thigh’ | |
| *sôk- | ‘(upper) leg’ | Skt sákthi |
| *isghis- | ‘loins’ | Lat ñîa, Grk iskhion |
| *lûndhu | ‘loins’ | Lat lumbus, Skt rândhrau |
| *hôrs(o)- | ‘rear-end’ | NE arse, ass, Grk órrós |
| *bulis | ‘± rump’ | Skt bûli- |
| *gônu | ‘knee’ | Lat genû, NE knee, Grk gônu, Skt jànu |
| *kenk- | ‘± hock, back of knee’ | NE hough, hock |
| *pôds | ‘foot’ | |
| *leh,ô-p-eh,ô- | ‘foot, paw’ | Grk ptérna, Skt pàrṣṇī- |
| *pérsn-eh,ô- | ‘heel’ | NE spur, Grk sphurôn |
| *pênt- | ‘heel’ | Lat pês, NE foot, Grk poûs, Skt pàd- |
| *spr,ô-h,ô- | ‘heel’ | |
| *pêses- | ‘penis’ | Lat pênis, Grk peûs, Skt pàsas- |
| *kápr | ‘penis’ | Lat caper, Grk kàpîros, Skt kàpîth |
| *putôs | ‘± vulva, anus’ | Grk pànnos, Skt putau |
| *kutsôs | ‘anus, vulva’ | Lat cûnus, Grk kûsûs |
| *pisdo/eh,ô- | ‘vulva’ | |
| *kukîs | ‘± (female) pubic hair, vulva’ | |
| *g(w)elbhus | ‘womb’ | NE calf, Grk delphûs, Skt gàrbha- |
| *hôrgûsis | ‘testicle’ | Grk òrkûs |
| *h,êndrûs | ‘egg, scrotum’ | Skt ândâ- |
Terminology associated with genitalia survives rather well. There are two words for ‘penis’: *pêses- and *kâpr-. The first is attested in five groups, including Anatolian (e.g. Lat pênis ‘penis’, OHG fasel ‘penis’, Grk pêos ‘penis’, Hit pisna- ‘man’ [i.e. ‘one provided with a penis’], pismatar ‘penis’, Skt pâsas- ‘penis’); it has been variously analysed as deriving from a verb ‘rub’, a verb ‘penetrate’, and, most recently, from *pes- ‘blow, swell’, i.e. a swelling forth of liquid. The second word is basically attested by derivatives, in that Old Indic alone retains a meaning ‘penis’ (Skt kâprho- while in the other groups an o-stem derivative (i.e. ‘one provided with a *kapr-’) indicates either a ‘he-goat’ (Celtic, e.g. OIr gabor, Italic, e.g. Lat caper, Germanic, e.g. OE hæfer) or ‘boar’ (Grk ka´pros), i.e. these are archetypically ‘male’ animals.

The best-attested word for ‘vulva’ is *puto´s, found in Germanic (e.g. MHG vut ‘vulva’), Grk pu´nnos ‘anus’, and Skt putau [dual] ‘buttocks’. The crossing of ‘anus’ and ‘vulva’ also occurs in *kutso´s (e.g. Lat cunnus ‘vulva’, dialectal Grk kıso´s ‘vulva; anus’, NPers ku¯n ‘backside; compare the similar semantic crossing in NE ‘ass’ and the Sanskrit descendant of *bulis above). Another word for ‘vulva’, *pisdo/eha- (e.g. Lith pyzda`, Rus pizda´, Alb pidh, Nûristâni pı´rı´, all ‘vulva’), is analysed as an old compound *h1e-pis-(e)d-þ-o- ‘what one sits on’. A Baltic-Iranian isogloss (e.g. Lith ku¯sˇy˜s ‘female pubic hair, vulva’, NPers ku¯s ‘female genitals’) supports the existence of *kukˆis ‘female pubic hair, vulva’.

The ‘womb’ is seen in *g(w)elbhus/C24 *g(w)o´lbhos (e.g. Grk delphu´s, Avu̇gar@wa-, Skt ga´rbha-, all ‘womb’) with frequent semantic shifts to ‘newly born animal’ (Av garbhus), either a lamb (OE cilfor-lamb ‘ewe-lamb’) or, in its o-stem form, *g(w)olbho-, the young of a cow, e.g. NE calf. The word for ‘testicles’, *h4o´rgˆhis (e.g. MIr urige, Alb herdhe, Grk órkhis, Arm orjik’, Hit arki-, and Av ərzi, all ‘testicle(s)’), is a deverbal from *h4o´rghëi ‘mounts (sexually)’ (e.g. Hit ārki ‘mounts’, Rus jérzajet ‘fidgets, wiggles, moves in coitus’, Grk orkhéomai ‘make lascivious motions, dance’; for the semantic relationship cf. American English ‘balls’, i.e. both ‘testicles’ (noun) and ‘copulates’ (verb) ). The word for ‘egg’ or ‘scrotum’, *h1endrôs, is built on a preposition and indicates ‘that which is inside’ (Rus jadró ‘kernel, scrotum’, Skt ândë- ‘egg, scrotum’, [dual] ‘testicles’.

Regional terms from the West Central region include *kònh,a- ‘lower leg, shin’ (e.g. OIr cnàim ‘leg’, NE ham, Grk knëmë ‘tibia, spoke of a wheel’); *n(o)h,ar- ‘±rear-end’ (Lat natis ‘human buttocks’, Grk nòton ‘back’); a Greek-Armenian isogloss *přh,kìtôs ‘anus’ (Grk prôktos, Arm erastank [pl.]). We also have two Greek-Indic isoglosses: *gjghéno/ehr- ‘±buttock’ (Grk kokhônë ‘crotch’, Skt jaghåna- ‘hind end, buttock, pudenda’) and *muskôs ‘male or female sex organ’ (dialectal Grk múskhon ‘male or female sex organs’,

‘spear’, Grk sphurón ‘ankle[bone]’, Toch B sprâne [dual] ‘flanks’, with the same kind of semantic development seen in Hit parsna-.)
Skt *muská*—‘testicle, scrotum; [dual] vulva’), a word like ‘muscle’ that ultimately derives from ‘mouse’, i.e. a moving bulge under the skin.

### 11.5 Internal Organs

As mentioned above, we know rather less about the designations for internal organs in Proto-Indo-European than we do about the external parts of the anatomy. Among the internal organs the word for the heart is particularly well reflected in the descendent languages. The liver is also well represented while the lungs and kidneys are less so. It is significant that we can reconstruct at least

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<th>Table 11.5. Internal organs</th>
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<td><em>mosghos</em></td>
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<td><em>gutr</em></td>
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<td>*udereto-</td>
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<td>*udātero-</td>
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<td><em>wenVst(r)</em></td>
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<td><em>reum̩n</em>-</td>
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<td><em>pant-</em></td>
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<td><em>gʷétus</em></td>
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<td>*h₁en-(e)rom</td>
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<td><em>gudom</em></td>
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<td><em>gʰorh₁̃neh₂</em>-</td>
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<td>*wɔdʰ̩ti-</td>
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<td>*ghónn-~ <em>ghōlos</em></td>
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<td><em>yékʷw(t)</em></td>
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<td>*lesi-</td>
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<td><em>sn̩h₁̃ pró</em>-</td>
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some words for parts of the complex digestive system of ruminants. The relationship between Proto-Indo-European speakers (and their descendants) and their domesticated animals has been a long and close one. We know almost nothing of what Proto-Indo-European speakers might have called nerves and blood vessels. It is quite possible that there was no very elaborate Proto-Indo-European vocabulary for this part of the anatomy.

The word(s) for ‘brain’ and ‘marrow’ are often combined in Indo-European. The only one with a sure claim to PIE status is *mosghos which means ‘marrow’ in Germanic (e.g. NE marrow), both ‘marrow’ and ‘brain’ in Baltic, Slavic, and Indo-Iranian (e.g. Lith smažėnas ‘marrow’, smėgenys brain’, OCS mozgū ‘marrow, brain’, Av mazga- ‘marrow, brain’, Skt majān- ‘marrow’).

The ‘gullet’ or ‘throat’, *gutr, is attested as a Latin-Hittite isogloss (Lat guttus ‘gullet, throat, neck’, Hit kuttar ‘nape of neck’). The stomach, of humans or animals, is well attested in Indo-European. *udero- (e.g. Lat uterūs ‘abdomen, womb’, Grk hûderos ‘dropsy’ [<*’swollen stomach’], Av udara- ‘stomach’, Skt udāra- ‘stomach’) and *udtero- (e.g. Grk hustēra- ‘womb’, hûstros ‘stomach’, Toch B wästarye ‘liver’) both derive from *ud- ‘out’, i.e. it is the outer or superficial abdomen in distinction to the ‘entails’. The ‘omasmus’ or ‘abomasum’, the third and fourth chambers of a ruminant’s stomach, is attested in *wenVystr (e.g. Lat venter ‘belly’, OHS wenist ‘belly, omasum’, Grk ἐμουστρόν ‘abomasum’, Skt vaništhum- ‘part of the entrails of a sacrificial animal’) while the first stomach, the rumen, *reum astr-, may also be ascribed to Proto-Indo-European (e.g. Lat rûmen ‘gullet, rumen’, Baluchi rômast ‘rumin ation’, Skt romanta- ‘ruminat ion’). A Latin-Hittite isogloss (Lat pantex ‘belly, paunch, guts’, Hit panduha- ‘stomach’) gives us *pant- ‘stomach’. PIE *gʷé̄tus yields cognates with meanings such as ‘stomach’, ‘womb’, and ‘intestines’ (e.g. OE cwib ‘belly, womb’, Lat botulus ‘intestines, sausage’, Toch B kātsó ‘belly, womb’). The ‘entails’ themselves are seen in three roots: *h₁entwstr (e.g. ON inmr ‘entails’, OCS jtro ‘liver’, Grk ἐντερα [pl.] ‘entails’, Arm ɚnderk ‘entails’, Skt antrā- ‘entails’), literally the ‘inner part’ (cf. NE inwards and *h₁entró above); *gudóm (Low German kut, Macedonian göda, Skt gudā-, all ‘intestines’) which may derive from the verbal root *geu- ‘bend, twist’; and *ghorhneh₂ (where Germanic, Greek, and Indic suggest the connotation ‘string of gut’, e.g. NE yor, Grk khordé ‘string of gut; sausage’, Skt hira- ‘band, strip’ (cf. also Lat haruspex ‘entail-seer’, ON gorn ‘guts’, Lith žarná ‘guts’).

The ‘bladder’, *wijdīr-, rests on an Italic-Indic correspondence (Lat vēs-siça, Skt vasti-). The word for ‘gall’, *ghólín- ~ *ghólós (Lat fel, NE gall, Grk khólos ~ kholê, Av zāra-, all ‘gall’), is a transparent derivative from *ghel- ‘yellow’. The ‘kidney’ is seen in *h₂eh₂(e)r- if that is the correct proto-meaning (in Hittite the haht(a)ri- is some paired organ and Toch B araʹn a means ‘heart”—cf. OIr
āru ‘kidney, gland’, and maybe Lat rēnēs [pl.] ‘kidneys’). Two words indicate the ‘liver’: *vēkʷořt is ancient and a heteroclitic (e.g. Lat iecur, Lith (j)eknos [pl.], Grk ἰεπάρ, Av yākarś, Skt yākṛt, all ‘liver’); *lesi- is problematic in that it occurs only in Hit liissi- and Arm leard and while a cognate with Anatolian normally presumes Proto-Indo-European status, this word could be an early loan between two neighbouring languages. The ‘spleen’ is designated by *sploig₂-ën (e.g. OIr selg, Lat liēn, OCS slēzena, Grk splēn [> via Latin in NE spleen], Arm p’aycahn, Av sporəzan-, Skt plīhān-, all ‘spleen’), though, for whatever reason, it has undergone an unusual amount of irregular phonological development.

The ‘lung’ was designated by *pleumōn (e.g. Lat pulmō ‘lung’, Grk πλευμόν ‘lung’, Skt klo̞man- ‘right lung’), which derives from *pleu- ‘Xoat’, i.e. the lung was the ‘Xoater’. (One might compare the old-fashioned butchers’ term for ‘lungs’ in English, namely lights.) A second word, *h₁eh₁tr-, poses horrendous problems of semantic reconstruction as it means, among other things, ‘entrails’ (Celtic inathar), ‘vein’ (Germanic, e.g. OHG äd(ara), ‘heart’ (Grk ἐτωρ, and also ἐτρων ‘belly, abdomen’), and ‘comfort’ (Av ḫv-aṭra-); its association with the lungs is presumed purely because the root appears to be related to *h₁eh₁tmén- ‘breath’ (e.g. OE ēðre, Skt ātmā-) and so we might suppose that it had something to do with the lungs. The word for ‘heart’, *kērd or *khr₁dyeh₁a-, is found in eleven groups (e.g. OIr cride, Lat cor, NE heart, Lith širdiš, Rus särdece, Grk κήρ and kardia, Arm sirt, Hit kir, Av zorəd-, Skt hṛ̌ḍ- and hṛ̌ḍaya-, Toch B kārya[n] [pl.], all ‘heart[s]’). There are two semantically distinct words for ‘blood’. *h₁ēsh₂r indicates ‘flowing blood’ (e.g. archaic Lat asser, Grk ēar, Arm arivn, Hit ēshar, Skt āṣk, Toch B yasar, all ‘blood’) while *kṛéuh₂a indicates ‘blood outside the body’ and yields meanings such as ‘gore’, ‘raw flesh’, ‘piece of meat’ (e.g. MIr crā ‘blood’, Lat cruor ‘thick blood, gore’, Lith kraūjas ‘blood’, Rus króvî ‘blood’, Grk krēa ‘raw flesh’, krēas ‘piece of meat’, Skt krāviś- ‘raw flesh’). The word for ‘bone’, *h₂ost-, is seen to be archaic in form and is found in eight groups (e.g. Lat os, Alb asht, Grk ostéon, Arm oskr, Hit hastā-, Av asth-, Skt āṣṭhi, Toch B āsta [pl.], all ‘bone[s]’, and OIr esnā ~ asnā ‘ribs’). The word for ‘muscle’, *mūs(tlo)-, is closely associated with the word for ‘mouse’ (it means ‘little mouse’), and words for ‘mouse’ may also mean ‘muscle’ in various Indo-European groups (e.g. Lat mūsculus ‘little mouse; muscle’ [> NE muscle], OHG mūs ‘mouse; muscle [especially the biceps]’, Grk μῦς ‘mouse; muscle’, Arm mukn ‘mouse; muscle’, Khotanese māla- ‘mouse; muscle’). The verbal root *sneh₂(u)- ‘turn, twist’ is the basis for *sneh₁wṛ ‘tendon, sinew’ (e.g. Lat nervus ‘sinew, tendon, nerve, muscle’ [> NE nerve], Grk νεύρων ‘sinew, tendon, gut’, Arm neard ‘tendon’, Av nāvarə ‘tendon’, Skt snāvan- ‘tendon’, Toch B šnōr ‘tendon, sinew’).
From the West Central region we have *mreghmen- ‘brain’ (e.g. OE bregen > NE brain, Grk brekhmos ‘forehead’); *bhērug- ‘gullet’ (Lat frūmen, Grk phatr-uk ‘gullet’, Arm erbuc ‘breast’); *ng’en- ‘± (swollen) gland’ (e.g. Lat inguen ‘groin, swelling of the groin’, OHG ankweiz ‘pustules’, Grk adēn ‘gland’); *gelgheh- ‘gland’ (Rus zeleza ‘gland’, Arm geljk ‘[pl.] ‘gland’); *neghrōs ‘kidney’ (e.g. ME nēre ‘kidney’, Grk nephrōs ‘kidney’); and there is an Eastern *mōṣtr ‘brain, marrow’ (e.g. Av mastraŋan- ‘skullwall’ [< *‘brain-case’], Skt mastiska- ‘brain’, Toch A māssunt [pl.] ‘marrow’).

11.6 Vital Functions

The verb ‘to live’ is *gweih- (e.g. Lat vivō ‘live’, Lith gyju ‘become healthy’, OCS živo ‘live’, Av jvaiti ‘lives’, Skt jvati ‘lives’, Grk zōō ‘live’, Toch B sāw- ‘live’; NE quick is related to this root) and the concept of ‘vital force’ or ‘life’ is seen in *hāoyus (see below).

There are several words relating to the sexual act. A PIE *hōrghei ‘mounts’ is found in Germanic (e.g. ON ergi ‘lascivious behaviour’), Baltic (e.g. Lith aržūs ‘lascivious’), Slavic (e.g. Rus jērzayet ‘fidgets, moves in coitus’), Grk orkhēomai ‘makes lascivious motion’, Ht ārki ~ arga ‘mounts (used with respect to a male animal)’, Skt rghāyate ‘is impetuous’. The verbal form also underlies *hōrghis ‘testicle’, suggesting that the Proto-Indo-Europeans shared the same semantic mindset that yields American slang ‘balls’ to indicate both ‘testicles’ and the sexual act. We also have *yēbhe/o- ‘enter, penetrate’ in the specific meaning ‘copulate’ which is seen in Rus jebū, Grk oiphō, and Skt yābhati, all ‘copulate(s)’; this meaning appears to be a later semantic development which did not take place in Anatolian or Tocharian (e.g. Toch B yāp- ‘enter, set [of sun]’), nor is it found in the West. There is also a series of words for the concept ‘bear young’. The most widespread is *bhēre/o-, the verb that can mean ‘carry’ as well as ‘bear a child’ (e.g. OIr beirid ‘bears’, Lat ferō ‘bear’, NE bear, OCS berq ‘gather’, Alb bie ‘bring, take’, Grk phērō ‘bear’, Arm berem ‘bear’, Av baraiti ‘bears’, Skt bhārati ‘bears’, Toch AB pār- ‘bear’; a derivative gives the NE bairn ‘child’). Another verb is *seg(h)- (e.g. Av hu- ‘bear a child’, Skt sūṭe ‘bears, begets’) which also has nominal derivatives, e.g. NE son, Grk huyūs ‘son’, Skt sūnūs ‘son’, Toch B sōy ‘son’. *gēnh- gives rebuilt transitive forms (e.g. OLat genō ‘beget’, Lat gignō ‘produce’, OE cemnan ‘beget’, Grk gennāo ‘beget’, Skt jānati ‘begets’) but there is an underlying intransitive form, ‘be born’, that is found in Lat gnāscor ‘am born’, Grk gignomat ‘am born’, Skt jajāna ‘am born’. The verb *tek- ‘bear a child’ (Grk tiktoimai ‘bear, beget’) provides the base of a noun *tek-men- that gives NE thane and Skt tākmanc ‘child, offspring’.
**Table 11.6. Vital functions**

| *g*<sup>"</sup>v<sub>eih</sub><sup>2</sup> | ‘live’ | Lat vivō |
| *h*<sub>4</sub>o<sup>"</sup>yus | ‘vital force, life, age of vigour’ | Lat aevus |
| *h*<sub>3</sub>órg<sub>8</sub>hei | ‘mounts’ | Grk orkhéomai, Skt rghāyāte |
| *yébhe/o-* | ‘enter, penetrate, copulate’ | Grk oíphō, Skt yābhati |
| *bhëre/o-* | ‘bear (a child)’ | Lat ferō, NE bear, Grk phérō, Skt bhrātī |
| *seu(h),-* | ‘bear a child’ | Skt sūte |
| *ghënh<sup>1</sup> | ‘beget a child; be born’ | Lat gēnō, Grk gennaō, Skt jānati |
| *tek-* | ‘bear or beget a child’ | Grk títkomai, NE thane, Skt tákmāna- |
| *h*<sub>3</sub>eug-* | ‘grow’ | Lat augēo, NE eke, Grk aëksō, Skt ūkṣati |
| *h*<sub>2</sub>wokséye/o-* | ‘grow’ | NE wax, Skt vakṣayati |
| *gerh<sub>3</sub> | ‘grow, age, mature’ | Grk gērāskō, Skt jyāyati |
| *h*<sub>1</sub>leudh-* | ‘grow’ | Lat līber, Grk eulētheros, Skt rōdhati |
| *ker-* | ‘grow’ | Lat crescō, creō, Grk korēnnūmī |
| *meh<sub>1</sub>(i)- | ‘grow’ | Skt mīmīte |
| *bhengh-* | ‘grow, increase’ | Skt bāṁhayate |
| *wredh-* | ‘grow, stand, take shape’ | Grk orthōs, Skt várdhate |
| *h*<sub>4</sub>én<sub>7</sub>mi | ‘breathe’ | Skt ānīti |
| *h*<sub>2</sub>eh<sub>1</sub>tmén-* | ‘breathe’ | Skt ātmān- |
| *h*<sub>2</sub>én<sub>8</sub>mos | ‘breathe’ | Lat animus, Grk ānemos |
| *kwēsh,mi | ‘breathe deeply, sigh’ | Lat querō, Skt śvāsīti |
| *dhwēsmi | ‘breathe, be full of (wild) spirits’ | Lat fūrō, NE dizzy |
| *hhes-* | ‘± blow’ | Grk psākhē, ‘Skt -psu- |
| *k"eṣh,s-* | ‘cough’ | NE tōng, Grk dāknō, Skt dāsāti |
| *denk-* | ‘bite’ | Lat ērūgō, Grk ērēgōmāi |
| *h*<sub>1</sub>reug-* | ‘belch’ | Lat vomō, Grk emēō, Skt vāmiti |
| *wemn,mi | ‘spew, vomit’ | Lat spūś, NE spew, Grk ptiō, Skt śṭhāvati |
| *(s)py(e)uh,s-* | ‘spew, spit’ | |
| *(d)hêkru | ‘tear’ | OLat dacrūma, Lat lacrima, NE tear, Grk dākro, Skt āśrū- |
| *sweid-* | ‘sweat’ | Lat sātdā, NE sweat, Grk idīo, Skt svēdate |
| *h*<sub>4</sub>elh<sub>1</sub>ṇ-* | ‘sweat’ (noun) | |
| *h*<sub>3</sub>meig<sub>7</sub>he/o-* | ‘urinate’ | Lat meīō, Grk omeikhō, Skt mēhati |
| *sök<sub>4</sub> | ‘(human) excrement’ | Grk skōr |
| *kerd-* | ‘± defile, defecate’ | Lat -cerda |
| *g"uh,e-* | ‘defecate’ | Skt gāthā- |
| *ghed-ye/o-* | ‘defecate’ | Grk khēzō |
| *k"ök<sup>"</sup> <sub>1</sub> | ‘excrement, dung, manure’ | Grk kōpros, Skt sākṛt |
| *pérde/o-* | ‘fart’ | NE fart, Grk pērdomai, Skt pārdate |
The semantic sphere of ‘grow’ or ‘increase’ is abundantly covered in Proto-Indo-European. *h₁eug₁- is known in seven groups (e.g. Lat augeō ‘augment, increase’, NE eke, Lith āugu ‘grow’, Grk aë̂ksō ‘increase’, Av uṣyeiṭi ‘grows’, Skt úkṣati ‘strengthens’, Toch B auk- ‘grow, increase’) while its derivative, *h₁woksēyē/o-, is attested in three (e.g. NE wax, Av vaxāṭi ‘grows’, Skt vaksāyatī ‘grows’); both of these have the connotation ‘increase’. The root *gerhd₁- suggests a meaning ‘grow old’ (e.g. OCS zūrěti ‘ripen’, Grk γήρασκο ‘age, grow old’, Skt jìryati ~ jāryati ‘grows old, becomes decrepit’, Toch AB kwār- ‘age, grow old’) and provides the base for words meaning ‘old man’ (e.g. Grk γέρων, Arm cer, Skt jārant-). *h₁leudh₁- also suggests growth in terms of maturation (e.g. OIr lus ‘plant’, Lat Līber ‘god of growth’, OE lēodan ‘spring up, grow’, Av raodaiti ‘grows’, Skt rōdhati ‘grows’) and in nominal forms it may mean ‘children’ (Lat liberī [pl.] ‘children’), ‘free’ (Lat liber, Grk eleuθēros) or ‘people’ (e.g. NHG Leute ‘people’, Lith liaūdis ‘common people’, Rus ljūdi ‘people, servants’). The semantic field of *kēr- more precisely concerns the growth of plants; the name of the Latin goddess Cērēs derives from this root (cf. also Lat creō ‘create’, Grk korēmēni ‘satisfy’, koūros ‘adolescent’, Arm sirem ‘bring forth’, Tocharian kārk- ‘sprout’). The root *meh₁(i)- (e.g. Hit māi- ‘grow’, Skt mīnīte ‘is conceived, grows [of the fetus in the womb]’, Toch B maiwe ‘youth’) has a derivative *meh₁ro- ‘large’ (see Section 19.2). PIE *bheṅgh₁- ‘grow, increase’ appears as a verb only in Skt bāṃhayate ‘causes to grow’ but its derivative, *bheṅgh₁us ‘thick, abundant’, has left a widespread progeny (see Section 19.2). Finally, *wredh₁- is also associated with the concepts of ‘standing up(right)’ and ‘taking shape’ (e.g. Lat vādīt ‘bear’, Rus rodit ‘produce’, Grk orthōs ‘upright, straight, true’, Av vṛṣdāṭi ‘grows’, Skt vṛṣdhati ‘grows, increases, becomes strong’, vṛṣadhant- ‘upright’, Toch AB vrāt- ‘form, shape’).

Respiratory activities are well attested with the verb *h₁eṅh₁tr₁-, first person singular *h₁eṅhm₁i, ‘breathe’ (Goth uzanan ‘breathe one’s last’, Skt āmīti ‘breathes’, Toch B anāsk- ‘breathe [in]’) providing the basis of the noun *h₁eṅhm₁os ‘breath’ (e.g. Lat animus ‘spirit, wind’, Grk ānemōs ‘wind’, Arm holm wind’). A second word for ‘breath’, *h₁eṅh₁mēn₁- (e.g. OHG ātum ‘breath’, Skt atmān- ‘breath, soul’), Toch A āṇcām ‘self, soul’ [phonologically conflated with the previous word]), lacks an underlying verb although it does appear to be related to *h₁eṅh₁tr₁- which may have meant ‘lung’ (see Section 11.4); the distinction between the two words is unclear (both can also mean ‘spirit’ in some languages). The verb *kwēsh₁mi can also mean ‘lament’ or ‘sigh’ and so suggests a very audible breathing (e.g. Lat quor ‘complain, lament’, Av suṣi [dual] ‘lungs’, Skt śvāṣṭi ‘breathes, sighs’, Toch B kwās- ‘lament, bewail’). A wide range of meanings is to be found associated with *dhwēsm₁i, e.g. ‘rage’ (e.g. OIr dāṣacht, ‘rage fury’, Lat furō ‘rage’), ‘ghost’ (e.g. MHG tuster ‘ghost,
spectre’, Lith dvasiä ‘ghost, spirit), ‘gasp’, ‘expire’ (e.g. Lith dvesiū), and there is the suggestion of some form of animated breathing, a suffusion of wild spirits; derivatives give us general names for ‘wild animals’, including NE deer, Lat bēlūa ‘wild animal’. Possibly onomatopoeic is *bhes- which may have meant something like ‘blow’ (Grk psūkhē ‘breath, spirit’, Skt -psu- ‘breath’). The word for ‘cough’ would appear to be *k"eh₂-
(e.g. MIr casachtach ‘act of coughing’, OE hwōsan ‘cough’ [related in some way is NE wheeze], Lith kōsiu ‘cough’, OCS kasˇi˘lı˘ ‘cough’ [noun], Alb kollē ‘cough’ [noun], Skt kāsate ‘coughs’, Toch B kosi ‘cough’ [noun]).

The verb ‘bite’, *denkˆ-, yields ‘tongs’ and ‘pinchers’ in Germanic (e.g. NE tongs) and Alb dare¨ ‘tongs’ but its underlying meaning is retained in Greek, Indo-Iranian, and Tocharian (e.g. Grk da´kno¯, Skt da´s´ati ‘bite’). The root *h₁reug- ‘belch’ is found in seven groups (e.g. Lat e¯ru¯go¯, O E rocettan, Lith ria´ugmi, Rus rygáti, Grk ereu´gomai, Arm orcam, NPers a¯-ro¯ª [noun], all ‘belch’) and ‘spew’ or ‘vomit’ is indicated by two roots: *we´mhₓ- (e.g. Lat vomō, Lith ve´mti, Grk emēo¯, Av vam-, Skt vāmīti, all ‘vomit’) and *(s)p’y(e)uhₓ- (e.g. Lat spūo¯ ‘spit’, NE spew, Lith spiáuju ‘spew’, OCS pljujo ˛ ‘spew’, Grk ptu´o¯ ‘spit out, disgorge’, Skt vāmiti ‘spews’; a derivative of the latter is NE spit. The noun ‘tear’, *(d)h₂ékˆru, is problematic and some groups indicate an initial *d- and others give no indication of such a form. Those stocks without a *d- include Baltic (e.g. Lith ašara`) Anatolian (Hit išhahrā), Indo-Iranian (Av asrā-, Skt ášru-), and Tocharian (e.g. Toch B akrūna [pl.]); those with an initial *d- comprise Celtic (e.g. OIr de¯r), Italic (e.g. OLat dacruma, Lat lacrima), Germanic (e.g. NE tear), and Grk dákru, i.e. there is roughly an East–West dialectal split. The *d- may either be a prefix or a misdivision, e.g. *tod h₂ékru ‘this tear’ (cf. NE newt from a misdivision of the earlier an ewte). For the concept ‘sweat’ we have both a widely attested verbal root *sweid- (e.g. Lat sūdō, NE sweat, Latv svıˆstu, Alb dirsem, Grk idío-, Skt svedate, Toch B sy-, all ‘sweat’) and the much more confined (Celtic-Anatolian) *h₄elh₁-n- (OIr allas ‘sweat’ [noun], Hit allaniye- ‘sweat’ [verb]).

The verb ‘to urinate’, *h₃meιghe/o-, is widely attested (eight groups) while the nominal formation appears to be later and secondary (e.g. Lat meiō ~ mingo, OE mīgan, Lith minžû, Serbo-Croatian mižati, Grk oneikhō, Arm mizem, Av maežaiti, Skt méhati, all ‘urinate’). There are two words associated with excrement that are strongly attested to Proto-Indo-European (and others more regionally attested). The strongest is *sōkᵊr with cognates in six groups (e.g. OE scearn ‘dung, manure’, Latv särni ‘slag’, Rus serú ‘defecate’, Grk skōr [human] waste, excrement’, Av sairya- ‘dung’), including Anatolian, e.g. Hit sakkar ‘excrement’; the base meaning of *kerd- may have been more general, e.g. ‘defile, dirty’ as well as ‘defecate’ (e.g. Lat mūs-erda ‘mouse droppings’,
bu-cerda ‘cattle dung’, MPers xard ‘clay’, Shughni šarθk- ‘defecate’, Skt kar-
dama- ‘mud, slime, mire, dirt, filth’, Toch B kärkkälle ‘swamp, mire’). We may
also add *g"uh₄- ‘defecate’ (Arm ku ‘dung, manure’, Av gūḍa- ‘dirt, excrement’,
Skt gūṭha- ‘dung’), whose Proto-Indo-European status would be enhanced if
proposed Lat imbūbināre ‘defile with menstrual blood’ and Germanic (OHG quāt ‘dirt, excrement’) be admitted; there is also *ghed-ye/o- ‘defecate’ which is
based on cognates from Alb dhjes, Grk khézō, and Skt hadāti. The noun *kók₄- ‘excrement, dung, manure’ is found only in Baltic (Lith šikū ‘defecate’), Grk
cópros ‘dung, manure’, and Indo-Iranian (Skt sākr ‘excrement, dung’), and it
may be semantically related to PIE *sókr ‘human excrement’ as ‘animal dung’.

Finally, widely distributed (eight groups) also is *pérde/o- ‘fart’ (e.g. NWels
rech, NE fart, Lith perdziu, Rus perdētī, Alb pjerdh, Grk përdomai, Av pərδ̣-,
Skt pārdate, all ‘fart’).

Regional terms for natural functions are well attested. In the North-West
zone we have *dher- ‘shit’ with cognates in Lat foria [pl.] ‘swine dung’, foriō
‘defecate’, Lith derėkti ‘besmirch with filth’, and from the extended *dhreid-
in Germanic we have OE drītan ‘defecate’, NE dirt [<*drit- <*dhrid-], dialectal
Russian dristati ‘suffer from diarrhea’.

The West Central area includes *pelh₅- ‘bear young’, a term applied to
animals (e.g. NE foal, Alb pjell ‘give birth to, produce’, pelē ‘mare’, Grk pōlos
‘foal’, Arm ul ‘kid, young of deer or gazelle’); *hδl- ‘grow’ (e.g. OIr ailid
‘nourishes’, Lat alō ‘grow’ and the NE derivative old and Lat altus ‘high’).
Of obvious onomatopoeic origin is *pneu- ‘snort, sneeze’ which underlies
a Germanic (OE fnēosan ‘sneeze’) -Greek pneō ‘breathe’ isogloss. There are
words associated with ‘excrement’, i.e. *kuh₃dōs ‘dung’ (Lith šūdas ‘dung,
muck’, dialectal Grk hus-kuthā ‘pig-dung’) and *kak(k)eh₀ye/o- ‘defecate’ (e.g.
MIr caccaid ‘defecates’, Lat cacō ‘defecate’, Rus kākatī ‘defecate’, Grk kakkāo
‘defecate’, Arm k’akor ‘excrement’) which was originally a children’s word, e.g.
NE caca, which became the primary word for ‘bad’ in Greek, i.e. kakōs (compare
the semantic development of ‘shitty’ in contemporary NE). Finally, there is a
phonetic variant of *pérde/o- ‘fart’ seen in *pesd- ‘fart’ (some have claimed the
distinction is material, a *perd- being louder than a *pesd-) seen in Lat pedō,
perhaps NHG fisten, Lith bezdū, Rus bezdetī, and Grk bdō, all ‘fart’.

11.7 Health and Disease

As one might expect there are a number of words we can reconstruct for
various skin diseases and physical deformities. On the other hand, there are
no words we can reconstruct for invisible diseases, such as a heart attack, stroke, cancer, etc.

Words for ‘strength’ in Proto-Indo-European are testosterone driven. For example, *h₁eŋ (as a derivative *h₁nēr) yields ‘man’ in seven groups (e.g. Alb njëri ‘person’, Grk anēr ‘man’, Phryg anar ‘man’, Arm ayr ‘man, person’, Luv annar- ‘man’, Av nār ‘man’, Skt nār- ‘man, person’) and other derived meanings

<table>
<thead>
<tr>
<th>Segment</th>
<th>Meaning</th>
<th>Language(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>h₁eŋ</td>
<td><em>(manly) strength, vitality</em></td>
<td>Grk anēr, Skt nār-</td>
</tr>
<tr>
<td>weih(e)s-</td>
<td><em>strength, vitality</em></td>
<td>Lat vīs, Grk ἴς, Skt vāyas-</td>
</tr>
<tr>
<td>h₁o̞yus-</td>
<td><em>vital force, life, age of vigour</em></td>
<td>Lat aevus, Grk αἰōν, Skt āyu(s)-</td>
</tr>
<tr>
<td>bèlos</td>
<td><em>strong</em></td>
<td>Lat débīlis, Grk βέλτερος, Skt bālām</td>
</tr>
<tr>
<td>weg-</td>
<td><em>strong</em></td>
<td>Lat vegeō, Skt vāja-</td>
</tr>
<tr>
<td>ken-</td>
<td><em>fresh</em></td>
<td>Lat recēns, Grk καίνως, Skt κανिनα-</td>
</tr>
<tr>
<td>sólwos</td>
<td><em>whole</em></td>
<td>Lat salvus, Grk ἥολος, Skt sārva-</td>
</tr>
<tr>
<td>h₁/sis-</td>
<td><em>refresh</em></td>
<td>Grk ierός, Skt iṣīrā-</td>
</tr>
<tr>
<td>med-</td>
<td><em>heal, cure</em></td>
<td>Lat medecor</td>
</tr>
<tr>
<td>losiwos-</td>
<td><em>weak</em></td>
<td>NE lazy</td>
</tr>
<tr>
<td>h₁/epus-</td>
<td><em>weak</em></td>
<td></td>
</tr>
<tr>
<td>kemh₁-</td>
<td><em>grow tired, tire oneself with work</em></td>
<td></td>
</tr>
<tr>
<td>leh₁d-</td>
<td><em>grow slack, become tired</em></td>
<td>Lat lassus, Grk λέδεῖν</td>
</tr>
<tr>
<td>streug-</td>
<td><em>be fatigued, exhausted</em></td>
<td>Grk streūgōmai</td>
</tr>
<tr>
<td>sehd-</td>
<td><em>± be angry at, afflict</em></td>
<td>Lat saevus, NE sore, Grk haimōdiā</td>
</tr>
<tr>
<td>h₁éghlehaᵣ-</td>
<td><em>affliction</em></td>
<td>NE ail, Skt āghrah</td>
</tr>
<tr>
<td>h₁énghes-</td>
<td><em>± suffering, grief, fear</em></td>
<td>Lat angor, Skt āhas-, NE anger</td>
</tr>
<tr>
<td>h₁édwöl-</td>
<td><em>pain; evil</em></td>
<td></td>
</tr>
<tr>
<td>swergh-</td>
<td><em>be ill</em></td>
<td></td>
</tr>
<tr>
<td>sokto-</td>
<td><em>sickness</em></td>
<td></td>
</tr>
<tr>
<td>h₁erme₅-</td>
<td><em>sickness</em></td>
<td></td>
</tr>
<tr>
<td>h₁ligos-</td>
<td><em>grow tired, tire oneself with work</em></td>
<td></td>
</tr>
<tr>
<td>k₁(₂)letk-</td>
<td><em>suffer</em></td>
<td>Skt klisyaṭe</td>
</tr>
<tr>
<td>k₁(₂)p₁körtmos-</td>
<td><em>± grief, shame</em></td>
<td>NE harm</td>
</tr>
<tr>
<td>h₁em(h₁)-i-weh₁ᵣ-</td>
<td><em>suffering</em></td>
<td></td>
</tr>
<tr>
<td>k₁₁h₁-₅-</td>
<td><em>cough</em></td>
<td></td>
</tr>
<tr>
<td>pster-</td>
<td><em>sneeze</em></td>
<td>Lat sternuō, Grk πτάρνουαι</td>
</tr>
<tr>
<td>skew/kseu-</td>
<td><em>sneeze</em></td>
<td>Skt ksāuti</td>
</tr>
<tr>
<td>k₁₁h₁wos-</td>
<td><em>bald</em></td>
<td>Lat calvus</td>
</tr>
<tr>
<td>ne/oγ₅nós-</td>
<td><em>bare, naked</em></td>
<td>Lat nūdus, NE naked, Grk γυμνός, Skt nagnā-</td>
</tr>
<tr>
<td>h₁end₅h₁ós-</td>
<td><em>blind</em></td>
<td>Skt andhā-</td>
</tr>
</tbody>
</table>

Table 11.7. Health and sickness

(Cont’d)
include ‘will’ (Lith nòras), ‘violently’ (Hit innarā), and ‘sexually potent’ (Hit innarawant)-; similarly, *wéih₃(e)s- ‘strength, vitality’ (e.g. Lat vīs ‘power’, Grk ἐξ ‘power’, Skt vāyas- ‘vitality, growth’) has the related *wih₃(ː)rōs ‘man’ (e.g. OIr fer ‘man’, Lat vir ‘man’, NE werewolf, Lith výras ‘man, husband’, Av
The noun *h₁enjus is more closely associated with the concept of ‘lifespan’ (e.g. OIr āes ‘life, age’, Lat aevus ‘lifespan, age’, Goth aiws ‘time, eternity’, aiōn ‘vitality, lifespan’, Av āyū ‘lifespan’, Skt āyuṣ- ‘life, lifespan’). The adjectives for ‘strong’ are both problematic in that *béllos (e.g. Lat debilis ‘weak, infirm’, OCS boljì ‘larger’, Grk bélteros ‘better’, Skt bālam ‘power, strength’) requires a Proto-Indo-European *b- which is exceedingly rare (some would argue non-existent) while *weg- is limited to Lat vegeō ‘enliven, stir up’ and Indic (Skt vāja- ‘strength’), although there are several other controversial cognates. The word for ‘fresh’ (with also meanings of ‘young (animal)’), *ken-, may be a regional term (West Central: e.g. MIr cana ~ cano ‘young animal [of wolf, dog, etc.]’, Lat recēns ‘fresh, just arrived’ [> by borrowing NE recent], OCS začeti ‘begin’, Grk kainos ‘young’) if one does not accept the proposed Indic cognate (Skt kanīna- ‘young’). Words for ‘healthy’ or ‘whole’ can be seen in PIE *sólvos which is found in Lat salvus ‘whole, well’, Alb gjałē ‘living, agile, deft’, Grk hóllos ‘whole’, Indo-Iranian (Av haurva- ‘entire’, Skt sárva- ‘all, whole’), and Tocharian (Toch A salu ‘complete’); a West Central regional word, *kōh₁ilus (NE whole and, borrowed originally from a Scots dialect, hale, OPrus kailā-sitkan ‘health’, OCS célū ‘healthy’, dialectal Grk koıluğu ‘good’), is found in Greek and the Western languages (Celtic, Germanic, Baltic, and Slavic) which suggests to some two competing dialectal terms. There are two words of Proto-Indo-European status that refer to ‘healing’. *h₁enjus- (e.g. Grk ierós ‘manifesting divine power, holy, hallowed’, iāomai ‘heal’, Av āṣ- ‘strength’, Skt īs- ‘refreshment, comfort, strength’, īśirā- ‘strong, lively’) finds cognates in Anatolian indicating ‘salving’ or ‘anointing’ (Hit iski(y)a-) while *med- (which also gives Lat medicus ‘doctor’, Av vr-mad- ‘healer’) is probably a specialized development of PIE *med- ‘measure’.

There are a number of words indicating ‘weakness, tiredness’ and related concepts. A different formation of *losiwos (Goth lasiws ‘weak’, Toch B leswi ‘attacks of weakness’) provides NE lazy. Some associate *h₁epus (e.g. Grk ēpedanōs ‘fragile, weak; maimed, halting’, apuvāyāte ‘becomes ill, spoils’) with *h₁epo ‘backwards’. The state of ‘being tired’ is indicated by *kēmhor- (e.g. MIr coma ‘grief’, Grk kāmnō ‘be tired, worked hard at’, Skt sāmyati ‘becomes quiet, fatigues, ceases’) and *leh₁d- (e.g. Lat lassus ‘tired’, OE læt ‘sluggish’, Lith lėnas ‘lazy, gentle’, OCS lēnū ‘lazy’), Alb lođhet ‘becomes tired’, Grk lēdeīn ‘be tired’, Toch B lāl- ‘exert oneself, tire oneself’), the latter also meaning ‘grow slack’ and possibly an extended meaning of the verb of the same form meaning ‘let go’. The verb *streug- is a Greek-Tocharian isogloss (Grk strēugomai ‘am exhausted, worn out; suffer distress’, Toch B sruk- ‘die’).

Words associated with ‘pain’ are abundant enough. *seh₁d- is to be seen in OIr saeth ‘pain, sickness’, Lat saevus ‘fierce’, NE sore, Latv sīvs ‘sharp, biting’,
Grk haimôdîa ‘kind of tooth-ache’, Hit sâ(i)- ‘be angry at, resent’, Toch B saiwe ‘itch’. *h,aéghle,a is found in Germanic (e.g. NE ail) and Indo-Iranian (Av aγrâ ‘type of disease’, Skt âghrâ ‘affliction’). *h,aéngh- gives ON angr ‘grief’ which was borrowed into English as anger, as well as Lat angor ‘fear’, Av azah- ‘oppression’, Skt âmhas- ‘fear’; the word derives from *h,aéngh- ‘narrow’ and brings together the underlying meaning of ‘constriction’. Some form of searing ‘pain’ is indicated by *h,1édwo,l (e.g. Hit idâlu- ‘evil’, Toch B yolo ‘evil’; cf. also OIr idu ‘pains, birthpangs’, Grk oðûmê ‘pain, suffering’) from a root *h,1ed- ‘eat’ or ‘bite’; the word means ‘evil’ in both Anatolian and Tocharian. The wide distribution and close semantic cluster of *swergh- ‘be ill’ guarantees its PIE status: it is attested in Celtic (OIr serg ‘illness’), Baltic (e.g. Lith sêrgû ‘am ill’), Alb dergjem ‘lie ill’, and Tocharian (Toch B sêrk- ‘illness’). A rare Celtic-Hittite isogloss suggests *sokto- ‘sickness’ where we have OIr soch ‘silence, stupor’ compared with Hit saktâizzi ‘takes care of, performs sick maintenance’; the word perhaps derives from the root *sek- ‘dry’, i.e. sickness as a form of dryness. Some form of physical illness is suggested by *h,1erem̩- ‘sickness’ which is seen in Germanic (e.g. OE earm ‘weak, wretched’), Alb jerm ‘stupor’, Arm òrîm ‘pity’, and Hit arman- ~ ërman- ‘sickness’. Another word that may indicate ‘ill’ is *h,1iligos where a medical meaning is retained in Baltic (e.g. Lith ligû ‘illness’) and Alb lig ‘bad’, while the sense of ‘smallness’ is suggested by Grk oðîgos ‘few’ and Toch B lykaške ‘small, fine’; a Greek o-grade form with the expected loss of the initial laryngeal, loigûs, does indicate ‘ruin, harm’. The word *k(w)leîk- is largely Eastern (Balto-Slavic, e.g. Lith klîšû ‘crab-claw’, Rus küstîtî ‘press’, and the Asian languages, e.g. Skt klîśyate ‘suffers, is tormented’, Toch B klaiks- ‘shrink, wither’). The questionable ascription of *p,kôrmos to Proto-Indo-European rests on a Germanic-Slavic-Iranian isogloss (e.g. NE harm, Rus sórom ‘shame’, Av fšârma- ‘shame’) while *h,1em(h1)-t-veh-a is attested as a noun only in Greek (Grk aîâ ‘grief, sorrow, trouble’) and Indic (Skt âmîvà ‘suffering, sickness’) but there are underlying verbal forms in other Indo-European languages (e.g. ON ama ‘bother, pester, molest’).

There are a number of words for specific ailments or conditions. The best-attested word for ‘cough’ is *k,wëh,s- (from Irish to Tocharian—see above) while there are two others, *pster- (e.g. OIr srêd ‘sneeze’, Lat sternnû ‘sneeze’, Grk ptármunai ‘sneeze’, Arm p’r’ngam ‘sneeze’) and *kseu/-skeu- (e.g. Lith skiaudžû, Skt ksâuyî), that have reasonable distributions but have been regarded as onomatopoetic and hence possibly independent creations. We have seen that there are many words for ‘hair’ in Proto-Indo-European but only one for ‘bald’, *kl,h,wos (Lat calvus, Av kaurva-, Skt áti-kûrva-, all ‘bald’) which is possibly related to the regional (West Central) *glo(h1),wos ‘bare, bald’ (e.g. NE callow, Rus gólyj ‘bare’). The word for ‘naked’, *ne/og,nûs (e.g. Grk gumnûs, Hit
nekumant-, Av maṇya-, Skt nagnā-, all ‘naked’), yields a derivative *nogʰ̣dh- from which we obtain both Lat nūdus and NE naked). The word for ‘blind’, *h₁endhós, is poorly attested and rests on comparing a Gaulish term for a gladiator who fights blind with a helmet without eye-openings (anda-bata) with Indo-Iranian (Av anda- ‘blind’, Skt andhā- ‘blind’). There are two possible words meaning ‘one-eyed’, *kolnós and *káikos, the status of the first resting on a putative Celtic cognate (OIr coll ‘having lost the right eye’, otherwise a Greek-Indic isogloss, dialectal Grk kellás ‘one-eyed’, Skt kān̄ga- ‘one-eyed’) and the second on a late Indic form (Skt kekara- ‘cross-eyed’) extending an otherwise North-Western distribution (e.g. OIr cáech ‘one-eyed’, Lat caecus ‘blind’, Goth haihs ‘one-eyed’). A strong Celtic-Indic isogloss, *bhodh₁roṣ ‘deaf’ (e.g. OIr bodar, Skt bhadrá-), does secure the word for this infirmity while the word for ‘dumb’, *mū- (e.g. Lat mútus ‘dumb’ [> by borrowing NE mute], Norwegian mua ‘be silent’, dialectal Grk mukoṣ ‘dumb’, Arm mun ‘dumb’, Skt máka- ‘dumb’), is more problematic and may be sound-symbolic (cf. NE ‘keeping mum’).

Defects may be moral, e.g. *melo- and *mēles- (e.g. MIr mell ‘mistake’, Lat malus ‘bad’, Lith mėlas ‘lie’, Grk mēleos ‘miserable, fruitless, vain’, Arm melk’ ‘sin’, Av mairya- [an epithet of demonic beings]) or physical *mendo/eh₁a- with meanings ranging from ‘stain’ to ‘defect of the body’ (e.g. OIr menmar ‘spot, stain’, Lat menda ‘bodily defect’, Lyc mētē- ‘damage, harm’, Skt mīdnā ‘defect of the body’). A word for ‘lame’ or a ‘limp’ is seen in *(s)keng- (e.g. OHG hīkan ‘limp’, Grk skázō ‘limp’, Skt kaṇj- ‘limp’) and possibly *sromós (a Slavic-Indo-Iranian isogloss, e.g. Rus khromoj ‘lame’, Skt śrāmā- , but possibly a loanword in Slavic from [unattested] Iranian). Also somewhat doubtful is the Latin-Indic isogloss that gives us *skauros (Lat seaurus ‘clubfooted’, Skt khora- ‘lame’).

There are six words denoting conditions of the skin. A word for ‘skin eruption’ or ‘leprosy’ survives in OE teter (> NE tetter) and Skt dadrā- ‘skin eruption, a kind of leprosy’ to give *dedrús, apparently derived from *der- ‘split’. A Latin-Indic isogloss (Lat callus ‘callosity’ [> borrowed in NE callus], Skt kīṇa- ‘callosity’) yields *kl₁nos ‘callosity’ from *kal- ‘hard’. The word for ‘wart’, *worh₁do- (e.g. NE wart, NPers balā ‘wart’), has the same form as the word for ‘frog’ (see Section 9.3) and indicates that the two have been associated since Proto-Indo-European. Words for ‘pimple’, ‘scabby’, and ‘ulcer’ are found respectively as *wr₁hos (Lat varus ‘pimple’, Lith viras ‘measles’, Toch B yoro ‘pimple’), *kreup- (e.g. OE hrēof ‘rough, scabby’, Lith kraupūs ‘rough’, Toch B kārpīye ‘common’ [< *’rough’]), and *h₁elk₁es- (Lat ulcus ‘ulcer’ [> by borrowing NE ulcer], Grk ĕlkos ‘ulcer’, Skt ārṣā- ‘haemorrhoids’).

The word for ‘hernia’, *kēuh₁, is found in five groups (e.g. OE hēala, Lith kūlas, Rus kila, Grk kālē, Oss k’ullaw), all of which retain this remarkably specific meaning; the word itself apparently derives from *keuh₁- ‘be bent (convexly)’ (see also *kuh₁los ‘back’, Section 11.3). We retrieve *ster- ‘barren’
where it generally refers to an animal, usually a ‘barren cow’ (Lat *sterilis ‘barren’, NIce *stírta ‘barren cow’, Bulg *sterica ‘barren cow’, Grk *stérra ‘barren cow’, Arm *ster ‘barren’, Skt *stárī ‘barren cow’; there is also Alb shtjerri ‘lamb’, Toch B *sari ‘kid’). A word *wédhris ‘castrated’ yields this meaning in Grk *éthrís ‘eunuch’ and Skt *vádhrī ‘castrated’, and wether in NE, but has a more basic meaning ‘strike’ in Luvian so it is not entirely certain that ‘castration’ was the meaning in Proto-Indo-European.

To be included in the vocabulary of violence in Proto-Indo-European are those words referring to a ‘wound’. *wol/rno/ehₐ is attested in various vowel-grades (e.g. Lat *volnus ‘wound, injury’, Alb *varreₐ ‘wound, injury, sore’, Grk *ouleₐ ‘scar’, Rus *raₐ ‘wound’, Skt *vraₐ ‘wound’) while *hₐeruₐ and *peles- are attested by single isoglosses, Germanic-Indic (ON *orr ‘scar’, Skt *árus ‘wound’) and Greek-Tocharian (Grk *ápeloₐ ‘[unhealed] wound’, Toch B *píle ‘wound’), respectively. *swero- ‘(suppurating) wound’ is found more widely (e.g. NWels *chwarren ‘ulcer’, OHG *sweren ‘fester’, Rus *khvóryj ‘sick’, Av *x’ara- ‘wound’).

The vocabulary of death is extensive with many words derived from two verbal roots: *mer- (e.g. Lat *morior ‘die’, Lith *mirtuₐ ‘die’, OCS *miroₐ ‘die’, dialectal Grk *ermten ‘died’, Arm *mer ‘die’, Hit *mer- ‘disappear, die off’, Av *miryeiti ‘dies’, Skt mriyáte ‘dies’) and *nekₐ- (e.g. Lat *neccō ‘kill’, Av *nasyeiti ‘disappears’, Skt náśyati ‘is lost, disappears, perishes’, Toch B *nakstār ‘disappears, perishes’) which were already nominalized in Proto-Indo-European to indicate ‘death’ and ‘dead person’ (e.g. *mṛtis ‘death’ in Lat mors, Lith mirtis, Av *mṛt-i-, *móros ‘death’ in Lith māras ‘death’, OCS moru ‘plague’, Grk mórος ‘fate, doom, death’, Skt māra- ‘death’, *mṛtōs in Lat mortuus ‘dead’, Grk brolós ‘person’, Skt mṛtā-; *nekṣ ‘death’ in Lat nēx ‘death’, Grk nēktar ‘nectar’ [<*death-conquering>; *nēk ‘death, dead’ in Grk nēkūs ‘corpse’, Av *nasu- ‘corpse’, Toch B *ēkwe ‘man’ [<*mortal]]. Other roots include *wel-, whence the ON Valhalla, the ‘hall of the dead’ (cf. also ON *valr ‘one who dies on the battlefield’, Latv *velis ‘spirit of the dead’, Czech valět ‘fight, make war’, Toch A *wāl- ‘die’, *vala ‘dead’). Those languages attesting *dhgʷ*he- nowhere indicate a specific meaning ‘die’ but rather ‘disappear, be destroyed’ (Skt kṣřyāte), and ‘dwindle’ (Grk phthiño). The word for a ‘corpse’, *néhₐwis, finds this meaning in the North-Western languages (Goth nau ‘corpse’, OPrus nowis ‘corpse’, ORus navi ‘corpse’) but there is a Tocharian cognate indicating ‘sick’ (Toch A *nwām). And finally, as another type of ‘death’ we have *gʷes- ‘extinguish’ which is attested in Baltic (e.g. Lith gėsti ‘go out’), Slavic (e.g. OCS ugasiti ‘extinguish’), Grk sbēnnumi ‘extinguish’, Hit kist- ‘go out’, Skt jāsate ‘be extinguished’, and Tocharian (e.g. Toch B *kes- ‘go out’). As to our final reconstruction, Anatolian argues for an initial *g-, Greek and Indic for *gʷ-; the other languages will allow either.

Regional words from the North-West include *kāikos ‘one-eyed, cross-eyed’ (see above) although there is a possible Indic cognate. There are a number of
West Central words: *kóh,ðlus ‘healthy, whole’ (both NE hale and whole—see above); *yak(k)- ‘cure, make well’ (Celtic, e.g. OIr tce ‘cure, treatment’, Grk ἄκος ‘cure, treatment’); *bher- ‘cure with spells and/or herbs’ (with problematic Baltic cognates, e.g. Lith būrti ‘cast a charm, spell’, and sound Alb bar ‘grass, herb, drug, medicine’, and Grk ἱάρμακον ‘something that brings health or harm, drug, medicine’); *kent(h)- ‘suffer’ is found in Celtic (e.g. OIr céisaid ‘suffers’), Baltic (e.g. Lith kencˇiuˇ ‘suffer’), and Grk πάσκνη ‘suffer’; *seug- ‘be sick’, is based on a Germanic-Armenian isogloss (e.g. NE sick, Arm hiwcanim ‘sicken’). We have already seen *glostwos ‘bare, bald’ (NE callow a sa regionally attested form alongside the more widely distributed *klhwos; Germanic, Baltic, Slavic, and Armenian attest *bstos ‘bare, naked’ (e.g. NE bare, Lith bās ‘barefoot’, OCS bos ‘barefoot’, Arm bok ‘barefoot’). The root *lerd- underlies *lordskos ‘crooked of body’ (Sgael lorcach ‘lame’, MHG lērz ‘left’, Grk lordos ‘bent backwards so the front of the body is convex’). A root *gˇeid- may have meant something akin to ‘be foul, putrid’ (its attestations range from ON kveisa ‘boil, whitlow’ through OCS zˇidukuˇ ‘slimy’, Lith puveˇs ‘rotten things’, Grk puˇos ‘pus’, Arm hu ‘purulent blood’) from a root *puhˇx- ‘stink, rot’. A Baltic-Greek isogloss (e.g. Lith votis ‘ulcer, abscess, boil’, Grk ῥτεῖ ‘wound’) gives *wehˇa- ‘(suppurating) wound’. The verbal root *dheu- ‘die’ (e.g. OIr dtth ‘death, end’, Lat fănum ‘burial’, Goth diwans ‘mortal’, OCS daviti ‘strangle’, Arm di ‘corpse’) also underlies ON dæja whence is borrowed NE die (some would see die as native rather than borrowed); it is possibly related to *dhwes- ‘breathe’ as in ‘expire’; we might put here *(s)kerb-~(s)kerbh- ‘shrink, shrivel’ with some connotations of ‘wasting away’, e.g. Lith skurbiˇ ‘suffer a decline, wither; mourn’, Rus skörblyj ‘shrivelled’, Grk κάρφoς ‘let shrivel, dry out’. Greek-Indo-Iranian cognates include *pēhˇmyˇ ‘misfortune, suffering’ (Grk ἡμῖν ‘misfortune, suffering, misery’, Av pāman- ‘dryness, scab’, Skt pāmán- ‘skin disease’) and *mörtos ‘person, mortal’ (dialectal Grk mortos ‘person; dead’, Av marata- ‘person, mortal’, Skt márta- ‘person, mortal’). An Indic-Tocharian isogloss (Skt kλάm(y)ati ‘becomes weary, fatigues’, Toch B kλάnts- ‘sleep’) is seen in *kh,m(-s)-‘be fatigued, sleepy’.

11.8 The Lexicon of the Body

In terms of numbers of cognates, terms for the body and bodily functions form the largest semantic category in Proto-Indo-European, and those words
pertaining to health and disease constitute the second largest (followed by terms relating to speech and then kinship terms). The primacy or near primacy of body parts is found across most languages and the semantic categories of body and health constitute the single largest semantic category in proto-Uralic as well. The importance of body parts is also indicated in word frequency lists and it is at least interesting if not instructive to compare the frequency of mention of body parts in American English compared with the frequency of cognate terms to occur in each IE subgroup (Table 11.8).

The figure indicates a broad conformity in the relative popularity of certain organs with both PIE and English rating the words for ‘foot’, ‘heart’, and ‘eye’ as either the three most frequently cited or widely attested words. On the other hand, a word like ‘knee’ would drop to about twentieth position in English although it is as well attested as ‘eye’ in PIE. In some cases the variance in ranking is due to the fact that we can reconstruct multiple words in PIE to fill out what is generally covered by a single word in English, e.g. the PIE words for ‘hair’ and ‘blood’.

Word frequency lists also remind us that the most popular or most frequently spoken form in PIE need not have been the form in which it is usually cited in the handbooks. In English, for example, the word *eye* occurs in about 700th place while the plural *eyes* is the more frequently cited word and falls about 200th place. Similarly, *ears* is at 1,000th place while *ear* is below at 1,500th place; *arms* is at about 800th place and the singular form is at about

<table>
<thead>
<tr>
<th>PIE BODY PARTS</th>
<th>NO OF COGNATE GROUPS</th>
<th>ENGLISH BODY PARTS</th>
<th>RANK ORDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot</td>
<td>12</td>
<td>foot</td>
<td>1</td>
</tr>
<tr>
<td>Heart</td>
<td>11</td>
<td>heart</td>
<td>3</td>
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<tr>
<td>Eye</td>
<td>10</td>
<td>eye</td>
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<tr>
<td>Knee</td>
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<td>tongue</td>
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<td>Tooth</td>
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<td>bone</td>
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<td>9</td>
<td>ear</td>
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<tr>
<td>Bone</td>
<td>9</td>
<td>shoulder</td>
<td>12</td>
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<tr>
<td>Eyebrow</td>
<td>8</td>
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<td>7</td>
</tr>
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<td>8</td>
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</tr>
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<tr>
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<td>8</td>
<td>skin</td>
<td>5</td>
</tr>
<tr>
<td>Shoulder</td>
<td>6</td>
<td>arm</td>
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</tbody>
</table>

Table 11.8. Frequency of occurrence of body part names in American English and the number of cognate groups in Proto-Indo-European
1,000th. In all these cases, in PIE we might expect that the more often spoken form was in the dual rather than the nominative singular.

Approaches to the folk taxonomy of the body and disease in the Indo-European vocabulary are very few. We have early texts, for example Luvian, that enumerate the twelve parts of the body, but there does not seem to have been much comparative work to see to what extent we may reconstruct a taxonomy of the IE body purely on textual grounds. On the other hand, widespread traces of an Indo-European creation myth that involved the dismemberment of a giant’s body (human or bovine) to create the universe and human society does offer some evidence for potential taxonomies. For example, the Ṛgveda describes how a primeval giant was dismembered and his mouth became the priest class, his hands the warrior, his thighs the farmers, and his feet the workers and artisans. In other traditions there emerges a general pattern of association with the head as the priests, the torso as the warriors, and the lower part of the body equated with the commoners. In his studies of the physical correlations of mythic anatomy, i.e. the creation of the universe from the body parts of a primeval giant, Bruce Lincoln has found widespread evidence among various IE traditions for the following equations: flesh = earth, bone = stone, hair = plants, blood = water, eyes = sun, mind = moon, brain = clouds, head = heaven, and breath = wind.

The reconstructed vocabulary concerning terms for disease is probably extremely partial. A study of the folk taxonomy of disease among the Eastern Subanun of the southern Philippines uncovered 132 single-word labels for disease (and over a thousand words for plants) and discussion of diseases among the Subanun was regarded as the third most popular topic after litigation and botany. As one might expect, there was a taxonomic system which defined by various levels of specificity, e.g. ‘skin disease’ comprised ‘inflammation’, ‘sores’, and ‘ringworm’ which in turn might be subdivided. This should perhaps warn us then that the reconstructed detritus that gives us six words for skin disease (*dedrius ‘tetter, skin eruption, leprosy’, *kños ‘callosity’, *worh,do-’wart’, *wırh,os ‘pimple’, *kreup- ‘+ rough, scabby’, *hjelkes- ‘+ ulcer’) might be a fraction of a far more complex taxonomy of disease. And unlike plant names, diseases by their very nature may be progressive and, consequently, our reconstructed terms may in places only be designating the various stages in the progression of a disease and its symptoms.

As to the varieties of cures, the lexical evidence does suggest several means. The root *med-, with specifically medicinal connotations only in Latin and Iranian, suggests healing as the result of undertaking a specified series of practices to restore normality. The root *h₁eis- ‘refresh’ suggests that this might be accomplished with a liquid; the root *yak(k)- leaves the means of cure unclear, while a possible *bher- indicates the use of herbs in Albanian and
Greek but spells in Baltic (if the Baltic words are indeed cognate with the Balkan words). A number of early Indo-European traditions distinguish between diseases that can be cured by spells, e.g. blindness, and which are appropriate to the highest social function of the priest; diseases that require surgery with a knife, e.g. wounds, fractures, which are appropriate for the warrior class; and diseases requiring the use of herbs, e.g. fevers, emaciation, which are regarded as most closely associated with the lower food-producing estate. Generally, diseases and their cures are discussed within the context of the tripartite social and mythological system proposed for the early Indo-Europeans (see Chapter 25).

**Further Reading**


For the medical vocabulary of the Subanun see Frake (1961); the American word frequency list is based on Carroll (1971); the Uralic data derive from Häkkinen (2001). The relationship between anatomy and mythology is covered by Lincoln (1986).
12
Family and Kinship

12.1 Family and Household

One of the best-attested areas of the reconstructed lexicon pertains to the family and kinship relations.

Words for the two sexes are unevenly distributed with the majority associated with males. There are some distinctions in that when descendants of *wihxros (OIr fer ‘man, husband’, Lat vir ‘man, husband’, OE wer ‘man, husband’ [NE werewolf], Lith výras ‘man, husband’, Av vīra- ‘man; person [as opposed to animals]’, Skt vīrā- ‘hero; [eminent] man; husband’) and *h₁nēr (NWels nēr ‘hero’, Umb ner- ‘chief’, Alb njeri ‘person’, Grk anēr ‘man’, Arm ayr ‘man, person’, Phryg anar ‘man’, Luv annara/i- ‘forceful, virile’, Av nar- ‘man’, Skt nār- ‘man, person’) are found in the same language, the former usually refers to ‘male, husband’ or the like while the latter sometimes may indicate a more honorific position such as a ‘hero’ or ‘chief’, though there is obviously a good deal of overlap. The former may derive from a word meaning ‘young’ (e.g. Toch A wir ‘young fresh’ or Alb ri ‘young’, if the latter is from *wrihₓos < *wihxros) while the latter indicates ‘power, strength’ (e.g. OIr nert ‘strength, power’, Lat neriōsus ‘firm’), and even ‘anger’ (OPrus nertien). Both words appear to derive from roots originally indicating ‘(youthful) strength’. Perhaps more conjectural is the derivation of *mVnus, which rests on a not entirely clear Germanic-Indic isogloss (e.g. NE man, Skt mánu- ‘man, person’),
which many claim to go back to *men- ‘think’, presumably under the illusion that man is a cognitive creature. The two words for ‘male’, *r̥sēn and *wersēn, are similar in shape but differ somewhat in meaning; the first generally indicates ‘male’ in opposition to ‘female’ (e.g. Grk ἀρσέν ‘male’, Av arśān- ‘male’, Skt ṛṣabhā- ‘bull; male animal in general’) while the second indicates the ‘male as sire’ and its meanings may range from Lat verrēs ‘boar’, Latv veņis ‘ox’, Av varšāni ‘ram’ (also ‘male’) to Toch B kauṛṣe ‘bull’. However, the two words overlap a good deal as well. In Avestan *ṛsēn is added to words to create a special term for the (adult) male of the species, e.g. aspa-arśān- ‘stallion’ or gau-arśān- ‘bull’, while both in Sanskrit and Tocharian it is *wersēn that is so used, e.g. Skt go-vṛṣa- ‘bull’ and Toch B kauṛṣe ‘bull’. A word for ‘old man’, *gerh₃-ont-, is found in Greek and Indo-Iranian (Grk gērōn ‘old man’, Oss zerand ‘old’, Skt járant- ‘old man’). Different PIE formations give Alb grua ‘old woman’ and Toch B sārā- ‘adult male’.

The closest generic word for ‘woman’ (there are also words for ‘wife’) is gʷénh₂ with its derivatives (e.g. OIr ben ‘woman, wife’, OE cwene ‘woman, female serf, prostitute’, OPrus genna ‘wife’, OCS žena ‘wife’, Grk gynē...
‘woman, wife’, Arm *kin ‘wife’, Av *gānā- ‘woman, wife’, Skt *gnā- ‘goddess, divine female’, Toch B šana ‘woman’). The development of this word in English shows two poles: the e-grade gives ultimately English quean, i.e. ‘an impudent or disreputable woman’ (but, in OE, also (any) ‘woman or wife’), while a lengthened grade root (*gʷēni-) gives OE cwēn ‘woman, wife, consort’, NE queen.

The vocabulary of ‘youth’ is very much concerned with the concepts of ‘strength’ and ‘ability’. Both *h₂yeu- (OIr o¯a ‘young’, Lat iuvenis ‘young’, NE young, Lith jāunas ‘young’, OCS junā ‘young’, Av yvan- ‘youth’, Skt yūvan- ‘young’) and the extended form *h₂yuh₁-η-kós (e.g. OIr o̞ac ‘youth’, Lat iuvenicus ‘young (cow)’), Skt yuvaśā- ‘young’) derive from *h₂yōuṣ ‘strength’ while the masculine and feminine forms, *maghus and *maghwih₂- respectively (e.g. Corn maw ‘youth; servant’, mowes ‘young woman’, OE mæg ‘son; man; servant’, mag(e)þ ‘maidens, virgin; girl; wife’ [> NE maiden], Av maṣava- ‘unmarried’), may come from the semantically similar *magh- ‘be able’. Another masculine and feminine set is seen in *méryos and *merih₂- (Lat maritus ‘husband; lover, suitor’, Alb she¯mer ‘co-wife; concubine; (female) rival’, Grk meı̊raks ‘young man or woman’, Av maìrya- ‘young man’, Skt maìrya- ‘young man, lover, suitor’). While the base meaning may indicate a ‘youth’, many of the languages reveal extended meanings to include ‘warrior’, i.e. generalized presumably from ‘young warriors’ (cf. the use in American English of ‘our boys’ in reference to soldiers overseas). A ‘child’ without reference to its sex may have been indicated by the neuter noun *teknom (e.g. Grk τέκνον ‘child’) from a root *tek- ‘beget’, hence more properly ‘offspring’. The range of meanings for this word includes a Germanic series all pertaining to servants of a king or followers (e.g. NE thane).

The concept of the ‘family’ or ‘household’ is found in *gēnh₁es- (e.g. Lat genus ‘family’, Grk géνος ‘family’, Arm cin ‘birth’, Skt jānas- ‘family’) which derives from *gēnh₁- ‘be born’ and *dōm(h₂)os (e.g. Lat domus ‘house’, Lith nūmas ‘house’ (with nasal assimilation of the initial consonant to the second), OCS domū house’, Grk dōmos ‘house’, Skt dáma- ‘house’) which is ultimately derived from *dem(h₂)- ‘build’ on which is formed the noun for ‘house(hold)’; Latin also shows the extended form dominus ‘master of the house’. The *wi-k- (e.g. Av viś- ‘clan’, Skt viś- ‘dwelling; clan’, OCS viši ‘village’, and with a full-grade *we/oik‐ seen underlying Lat vicus ‘village’, Gothic weı̊hs ‘village’, Grk oikíα ‘house, household’, Toch B ike ‘place’) indicates a residence unit larger than the nuclear family and is generally translated as ‘extended family’ or ‘clan’ (see Section 13.1).

Two words are associated with ‘friendship’ although neither specifically means ‘friend’. Four groups attest *prih₂ós; in Celtic and Germanic the cognates indicate one who is ‘free’ while the Indo-Iranian cognates suggest one who is ‘dear’ (NWels rhydd ‘free’, NE free, Av frya- ‘dear’, Skt priyā- ‘dear’).
Some have seen this word as derived from a (controversial) root *per- ‘house’, i.e. ‘those who belong to one’s own household’. Such is also the underlying meaning suggested for *kēiwos where the semantics range from ‘citizen’ (Lat cīvis, Oscan ceus) to ‘household’ (Germanic, e.g. OE hīwan ‘household’), ‘wife’ (Baltic, i.e. Latv sieva), and ‘dear’ (Indic, e.g. Skt śivā- ‘kind, auspicious, dear’, whence also the god Shiva); some derive this word from *kēi- ‘lie’, i.e. either ‘those who lie together (in sleep)’ or ‘those who depend on one another’. The words for ‘lineage’, *s(w)ebh- (e.g. NE sib, perhaps Lat sodālis ‘associate’, OCS svobodī ‘free’, Skt sabhā- ‘assembly’) and *swedh-o- (e.g. perhaps Lat sodālis ‘associate’, Grk étos ‘custom, habit’, Skt svadhā ‘homestead; kindred group’), are both built on the reflexive pronoun ‘self’.

Regionally attested vocabulary from the North-West includes *dhghmy-on-man’ (Lat homō ‘person’), which derives from *dhghom- ‘earth’ (see Section 8.1); it is found in Celtic (OIr duine ‘human’), Italian, Germanic (OE guma ‘man’), and Baltic (Lith žmūō ‘person’) and survives in NE bridegroom where the element ‘groom’ derives from OE guma ‘man’ which was changed to ‘groom’ by way of (erroneous) folk etymology. The North-West also offers a superb example of how far semantics might diverge between the different Indo-European groups. A *kehros (originally) ‘friendly’ is attested in Celtic, Italian, Germanic, and Baltic: in Celtic (OIr cāra) and Italian (Lat cārus) it means ‘friend’ whereas in Germanic it takes on a different connotation (NE whore); in Baltic, on the other hand, it means ‘greedy’ (Latv kārs). From the West Central region both Germanic, e.g. Goth samkunja ‘of the same lineage’ (NE – kin), and Grk homōgnios ‘of the same lineage’ provide possible evidence of *somo-gh虞-yo-s ‘same (kinship) line’ although these words may be independently formed in the two groups.

The Central European region provides another word for ‘man’ or ‘mortal’ built on the root ‘to die’, i.e. *mōrtos ‘man, mortal’ (see Section 11.7); this may have been independently derived in Grk mortōs ‘man, mortal’ in Hesychius, Arm mard ‘man’, and Skt márta- ‘mortal’. Also of possible independent derivation in Armenian and Iranian is *gerh-o-s ‘old man’ (i.e. Arm cer, NPers zar). This region also attests the use of *dōm ‘house(hold), nuclear family’ (Grk dō- Arm tun, Av dam-, Skt dām, all ‘house’) where the structure and the social unit of the house are combined under a single term.

12.2 Marriage

There are two possible words for ‘marry’, both from the male point of view. As a verb, *ğemhi- only indicates ‘marry’ in Grk gamēō but derivatives indicate ‘son-in-law’ (Lat gener, Grk gambrós, Av zāmātār-, Skt jāmātār-) and ‘suitor’
(Alb dhêndër, Skt järá-). In later Greek, and perhaps already in earlier Greek, this word was used also of the sexual act by which a marriage was consummated. More solidly attested is *h₂wed(h₂)- which means ‘marry’ in the North-Western group (NWels dyweddiō ‘marry’, NE wed, OPrus wedđē ‘marry’, Lith vedū ‘lead, marry [of a man]’) and generally ‘bride’ in Indo-Iranian (Av vađū-, Skt vadhū-). It is a special use of the verb ‘lead’, indicating that the male led away the woman in the early Indo-European system of marriage, a system whose vocabulary might be later recreated, e.g. Lat uxōrem dūcere ‘to lead away a wife’, i.e. ‘marry’. The husband and wife constituted the ‘master’ and ‘mistress’ of the household, which might consist of children, grandchildren, and perhaps unrelated slaves or servants. Of course within a given household not every husband and wife, of which there might be several (father and mother, sons and wives), would be ‘master’ and ‘mistress’ but only the most senior ones. Indeed, there is some evidence that, should the senior man die, his eldest son would become the master, but the dowager would remain the mistress. The words for ‘master’ and ‘mistress’ are *pötis (attested from Celtic to Tocharian: Bret ozah [< *potis stegesos] ‘husband, master of the house’, Latv pats ‘master of the house; self’, Rus gospōdi [< *ghost-potī-] ‘host’, Alb zot [< *wiča-pot-] ‘master of the house’, Grk pósis ‘husband’, Hit pat ‘self’, Av paiti- ‘husband’, Skt pāti- ‘husband, master’, Toch A pats ‘husband’) and its feminine derivative *pot-nih₂a- (e.g. OPrus waispattin ‘wife, mistress’, Grk pótinia ‘lady, wife’, Alb zonjë ‘lady, wife’, Skt pātmī- ‘lady, wife’). Viewed from the perspec-
tive of householders, we also find *dom(h₂)u-no-s ‘master’, i.e. the ‘master of the house’ (e.g. Lat dominus, Skt dāmuna-) as the word is a clear derivative of the word for ‘house’ (cf. *dom(h₂)os above) with the suffix *-no- which is used to create words ‘leader of’. A Latin-Hittite isogloss gives us both *h₁esh₂ős ‘master’ and *h₁esh₂éh₃- ‘mistress’ with no certain root etymology (Lat erus ‘master of the house, lord, owner’, era ‘mistress, lady, owner’, Hit isḥa₃- ‘master, lord, owner’). Finally there is a Greek-Indo-Iranian isogloss, *deims-pot- ‘master of the house’ (e.g. Grk despóteς, Skt dām-pati-) which is structurally part of the same set that gives us ‘master of the clan’, i.e. *wik(-a)-pot- (in Baltic, Albanian, and Indo-Iranian). The word *prih₁eh₃- ‘wife’ is almost a term of endearment as it derives from *prih₁ós ‘be pleasing, one’s own’ (see above) and it provides the wife of the Germanic god Oðinn with a name, e.g. ON Frigg (cf. also ON frī ‘beloved, wife’, OE frēo ‘woman’, Skt priya₂- ‘wife’). The underlying semantics of ??parikeh₃- are difficult; the word is attested only in MIr airech ‘(type of) concubine’ and Av pairikā- ‘demonic courtesan’. Presumably the meaning attested in Irish is the older one while in Iranian ‘the other woman’ has suffered a loss of social standing.

The word for ‘widow’ (*widheweh₃-) is very well attested (nine groups as ‘widow’, e.g. OIr fedb, Lat vidua, NE widow, OPrus widdewu, Rus védová, ?Alb ve (if not a loan from Latin), Hit SAL uḥdati-, Av višavā, Skt viḍhavā-, and in a derived form in Grk, εἰθέωs, as ‘bachelor’). This word is usually taken as a nominal derivative of a verb *wi-dheh₁-, attested only in Anatolian, meaning ‘separate’. A word for ‘orphan’ (*h₂/orbhös) is reasonably well attested as well (e.g. OIr orb ‘heir, inheritance’, Lat orbus ‘bereft, childless, orphan’, OCS rabu˘ ‘servant’, Arm orb ‘orphan’, Skt ārbha- ‘child’) and derives from a verbal form which was still preserved in Hit har(ap)₂p- ‘change status’. A word for ‘twin’ (*yemos) is supported by cognates in Celtic (OIr emon ‘twins’), Italic (genimus ‘twin’), and Indo-Iranian (Av y₁ṣma-, Skt yamā-, both ‘twin’).

There are a few regional terms. A word for ‘marry’ (*sneubh-) seen from the wife’s point of view is attested in Italic (Lat nūbere) with derivatives in Slavic (OCS smubiti ‘to pander’) and Grk nůmphē ‘bride’ while a Germanic-Slavic-Greek isogloss (OE witumo, OCS věno, Grk hédnon [< *wedmon]) gives us *wedčmo/eh₃- ‘bride-price’ (i.e. the price paid by the groom’s family to the bride’s to compensate the latter for the loss of a worker). On the basis of both our Proto-Indo-European terms and some of our regional terms, Eric Hamp has suggested that we can reconstruct terms for four stages or events in the Indo-European marriage. It begins with the *perk₁- ‘ask, propose a marriage’ (see Section 21.2) which is then followed by the *wedco/eh₃- the exchange of the bride-price. The newly wed wife would be literally ‘led away’, i.e. *h₂wed(h₂)- ‘wed’, and *γemθ₃- would indicate the consummation of the marriage (for the latter two, see above). A regional term for ‘wife’, found in
Slavic and Greek, is *sm-loghos (SerbCS sulogu˘ ‘wife’, Grk álókhos ‘bed-fellow, spouse’). Literally it means ‘bed-fellow’. Finally we have a Graeco-Aryan isogloss where Grk despòtēs ‘master, lord’ and Indo-Iranian (e.g. Skt dámpatı- ‘master’ derive from a compound *dens-pot- ‘master of the house’.

12.3 Kinship

Kinship terms in Indo-European tend to be limited over three generations. The word *h2euh2os ‘grandfather’ is well attested in Anatolian, e.g. Hit hūhhas, and a number of groups in both Europe and Asia (e.g. Lat avus, ON afti, Arm aw, Toch B āwe, all ‘grandfather’ except Tocharian B which may be ‘uncle’ instead). There is also an Albanian-Indic correspondence that yields *suh,sos

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>*h2euh2os</td>
<td>‘grandfather’</td>
<td>Lat avus</td>
</tr>
<tr>
<td>*suh,sos</td>
<td>‘grandfather’</td>
<td>Skt sūṣā</td>
</tr>
<tr>
<td>*pro-</td>
<td>third generation marker</td>
<td>Lat pro-, Grk pró-, Skt pra-</td>
</tr>
<tr>
<td>*h2ep-</td>
<td>fourth generation marker</td>
<td>Lat āb-, NE off-, Grk apo, Skt apa-</td>
</tr>
<tr>
<td>*ph,ṭér</td>
<td>‘father’</td>
<td>Lat pater, NE father, Grk pāṭēr, Skt pitār-</td>
</tr>
<tr>
<td>*somo-ph,ṭör</td>
<td>‘of the same father’</td>
<td>Grk homopatōr</td>
</tr>
<tr>
<td>*gēnih, tör</td>
<td>‘father; procreator’</td>
<td>Lat genitor, Grk genētōr, Skt jānītār-</td>
</tr>
<tr>
<td>*at-</td>
<td>‘father’</td>
<td>Lat atta, Grk atta</td>
</tr>
<tr>
<td>*t-at-</td>
<td>‘father’</td>
<td>Lat tatā, Grk tatā, Skt tatā-</td>
</tr>
<tr>
<td>*papa</td>
<td>‘father, papa’</td>
<td>Lat pāpa, Grk pāppa</td>
</tr>
<tr>
<td>*putlōs</td>
<td>‘son’</td>
<td>Skt putrā-</td>
</tr>
<tr>
<td>*suh,ũus</td>
<td>‘son’</td>
<td>NE son, Skt sūnū-</td>
</tr>
<tr>
<td>*suh,ũs</td>
<td>‘son’</td>
<td>Grk huyūs</td>
</tr>
<tr>
<td>*nēpōts</td>
<td>‘grandson; (?) nephew’</td>
<td>Lat nepōs, Grk nēpodes, Skt nāpāt</td>
</tr>
<tr>
<td>*neptiyos</td>
<td>‘descendant’</td>
<td>Grk anepsiōs</td>
</tr>
<tr>
<td>*h,em-</td>
<td>‘father’s mother’</td>
<td>Grk annis</td>
</tr>
<tr>
<td>*mēh,ṭēr</td>
<td>‘mother’</td>
<td>Lat mātēr, NE mother, Grk mēṭēr, Skt māṭār-</td>
</tr>
<tr>
<td>*h,em-</td>
<td>‘(old) woman, mother’</td>
<td>Lat anus</td>
</tr>
<tr>
<td>n-h,em-</td>
<td>‘mother’</td>
<td>Lat nonnus, Grk nāmnē, Skt nanā-</td>
</tr>
<tr>
<td>h,em-</td>
<td>‘mother’</td>
<td>Lat amma, Grk ammās, Skt ambā-</td>
</tr>
<tr>
<td>m-h,em-</td>
<td>‘mother’</td>
<td>Lat mamma, Grk māmmē</td>
</tr>
<tr>
<td>h,ekkek,ṛ</td>
<td>‘mother’</td>
<td>Lat Acca, Grk Akkō, Skt akkā-</td>
</tr>
<tr>
<td>*gēnih,triḥ,ṛ</td>
<td>‘mother, procreatrix’</td>
<td>Lat genetrix, Grk genēteira, Skt jānītrī-</td>
</tr>
</tbody>
</table>

Table 12.3. Kinship

(Cont’d)
grandfather’ (Alb *seuhx ‘beget’, the same root that gave the words for ‘son’ below). Other degrees of descent employ basic prepositions. For example, *pro- provides the third generation marker, e.g. Lat *pro-avus ‘great-grandfather’ while *somo-* forms the fourth generation marker, e.g. Lat *somo-avus ‘great-great-grandfather’; these can be, and normally are, also reversed to provide descending generations, e.g. Lat *somo-nepo¯s ‘great-grandson’ and Skt *soma-papa¯t ‘great-grandson’. We find *somo-* also in NE offspring.

There is a series of words for ‘father’. The formal term, attested in eight groups, is *pha-ter (e.g. OIr athir, Lat pater, NE father, Grk patér, Arm hayr, Av pāta, Skt pitār, Toch B pāce, all ‘father’) while it also appears in compound form in Germanic, Greek, Iranian, and Toch A as *somo-phatr ‘of the same father’ (ON samfedra, Grk homopatēr, OPers hamapītār, Toch A somapāce). Possibly of Proto-Indo-European date (if not independent creations from the root ‘beget’), is *genh1-tōr ‘procreator’ (Lat genitor, Grk genētōr, Skt jānītār-).

### Table 12.3 (Cont’d)

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Language(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>dhug(har)ter</td>
<td>daughter</td>
<td>NE daughter, Grk thugātēr, Skt duhitār-</td>
</tr>
<tr>
<td>neptihar</td>
<td>granddaughter; (?) niece</td>
<td>Lat neptis, Grk anapstā, Skt naptī-</td>
</tr>
<tr>
<td>bhrēh,ter-</td>
<td>± brother</td>
<td>Lat frāter, NE brother, Grk phrētēr, Skt bhrātār-</td>
</tr>
<tr>
<td>bhrēh,triyom</td>
<td>‘brotherhood’</td>
<td>Grk phrātrī, Skt bhrātryam</td>
</tr>
<tr>
<td>swēsor</td>
<td>‘sister’</td>
<td>Lat soror, NE sister, Grk ēor, Skt svāsār-</td>
</tr>
<tr>
<td>pha,trōus</td>
<td>‘paternal kinsman’</td>
<td>Grk pātrōs</td>
</tr>
<tr>
<td>phatriwyos</td>
<td>‘father’s brother’</td>
<td>Lat patruus, Grk patruios, Skt pīryā-</td>
</tr>
<tr>
<td>dain,ver</td>
<td>‘husband’s brother’</td>
<td>Lat lēvir, Grk dār, Skt devār-</td>
</tr>
<tr>
<td>swēkurōs</td>
<td>‘wife’s brother’</td>
<td>Skt śvāśura-</td>
</tr>
<tr>
<td>syö(u)ros</td>
<td>‘wife’s brother’</td>
<td>Skt syālā-</td>
</tr>
<tr>
<td>ē(m)hit,ros</td>
<td>‘sister’s husband’</td>
<td>Lat gener, Grk gambrōs</td>
</tr>
<tr>
<td>swēkuros</td>
<td>‘father-in-law’</td>
<td>Lat socer, Grk hekurōs, Skt śvāśura-</td>
</tr>
<tr>
<td>swekrih,š</td>
<td>‘mother-in-law’</td>
<td>Lat socrus, Grk hekurā, Skt śvāśrā-</td>
</tr>
<tr>
<td>genh1-tōr</td>
<td>‘father; procreator’</td>
<td>Lat genitor, Grk genētōr, Skt jānītār-</td>
</tr>
<tr>
<td>gomh,ter-</td>
<td>‘son-in-law’</td>
<td>Skr jāmatar-</td>
</tr>
<tr>
<td>smuśos</td>
<td>‘son’s wife, brother’s wife’</td>
<td>Lat nūras, Grk nuōs, Skt smusā-</td>
</tr>
<tr>
<td>ēgh,š-wos-</td>
<td>‘husband’s sister’</td>
<td>Lat glōs, Grk gālōs, Skt giri-</td>
</tr>
<tr>
<td>h₁yenhr,ter-</td>
<td>‘husband’s brother’s wife’</td>
<td>Lat ianitrīcēs, Grk enatēr, Skt yātār-</td>
</tr>
<tr>
<td>swesr(iy)os</td>
<td>‘pertaining to a sister, sisterly; sister’s son’</td>
<td>Lat cōnsobrīnus, Skt svasīya</td>
</tr>
<tr>
<td>bhendhros</td>
<td>± relation</td>
<td>Grk pentherōs, Skt bhāndhu-</td>
</tr>
</tbody>
</table>

‘grandfather’ (Alb gijsh ‘grandfather’, Skt sūsā ‘paternal grandmother’) from *seuhx- ‘beget’, the same root that gave the words for ‘son’ below). Other degrees of descent employ basic prepositions. For example, *pro- provides the third generation marker, e.g. Lat pro-avus ‘great-grandfather’ while *h₁ep- forms the fourth generation marker, e.g. Lat av-avus ‘great-great-grandfather’; these can be, and normally are, also reversed to provide descending generations, e.g. Lat pro-nepōs and Skt prá-napāt- ‘great-grandson’ and Lat ab-nepōs ‘great-great-grandson’. We find *h₁ep- also in NE offspring.
The other terms are widely attested children’s words, i.e. *at-, *t-at-, and *papa (e.g. from *at-: OIr aithe ‘foster-father; teacher’, Lat atta ‘father’, Goth atta ‘father’, Rus otēc ‘father’, Alb atē ‘father’, Grk āttas ‘father’, Hit ātatas ‘father’; from *tat-: NWels tad, Lat (inscriptional) tata, Grk tatā, Luv tātis, Skt tatā-, all ‘father’; from *papa: Lat pāpa ‘father’ [whence by borrowing NE pope], Grk páppa ‘papa’, Pal pāpa ‘father’).

There are two words for ‘son’, *putlós (four groups) which is traditionally derived from *p(a)u- ‘small’ + the diminutive suffix *-lo-, i.e. the ‘small one’ (e.g. Osc puklo- ‘son’, Arm ustr ‘son’ [remodelled from the expected *usl after dustr ‘daughter’], Av pudrâ- ‘son’, Skt putrar- ‘son’), and the more widely attested *suhx(nx) (and the semantically identical *suhx(y)x) which derives from *seuhx- ‘bear, beget’, i.e. the ‘begotten’ (e.g. from *suhx(nx): NE son, OPrus suōns ‘son’, OCS synu˘ ‘son’, Av hēnu- ‘son’, Skt sūn- ‘son’, Toch B somške ‘(young) son’; from *suhx(y)x: Grk huiu´s ‘son’, Toch B soy ‘son’).

The word for ‘grandson’ (*nēpōts which, in a derivative, *neptiyos, gives a more general word for ‘descendant’) is one of the most controversial words in the reconstructed lexicon. Formally, the word is attested in Celtic, Germanic, Italic, Baltic, Slavic, Albanian, Greek, and Indo-Iranian; there is no problem reconstructing the shape of the word to Proto-Indo-European. The problem arises when one finds that, in addition to the meaning ‘grandson’, the word also means ‘sister’s son (i.e. nephew)’ in Celtic (e.g. OIr na ‘sister’s son, grandson, descendant’), Lat nepōs ‘grandson, descendant’ and in later Imperial Latin also ‘nephew’, Germanic (e.g. OE nēf ‘sister’s son, grandson’), Baltic (Lith nepuotis ‘grandson’), Slavic (OCS neti˘ ‘nephew’), and Alb nip ‘grandson, nephew’. Thus some would argue that both meanings, ‘grandson’ and ‘sister’s son’, should be ascribed to Proto-Indo-European. Others argue that ‘sister’s son’ is a secondary development among some and not all the North-Western Indo-European languages and, therefore, this second meaning cannot be ascribed to Proto-Indo-European itself, since in the east of the Indo-European world only ‘grandson’ or the like is attested (e.g. Grk nēpodes ‘descendants’, OPers napā ‘grandson, descendant’, Skt nāpāt ‘grandson, descendant’). Also arguing for a meaning ‘grandson’ are NWels kefnder ‘male cousin’ (< *kom-nepōt-) and Grk anepsiós ‘(male) cousin’ (< *sy-neptiyo-). Why should anyone care?

The systems by which people organize their kin vary across the world and anthropologists have long studied and defined a series of basic kinship types, generally named after various ethnic groups among whom they were first studied. Anthropologists have found that these systems of kinship terminology correlate, albeit imperfectly, with social and family organization within the group. Therefore, knowing how a reconstructed language handled kinship terminology suggests how its speakers may have organized certain social and family relationships. A modern English speaker basically utilizes an Eskimo
kinship system which provides separate words for each member of the nuclear family, ‘father’, ‘mother’, ‘brother’, and ‘sister’, and uses none of these terms to refer to anyone outside the nuclear family. Thus there are different terms for ‘aunt’, ‘uncle’, ‘cousin’, etc. As has often been noted, such a system with its emphasis on the nuclear family and the clear separation of it from other familial relationships fits contemporary, mobile, nuclear-family-oriented, Anglo-American society well. On the other hand, English speakers developed this Eskimo kinship terminology by 1200 AD or so, at a time when social and family relationships were very different from what they are now and seemingly less appropriate to an Eskimo system—a fact which should give us pause when determining how much of an insight kinship terminology can give us concerning social and family roles. In any case, the Eskimo kinship system is quite unlike the Hawaiian one where every term used for a nuclear family member is also used for kin outside of the nuclear family. Thus the term for ‘father’ includes, beside the ‘male parent’, all uncles whether paternal or maternal. Similarly ‘mother’ includes all aunts on both sides of the family and ‘brother’ includes all male cousins and ‘sister’ includes all female cousins. Other kinship systems are in some sense intermediate between the Eskimo and the Hawaiian types, with tendencies to merge certain nuclear family kin types, but not all, with kin types outside the nuclear family. Of these ‘intermediate’ types, Indo-Europeanists have been most interested in the Omaha system, since some branches of the family at least show Omaha features and the Omaha system is often associated with strong patrilineal social organization, and it certainly is the case that early, historically attested, Indo-European groups show such a patrilineal tendency. In the classic Omaha system (and not all Omaha systems, or any other system for that matter, show all the tendencies imputed to it) the father and paternal uncle have the same designation as do the mother and maternal aunt, while the children of the paternal uncle and maternal aunt (technically ‘parallel cousins’) are designated with the same terms as one’s brother and sister. There is also a tendency in Omaha systems towards a ‘skewing of generations’ whereby the maternal uncle is equated with the maternal grandfather and the maternal uncle’s children with the maternal grandfather’s children, and conversely one’s ‘grandson’ will be called by the same term as one’s ‘sister’s son’, i.e. ‘nephew’. If one ascribes both meanings ‘grandson’ and ‘sister’s son’ to Proto-Indo-European *népōts, then this particular conflation of kin types would support the identification of the Proto-Indo-European kinship system as of the Omaha type. However, if the Proto-Indo-European word meant only ‘grandson’, then much of the evidence for considering Proto-Indo-European’s kinship terminology to have been of the Omaha type disappears. The Omaha type would be a regional, post-Indo-European, type of the North-West.
Taking now female relatives, we have first *h₂en- ‘grandmother’, apparently another child’s word but a very old one, e.g. OHG ana ‘grandmother’, OPrus ane ‘female ancestor’, OCS vůněků ‘grandfather’, Grk annis ‘grandmother’, Arm han ‘grandmother’, Hit hannas ‘grandmother’, OPers nyākā ‘grandmother’. As might be expected, there are numerous words for ‘mother’, many of them from the language of children (and hence renewable in any given language). The formal term, attested in eleven different groups, is *mēh₂tēr (e.g. OIr māθhair, Lat māter, NE mother, OPrus mothe, OCS mati, Grk μητέρ, Phryg matar, Arm maryr, Av mātār-, Skt mātr-, Toch B mācer, all ‘mother’). A second term, *h₄en-, with a different laryngeal from the word for ‘grandmother’, is kept separate from the ‘grandmother’ term only in Armenian and Anatolian, e.g. OIr Ana ‘mother of the gods’, Lat anus ‘old woman’, and Hit annas ‘mother’ distinct from hannas ‘grandmother’ where Hittite retains no trace of the *h₂r- in the word for mother but does retain *h₄- in the word for grandmother. Other terms appear to be possible reduplications, e.g. *n-h₄en- on *h₄en- (e.g. NWels nain ‘grandmother’, Late Lat nonnus ‘nurse’, Alb nēne ‘mother’, Rus njanja ‘nurse’, Grk nānnē ‘female cousin, aunt’, NPers nana ‘mother’, Skt nanā- ‘mother’) and *m-h₄en- on *h₄en- (e.g. NWels mam ‘mother’, Lat mamma ‘breast; mu/ommy, grandmother’, OHG muoma ‘aunt’, Lith mamā ‘mother’, Rus máma ‘mother’, Alb mēmē ‘mother’, Grk mámmē ‘mother’ (later ‘grandmother’), Arm mam ‘grandmother’, NPers mām ‘mother’, Skt mā ‘mother’). In addition to ‘mamma/nanna’ type words, Proto-Indo-European also attests *h₅ekkeh₂r- (e.g. Lat Acca ‘mother’ (Roman goddess), Grk Ακκό (nurse of Demeter), Skt akkā ‘mother’). And as with the male form for ‘procreator’, there is also an equivalent feminine form, either inherited or independently created in the different languages, *ĝenh₄trih₄r- (Lat genetrīx, Grk γένετειρα, Skt jānitrī). For the next generation we have the widely attested *dhug₄(₃)te₄r ‘daughter’ (e.g. Gaul duxtir, Osc fuutīr, NE daughter, OPrus duckti, OCS dūštī, Grk thugatēr, Arm dustr, Lyc kbatra, Av dϕṭār-, Skt duhitār-, Toch B tkācer, all ‘daughter’) and then *neptih₄r- ‘granddaughter’. This latter word behaves very much like that for ‘grandson’ in that the North-Western languages also indicate the meaning ‘niece’ (e.g. OIr necht ‘granddaughter, niece’, Lat neptis ‘granddaughter, female descendant’, and in later Imperial Lat also ‘niece’, OE nift ‘niece; granddaughter; stepdaughter’, Lith neptė ‘granddaughter; niece’, ORus neserta ‘niece’, Alb mbesē ‘granddaughter; niece’, but Av naptī- ‘granddaughter’, Skt naptī- ‘granddaughter’). Though unlike *nepōts, which meant specifically ‘sister’s son’, *neptih₄r- meant both ‘sister’s daughter’ and ‘brother’s daughter’ in the languages of the North-West. One might note that English has borrowed, via Old French, the Latin descendants of Proto-Indo-European *nepōts and *neptih₄r- with the meanings of ‘nephew’ and ‘niece’ respectively.
Both words for siblings are very strongly attested. The word for ‘brother’, *bhre̱hₐrₔ-, carries the specific meaning ‘brother’ in all cognate sets except for Greek where it has come to mean ‘kinsman’, but it also exhibits extended secondary (?) meanings of ‘kinsman, cousin’ in Celtic and Slavic (e.g. OIr bráthair, Lat frater, NE brother, OPrus brāți, OCS bratrû, Grk prētēr, Arm elbayr, Av brātar-, Skt bhrātar-, Toch B procer). Some suspect that it may have had a similarly wider meaning in Proto-Indo-European, cf. English usage of ‘brother’ to indicate a group of males related by kinship or even by common social affiliation, e.g. ‘a band of brothers’. The possibility of a word for ‘brotherhood’, *bhrehₐtᵣᵢyom, is supported by apparent cognates in Slavic (OCS bratrĳa), Grk prētrĳa, and Skt bhrātryam although at least one if not more of the groups may have innovated. The word for ‘sister’, *swēsōr, is similarly widespread (e.g. OIr siur, Lat soror, NE sister, OPrus svestro, OCS sestra, Arm k’oyr, Av xᵛaŋγha-, Skt svāsar-, Toch B šer, all ‘sister’; Grk ēor ‘cousin’s daughter’) and, like ‘brother’, absent only in Albanian and Anatolian (Hittite uses the unique forms nēgna- and neka- respectively for ‘brother’ and ‘sister’). Words that are so basic to any vocabulary have invited interminable speculation as to their ‘deeper’ meaning. For example, the word for ‘sister’ has been variously analyzed as a compound *swe- ‘own’ + *sōr ‘woman’, i.e. a ‘woman of one’s own family’ or, alternatively, as *su- ‘with’ + *h₁esōr ‘blood’, i.e. ‘(woman of) one’s own bloodline’. Neither derivation is widely accepted.

Words pertaining to a vague concept of ‘uncle’ or general male relative such as the ‘brother-in-law’ are problematic. *phₜₐtrōus (male) paternal relative; father’s brother’ is attested in its basic form only in Grk pātrōs ‘paternal relative’ but it does have derived forms that are found inItalic (Lat patruus), Baltic (OLith strājus), Slavic (OCS stryjⱫ), Arm yawray, and Indo-Iranian (Av tūīrya- and Skt pītrvya-) which pretty much confirms both *phₜₐtrōus and its derivative *phₜₐtṟyos to Proto-Indo-European. That the designation for the father’s brother is so obviously a derivative of ‘father’ might be taken as additional evidence that the Proto-Indo-European kinship system was of the Omaha type. (Latin kinship is apparently alone in equating the father’s brother’s children with the father’s, e.g. frāter (germanus) ‘brother’ beside frāter patruēlis ‘father’s brother’s son’). There is no equally secure Proto-Indo-European term for ‘mother’s brother’. The languages of the North-West show derivatives of ‘grandfather’, which would reflect the expected Omaha equation of ‘grandfather’ and ‘mother’s brother’, but then each group shows a different derivation for ‘mother’s brother’, suggesting the Omaha-like equation of ‘grandfather’ and ‘mother’s brother’ was only a very late Indo-European development or even one that independently emerged after the dissolution of Proto-Indo-European unity. A word for ‘husband’s brother’ seems solidly attested in *daihₐwēr (e.g. Lat levir [the unexpected initial may be due to
influence from the Sabine dialect], OE tācor, Lith dieveris, OCS děveri, Grk ἀδέρ, Arm taygr, Skt devár-) while ‘wife’s brother’ may be found in *swēkürōs although this word may have been independently derived from the word for ‘father-in-law’ in the language groups in which it occurs (OHG swāgur, Skt śvāṣu-). PIE *syo(u)ros, attested in Slavic, Armenian, and Indic, also indicates ‘wife’s brother’ (OCS šurī ‘wife’s brother’, Arm hor ‘son-in-law’, Skt syālū- ‘wife’s brother’).

A word for ‘sister’s husband’ (*g(e)m(h₃)ros) can be reconstructed from Latin and Greek but the same root, rebuilt with a different suffix as *g(e)m(h₃)-tēr, is found in other Indo-European languages of the East (see the discussion under ‘marry’ above).

The words for both ‘father-in-law’ (*swēkuros) and ‘mother-in-law’ (*swekruh₃s) are widely attested (e.g. NWels chwegrwn ‘father-in-law’, Lat socer ‘father-in-law’, OE sweor ‘father-in-law’, Lith šėšuras ‘husband’s father’, OCS svekru ‘husband’s father’, Alb vjehërr ‘father-in-law’, Grk hekurōs ‘wife’s father’, Av x’asur ‘father-in-law’, Skt śvāṣu- ‘father-in-law’; and NWels chwegr ‘mother-in-law’, Lat socrus ‘mother-in-law’, OE sweger ‘mother-in-law’, OCS svekry ‘husband’s mother’, Alb vjehërr ‘mother-in-law’, Grk hekurā ‘husband’s mother’, Arm skesur ‘husband’s mother’, Skt śvaśrū- ‘mother-in-law’). The word for ‘mother-in-law’ is clearly derived from the masculine. There is an interesting problem in reconstructing the original semantics of the words. For example, a number of Indo-European groups (Balto-Slavic, Greek, Armenian) use this Proto-Indo-European word for ‘father-in-law’ to indicate exclusively the ‘husband’s mother’, i.e. the word is used solely from the perspective of the wife and not from that of the husband. Consequently, Oswald Szemerényi suggested that the deeper etymology of the word should be *swē- ‘own’ + ṽōru- ‘head’, i.e. ‘head of the joint family’, a term which would only make sense from the wife’s point of view in a patrilineal society. But other Indo-European groups utilize the word from both the husband’s and wife’s perspective and it has been suggested that this more general meaning was the original meaning which became more specific in some central Indo-European groups.

Cognates in Albanian and Indo-Iranian suggest the existence of *gjomh₃-ter- ‘son-in-law’ (see above under ‘marry’) which derives from *gjemh₃- ‘marry’ or, perhaps more specifically, ‘to pay the bride-price’. Other relations by marriage include the ‘daughter-in-law’, *smusōs (e.g. Lat snurus ‘son’s/grandson’s wife’, OE snoru ‘son’s wife’, Rus snokhā ‘son’s wife; bride’, Grk nuós ‘son’s wife; bride’, Arm nu ‘son’s wife’, Skt snuṣā-‘son’s wife’), and the ‘sister-in-law’, *gjlh₃-wos- (e.g. Lat glōs ‘sister-in-law’, OCS zūlīva ‘husband’s sister’, Grk gálōs ‘sister-in-law’, Arm tal ‘husband’s sister’, Skt girī- ‘brother’s wife’), here more
specifically the ‘husband’s sister’ (the wife’s sister is attested in a more restrict-
edly distributed form). A Proto-Indo-European *h₁yenh₁-ter- appears to refer
to the ‘husband’s brother’s wife’ (e.g. Lat ianitricēs ‘brothers’ wives’, Lith jėnë
tē ‘husband’s brother’s wife’, OCS jënry ‘husband’s brother’s wife’, Grk enätēr
‘husband’s brother’s wife’, Arm ner ‘husband’s brother’s wife’, Skt yātār-
‘husband’s brother’s wife’). So apparently specific a word makes sense if the
usual social unit was an extended family of parents and married sons. The
daughter-in-law in such a situation would be in need of a term to refer to her
husband’s brothers’ wives.

The concept of ‘nephew’, as we have seen, is critical to the identification of
the Proto-Indo-European kinship system being of the Omaha type. In addition
to the word that also (if not originally) meant ‘grandson’, i.e. *népōts (see
above), there is also *swesr(i)yōs ‘sister’s son’ (e.g. OSwed swîr ‘mother’s
sister’s son’, Sanglechi [an Iranian language of the Pamirs] xîr ‘sister’s son’,
Skt svasarīya- ‘sister’s son’; literally something like ‘he of the sister’, feminine
forms in some languages also indicate ‘sister’s daughter’). Finally, a weakly
attested *bhendhryos with meanings such as Lith beïdras ‘companion’, Grk
pentherōs ‘father-in-law’, and Skt bändhu- ‘relative’ defies more precise seman-
tic reconstruction although it is generally presumed to derive from *bhendh-
‘join, tie’, i.e. someone connected through marriage or other social bond.

There is an abundance of regionally attested kinship terms although few are
specifically from the North-West. Here we find *sēnō-meh₂tēr ‘grandmother’
(literally ‘old mother’) in Celtic and Baltic (OIr sennáthair, Lith semnotė—
possibly independent creations) and *swesrīhₙos ‘sister’s son’ (Lat cōnsobrīnus
‘mother’s sister’s son; (any) cousin’, Lith sēserėnas ‘sister’s son’) probably
originally meant ‘pertaining to the sister’; and the *h₂ēuh₂- which certainly
indicates the ‘grandfather’ also underlies a number of derivations in the
North-West that indicate also the ‘mother’s brother’, e.g. Lat avunculus.

Words spanning the West Central region are far more numerous: a feminized
form of the word for ‘grandfather’, *h₂ēuh₂iha- ‘grandmother’, is found in Italic
(Lat avia), Alb įoshe, and Grk āía. We have a parallel to ‘paternal kinsman’ (see
above) in *mēh₁trōus ‘maternal kinsman; maternal uncle’, occurring only in Grk
mētrōs. The adjective derived from ‘sister’, *swesr(i)yōs ‘pertaining to a sister,
sisterly’, might refer specifically to ‘sister’s son’ (see above) or ‘mother’s brother’
(Arm k’erǐ). There is a very uncertain cognate set (Baltic [e.g. Lith dēdē ‘uncle’],
Slavic [Rus djadja ‘maternal uncle’], Grk thēios ‘uncle’) perhaps reflecting a
*dheh₁- ‘uncle’. A Norse-Greek isogloss indicates a word *swelvion- ‘wife’s
sister’s husband’ (ON svili, Grk eiliones [pl.]). As noted above, the verb
*gemh₁- ‘marry’ gives *γημh₁-ro-s ‘son-in-law’ in Celtic, Italic, and Greek. A
word for ‘aunt’ is seen in *meh₉truh₉- ‘mother’s sister’ or perhaps just ‘motherly
one’ (e.g. OE mōdrige ‘mother’s sister’, Grk mētruia- ‘stepmother’, Arm mawru
‘stepmother, mother-in-law’) while *swoiniyehₜᵣ gives us ‘wife’s sister’, i.e. ‘sister-in-law’ (Lith svainė ‘sister-in-law’, Latv svaīne ‘wife’s sister’, Arm k’eni ‘wife’s sister’). In the West Central area the word for ‘granddaughter’, *neptihₜᵣ, also carries the meaning ‘niece’ as we have seen above. Possible central European isoglosses include the Albanian-Indic correspondence that yields *suhₜₛos ‘grandfather’ (Alb gjysh ‘grandfather’, Skt sūṣā ‘paternal grandmother’) from *seuhₜᵣ- ‘beget’, the same root that gave the words for ‘son’ above) while *syō(u)ros, attested in Slavic, Armenian, and Indic, indicates ‘wife’s brother’ (OCS šurī ‘wife’s brother’, Arm hor ‘son-in-law’, Skt syāla- ‘wife’s brother’). A ‘family tree’ of the terminology for blood relatives and those in-laws acquired, as it were, by their marrying into the family is found in Figures. 12.1–3.

Figure 12.1. Reconstructed PIE Kinship Terms for Blood Relatives

Figure 12.2. In-Law Terminology (for the husband)
Further Reading

Architectural terms constitute a significant category of the Proto-Indo-European lexicon although, as we will see below, most of the vocabulary is so general that it can hardly be diagnostic in relating the linguistic evidence to the archaeological evidence of Eurasia. The main terms associated with dwelling and settlement are provided in Table 13.1.

Although we have a regional term that indicates ‘settle, dwell’ a strongly attested word for ‘dwell’ eludes us and we have only *h₂wes- ‘dwell, stay, pass the night’. The more limited connotations of ‘passing the night’ are included in Celtic (OIr foaid), Grk (núkta) á(w)esa, Arm goy, and Skt vásati but some of these languages (Old Irish, Sanskrit) as well as others, e.g. Goth wisan, Hit hues-, Av vaphaiti, and Toch B wās-, indicate a meaning ‘live’ or ‘dwell’. The word probably meant originally ‘to spend time’ (a Hittite derivative huski- means ‘wait for, linger’) and subsequently developed into meaning ‘dwell’. To this we may add *men- ‘stay, remain’ although it is a bit diffuse semantically in its various cognates that can be found in Celtic (e.g. OIr aímmne ‘duty’), Lat maneō ‘remain’, Grk ménō ‘stand fast, remain’, Arm mnam ‘remain, expect’, possibly Hit mimma- ‘refuse’, Skt man- ‘delay’, Toch AB māsk- ‘become’.

There are two word for ‘build’, i.e. *dem(h₂)- and *kʷei-. The first yields the meaning ‘build’ in Grk démō and HierLuv tama- but more general meanings in
Germanic (e.g. OHG zeman ‘be fitting’ but derived forms in Germanic include NE timber), Khot pa-dım- ‘make’, and Toch AB tsäm- ‘increase, grow’. The second root, found in Slavic (OCS činı˘ ’order’), Grk poie´o¯ ’pile up, make’, and Indo-Iranian (Skt cinóti ‘pile up’), suggests an underlying meaning of ‘pile up, build’. Along with these construction words we might add *tekˆs- ‘hew, fabricate’ with its extensive representation, e.g. Lat texo¯ ’weave, intertwine, put together, construct’, Lith tasˇy´ti ’hew, trim’, OCS tesati ’hew’, Skt taksatı ‘fashions, creates; carpenters, cuts’, with a significant set of nominal derivatives: Grk tɛktɔ̅n ‘architect’, tɛkhmɛ ‘art, technique’, Skt taksan- ‘carpenter’, Hit taksan- ‘joint’, OHG dehsa ‘axe’.

Table 13.1. Terms for dwelling

| *h₂wes-*   | ‘dwell, pass the night, stay’ | NE was/were, Skt vásati |
| *men-*     | ‘remain, stay’                | Lat maneō, Grk ménō, Skt man- |
| *dem(hₐ)* | ‘build (up)’                   | NE timber, Grk démō |
| *kʷei-     | ‘pile up, build’               | Grk poięò, Skt cinóti |
| *téks-     | ‘hew, fabricate’               | Lat texó, Grk tɛktɔ̅n, Skt taksatı |
| *ghordhos* | ‘fence, hedge; enclosure, pen, fold’ | |
| *worPo-*   | ‘enclosure’                    | NE -worth, Skt vṛti- |
| *wrto/ehₐ* | ‘enclosure’                    | |
| *pelhₐ*    | ‘fort, fortified place’        | Grk pòlis, Skt pûr |
| *wriyo/ehₐ* | ‘fort’                        | Grk hriōn |
| *kéiwaos*  | ‘belonging to the household’   | Lat cívís, Skt śéva- |
| *wiks*     | ‘(social unit of) settlement, extended family group’ | Skt viš- |
| *dóm*      | ‘house’                        | Grk dó, Skt dām |
| *dóm(hₐ)os* | ‘house’                        | Lat domus, Grk dōmos, Skt dāma- |
| *h₂wóstu*  | ‘dwelling’                     | Grk ástu, Skt vástu |
| *kus-*     | ‘dwelling’                     | NE house |
| *kēls*     | ‘(store)room’                  | Lat cella, NE hall, Grk katiā, Skt šála- |
| *ket-*     | ‘room’                         | |
| *gubho/ehₐ* | ‘(store)room, alcove’          | NE cove |
| ?*pēr*     | ‘house’                        | |
| *h₂elwos*  | ‘elongated cavity, hollow’     | Lat alvus, Grk aulós |
| *格尔wos*  | ‘gaping hole’                  | Grk khâos |
| *h₂eryos*  | ‘cavity’                       | |
| *kṓuhₜ*    | ‘hole, opening’                | Lat caverna, Grk kúar, Skt śāna- |
| *koiv-is*  | ‘tube’                         | |

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In terms of construction, there are several words for some form of 'enclosure'. The word *ghórdhos or *ghórtos is widely attested with meanings that vary from NWels garth ‘pen, fold’ to Rus górod ‘town’ or Hit gurtas ‘citadel’. It originally derives from a verbal root *gherdh- ‘gird’ (and from which we have NE gird) and seems to have indicated some form of hedge or fence that surrounded an area such as a yard or an entire settlement. A Hittite (i.e. Hit warpa ‘enclosures’) - Tocharian (Toch A warp ‘enclosure’) isogloss gives us *worPo- (where the -P- indicates any bilabial, i.e. *b, *bh, or *p) which could probably be extended by Lat urbs ‘city’ (< *ritual enclosure’). A possible PIE *wr̥to/eh₂- or *worto/eh₂-, attested in Germanic (e.g. OE worþ ‘court, courtyard, farm’ which remains in many English place names ending in -worth), Baltic (e.g. Lith var̥taï ‘gate, gateway’), Slavic (OCS rata ‘gate’), Indo-Iranian (e.g. Skt vr̥tyi- ‘enclosure’), and Tocharian (e.g. Toch B warte ‘forest’ if from *‘sacred grove’ < *‘sacred enclosure’), may reflect independent creations in these various groups, all derived from the root *wer- ‘cover, enclose, protect’.

The existence of a fortified site is indicated by two PIE words. Baltic (Lith pilis ‘fort, castle’), Grk pólis ‘city citadel’, and Indic (Skt pār ‘wall, rampart, palisade’ and the second member of many place names, e.g. Nagpur, Singapore) (possibly also Arm k’alak’) indicate the existence of *pelh₂- ‘fort’. The second word is *wriyo/eh₂-, attested in Thrac bría ‘city, town built on a hill’, Messapic (the city name Urià), various Celtic place names such as the British names lying behind English Wrekin and Wroxeter, and Tocharian (e.g. Toch B rīye ‘city’); both the specific Thracian meaning and the fact that the Greek cognate hrion means ‘promontory’ suggests an original meaning of ‘acropolis’ in those IE traditions where the word came to mean ‘city’ and a derivative from *wer- ‘high’.

Words for a ‘settlement’ tend to be based on social organization rather than architecture. The root *këiivos indicates the concept of ‘citizen’ in Italic (Lat cīvis), ‘member of the household’ in Germanic (e.g. OE hīwan) and even more abstract concepts such as ‘friendly’ or ‘dear’ in Indic (Skt śivá-). The *wīks is similarly seen as a social term although it tends to have a more specific ‘architectural’ meaning, e.g. ‘village’ in Slavic (OCS vǐsi) and Av vīs-, but ‘tribe’ or ‘clan’ in Doric Grk -(w)ikes ‘tribes’. It also yields derived forms, e.g. *weiks- which gives us Lat villa (< *weiks-leh₂-) ‘country-house, country estate’ and *woikos which underlies Lat vīcus ‘village, hamlet; quarter of a city’ and Grk (w)oikos ‘household’ (the source of NE economy).

There are a number of words pertaining to the house and rooms of the Proto-Indo-Europeans. Although the distribution of *dôm ‘house’ is limited to Grk ðò, Arm tun, and Indo-Iranian (e.g. Skt dām), it retains an archaic formation (the genitive is *dēms) that suggests PIE status. It may also provide the basis of *döm(h₂)os ‘house’, if this latter word is not derived directly from the verbal
root *dem(h₂)- ‘build’. The verbal root *h₂wes- ‘dwell, spend the night’ might underlie *h₂wóstu ‘dwelling’ (reflected in, e.g., Grk ástu ‘city’ and Skt vástu ‘place, seat’ and with slightly different underlying forms in NWels gwas ‘abode’, and Toch B ost ‘house’). Something smaller than a house may be indicated by *kêls where it indicates a ‘storeroom’ in Lat cella, a ‘hut’ in Grk kaltá; a derivative gives us NE hall and it would appear to derive from *kêl- ‘protect, conceal’. The root *ket- (e.g. OE heador ‘enclosure, prison’, OCS kotici ‘chamber’, Av kата- ‘chamber’) similarly refers to a single chamber and was borrowed into the Uralic languages, e.g. Finnish kota ‘dwelling, tent, hut’. Since *ket-shows up elsewhere in Indo-European languages with a meaning ‘hole’ (e.g. Av cātti ‘in a hole’, Skt cātvāla- ‘hole for the sacrificial fire’, Toch B kota- ‘hole’), it may be that the ‘chamber’ was originally something like a ‘storage pit’. Another term with ‘subterranean’ connections is *k(o)us- which appears in the Germanic words for ‘house’, e.g. NE house, the Tocharian words for ‘village’ (i.e. a collection of houses), e.g. Toch B kwaśai- ‘room’ and xuc ‘hut’. These would all appear to be derivatives of *keus- ‘hollow out’, and the use of this root for ‘dwelling’ words presumably reflects structures that were at least once semi-subterranean. Another word for ‘chamber’ is *gubho/ehₙₐ- where OE cova ‘bedchamber’ gives us NE cove; the only non-Germanic cognate is from Bajui, an Iranian language of the Pamirs, where we have bidjə ‘lower part of a storeroom’. More controversial is a root *pēr which is only certainly attested in Anatolian (e.g. Hit nominative pēr, genitive parnas), and its ascription to Proto-Indo-European is largely dependent on seeing it as the underlying concept behind PIE *prihₙōs ‘dear, beloved’, i.e. ‘of the same household’ and its archaic morphology reflecting a PIE *pēr (< *përₕ), genitive *pynōs; against such an ascription is the fact that there are similar words for ‘house’ in non-IE languages of the Near East, e.g. Egyptian pr ‘house’, and thus some would see the Anatolian words as a borrowing from another language.

Before reviewing the evidence for the concrete elements of construction, there are a number of more abstract terms that suggest the concept of a ‘cavity’ of some sort. *h₂elwos indicates a ‘cavity’ or ‘tube’ and carries meanings (some derived) that range from the ‘leg of a boot’ (Lith aūlas) to a ‘street’ (Rus úlica) and a ‘beehive’ (Lat alve(iae)rium). The verbal root *ghehₙₔ- ‘gape, yawn’ gives us *gheeₙₐwos which yields, among other words, Grk kháos ‘chaos’ and Toch A ko ‘mouth’. *h₂érwo- is limited to Hit hariya- ‘valley, dale’ and Arm ayr ‘cave’ but there is a related form in Lith armuó ‘abyss’. PIE *kṓuhₙₐ, a heteroclitic (with an original genitive *kuhₙōs), indicates a ‘cave’ in Lat caverna, ‘eye of the needle, opening of the ear’ in Grk kúar, ‘lack’ in Skt sána-, ‘throat’ in Toch B kor, and occurs in derived forms in Celtic although its underlying meaning may have been more abstract. Finally, *kōiw- is gives us a word for a ‘tube-shaped object’ such as a ‘spool’ (e.g. Lith šeivä).
There is a fairly extensive regional vocabulary associated with dwellings. We begin with the North-West set. Celtic, Italic (if Lat caul(l)ae ‘hole, opening’ belongs here), and Germanic (NE haw and hedge) all derive ultimately from *kagh- ‘hedge, enclosure’ from a verbal root *kagh- ‘catch, seize’. There is a regional term for ‘fort’ *dhūnos (or *dhuḥnos?) based on cognates in Celtic (dun is a familiar place name element in Ireland and Scotland) and Germanic (NE down(s)); the word was also borrowed into Germanic from Celtic (where its Proto-Germanic form was *tūna-) and it yielded among other things NE town. There is a general term *solo/eh₁-o r* sel-o ‘dwelling, settlement’ (Germanic, e.g. OE sæl ‘room, hall, castle’, Baltic, e.g. Lith salà ‘village’, Slavic, e.g. Rus selò ‘village’).

The West Central area also has a good number of cognate sets. These include *bhergh- ‘height = fort’, a problematic set with good Germanic cognates, e.g. OHG burg ‘fortress’ but Greek and Armenian cognates with unexpected forms, e.g. Grk pūrgos (and not the expected **párkhos) which some suggest may derive from a Near Eastern word, e.g. Urartian burgana- ‘fortress’, or others suggest may come from some other Indo-European language that may have preceded Greek into the Aegean area but whose population was subsequently assimilated to Greek. The word *kˆo´imos ‘household, village’ (NE home) is related to Lat civis ‘citizen’ and words that mean ‘dear’ in Sanskrit. Well attested in Celtic, Italic, Germanic, Baltic, and Greek is *tre¯bs ‘dwelling’ (e.g. OIr treb ‘habitation’, Lat trabs ‘wooden beam’, ON þorp ‘farm, estate’ [whence NE place names in -thorp], Lith tròbà ‘house, building’, Grk téramna ~ tēremna ‘house, dwelling’).

Finally, from the Greek and Indo-Iranian region we have *mand- ‘enclosure, stall’ (also found in Thracian); *tkˆei- ‘settle, dwell’ and its derivative *tkittis ‘settlement’ (Grk ktisis ‘settlement’, Av šiti- ‘settlement’, Skt ksiti- ‘settlement’). A natural physical feature is seen in *káiw(t) ‘cave, fissure (in the earth)’ possible seen in (dialectal) Grk kaiatas ‘ditches, fissures in the ground opened by earthquakes’ and Skt kéraṭa- ‘cave, hollow’. Limited and questionable is *kamarah₂u ‘vault’ which means ‘belt’ in Avestan; this word was loaned from Grk kamará into Lat camera and then into French chambre and on into English (chamber).

13.2 Construction

There is no clear word for the ‘wall’ of a house in Proto-Indo-European; rather, we have a word that indicates an ‘enclosing wall’ of a fortification, i.e. *dhįghs, seen most directly in OPers didā ‘(town) wall, fortification’ and Skt
sa-dih- ‘mound, heap, wall’, which has a number of derived forms, e.g. the Av pairi-daêza- ‘enclosure’ which was borrowed into Greek as para´deisos ‘garden’ and then borrowed into English as paradise, or Grk teıˆkhos ‘wall’, Skt dvârau. In the North-West languages it refers to claylike substances, e.g. NE dough, and suggests that the original concept relates to an ‘earthen bank’. It is possible that *serk- supplies the root for repairing an enclosure or, perhaps better, completing a circle, e.g. Lat sarcio¯ ‘mend, repair’, Grk he´rkos ‘fence, enclosure’, Hit sark- ‘make restitution’ (with a meaning adapted to the legal system).

We fare much better with the concept of ‘door’ as we can reconstruct both *dhg(h)me-en ‘on(to) the ground’ Lat humı¯, Grk khamai, Skt jmän ~ kšamā

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<td>*lēghes-</td>
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<td>*ster(h)mg</td>
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sa-dih- ‘mound, heap, wall’, which has a number of derived forms, e.g. the Av pairi-daêza- ‘enclosure’ which was borrowed into Greek as para´deisos ‘garden’ and then borrowed into English as paradise, or Grk teıkhos ~ toîkhos ‘wall’, Skt dehī- ‘wall, bank’. In the North-West languages it refers to claylike substances, e.g. NE dough, and suggests that the original concept relates to an ‘earthen bank’. It is possible that *serk- supplies the root for repairing an enclosure or, perhaps better, completing a circle, e.g. Lat sarciô ‘mend, repair’, Grk hérkos ‘fence, enclosure’, Hit sark- ‘make restitution’ (with a meaning adapted to the legal system).

We fare much better with the concept of ‘door’ as we can reconstruct both *h,ėnh,t(e)h,a ‘doorjamb’ (e.g. Lat antae ‘pillars framing a door’, ON ǫnd ‘foreroom’, Arm dr-and ‘door-posts’, Skt ātā ‘door-posts’, and *dhwōr ‘door’, the latter with cognates in all major groups (OIr dorus, Lat foris, NE door, Lith dūrys, OCS dvīrī, Alb derē, Grk thûrā, Arm dur-k’, Skt dvāras, Toch B twere, all
'door(s)' and Hit *andurza *within’ (literally ‘in-doors’). Often the word for ‘door’ occurs in the dual and indicates two leaves of a door.

The lower and upper extremities of the house are less well established. There is no certain word for the ‘floor’ of the house. The closest word to ‘floor’ occurs in the dual and indicates two leaves of a door. OE *pel ‘floor’, *pille ‘plank of floor’, and Baltic (e.g. Lith *tiles ‘planks at the bottom of a ship’), but in Celtic, Italic, and Slavic it means ‘earth’ or ‘ground’ (e.g. Olr *talam ‘earth, ground’, Lat *tellās ‘earth’, Rus *tlo ‘bottom’); its status as Proto-Indo-European rests on whether one accepts as cognate Skt *tala- ‘surface, bottom’. We also have a generic word for ‘bottom’, i.e. *bhudhnō- (e.g. MiR *bom ‘sole of foot’, Lat *fundus ‘bottom’, OE *botm [> NE bottom], Grk *puthmēn, Skt *budhnā ‘bottom, foot’) which is extended to mean ‘ground’ (e.g. Av *būna-) but not in the sense of the floor of a house. (In the south-east of the Indo-European world derivatives of this word are used to name the archetypical monster, i.e. the Greek *Pūthō and Sanskrit *āhir bhudhnāś ‘snake of the deep’.) There is also an adverb, *dhgh(e)m-en ‘on the ground’, which has been formed from the noun *dhghem- ‘earth’ (see Section 8.1). There is only one word associated with ‘roof’ which is widely enough attested to (perhaps) claim PIE status. The verb *h₁rebh- ‘cover with a roof’ is found in Grk *erēphō ‘cover with a roof’ and *orōphē ‘roof’ and possibly in Khufi (an Iranian language of the Pamirs) *rawūj ‘plank’; an *o-grade derivative in Germanic *h₁rohb-tro- gives us NE rafter (and by way of borrowing from ON we have NE reef).

There are a number of words associated with timber construction. A root *kred- ‘framework, beams’ is attested in Germanic (e.g. NE *roost), possibly Slavic (e.g. OCS *krada ‘funeral pile’, though the initial consonant is phonologically irregular), and Shughni (another Iranian language of the Pamirs) where it means a ‘summer pen for cattle’ (*kʰdō). The underlying meaning of *klīts ‘post, trimmed log’ depends on its meanings in Celtic (e.g. OIr *clīt ‘housepost’), Germanic (e.g. OE gehlīd ‘fence’ [< *string of posts’]), and Greek (e.g. *klīta ‘cloister’ [< *arcade’ < *series of posts’]) while it tends to indicate a ‘ladder’ in Indo-Iranian (e.g. Skt *śrīt-). The word *mīts ‘stake, post’ (e.g. Skt *mit- ‘piller, post’) does indicate an upright post or pillar and there is an underlying verb *mei- ‘fix a post in the ground’. The verb *stēh₂- ‘stand’ is the basis for *stēh₂ur ‘post’ (e.g. Grk *staurōs ‘cross’, Skt *stūnā- ‘post’; a derivative gives NE *steer) while some form of ‘post’ or ‘rod’ is indicated by *sver- (e.g. Lat surus ‘twig, short stalk’, Grk *hērma ‘support’, Skt *svāru- ‘sacrificial post, stake’). Far more ambiguous is *pin- ‘+ shaped wood’, a proto-sememe of desperation generated by such meanings as ‘heap of wood’ (Germanic, i.e. OHG *witu-fīna), ‘tree trunk’ (Slavic, i.e. OCS *pinī), ‘plank’ (Grk, i.e. *pīnaks), and ‘staff, bow’ (Indic, i.e. Skt *pīnäka-). A root *stup- also
has a wide set of meanings, e.g. ‘stump’, ‘broom’, ‘club’, and appears to derive from the verbal root *steup- ‘strike’ (e.g. Grk stúpos ‘stick, post, pole’, NE stump, Toch A stop ‘club’). Some form of ‘splinter’ or ‘wood-chip’ is indicated by the Baltic-Indic isogloss that derives from *kókolos (i.e. Lith šakalys ‘splinter’, Skt sákala- ‘splinter’).

There are few reliably attested words for internal arrangements or furniture. Within the house we are certain that we would find a *h2ehseh- ‘hearth’ as in Lat āra and Hit hāssa-, a derivative of the verbal root *h2eh- ‘burn’ (it also provides the base for NE ash). Although we can reconstruct a word *sedes- ‘seat’, this is a fairly transparent nominalization of *sed- ‘sit’, and may have been independently created in Celtic (NWels sedd ‘seat’), Grk hédos ‘seat’, and Indo-Iranian (Av hādiš ‘home’, Skt sádas- ‘place’). The same verbal root also gives us *nisdos ‘nest’ (e.g. NE nest, Lat ní dus ‘nest’, and Skt nidadá- ‘nest’), which is literally a ‘sit-down place, i.e. *ni- ‘down’ + sed- ‘sit’. Both words pertaining to the concept of ‘bed’ are obviously derived from verbal roots and may be independent formations in various groups. These comprise *léghes- (e.g. Grk lékhos ‘bed, bier’) and also *lóghos (e.g. Grk lókhos ‘place for lying, ambush’, Toch B leke ‘bed, resting place’) from *legh- ‘lie down’ and *ster(h3)mŷ ‘strewing, something strewn, strewn place’ (in Greek and Sanskrit it does mean ‘bed’) which derives from *ster(h3)- ‘strew’ (Lat strāmen ‘straw’, Grk strôma ‘straw, bed’, Skt sárman- ‘act of spreading out; bed, couch’).

North-Western terms associated with carpentry include *plut- ‘plank’ (e.g. Lat pluteus ‘movable penthouse, shed’, Lith plaûtas ‘plank’); *masdos ‘post’ (e.g. Lat málus ‘mast; upright in building a tower’, NE mast); *perg- ‘pole, post’ (e.g. Lat pergula ‘balcony; outhouse used for various purposes’, ON forkr ‘pole’, Rus poróg ‘threshold’); *reh1- ‘post, pole’ (e.g. Lat rētae ‘trees growing along the bank or in the bed of a stream’, NE rood); *sthbhoehd ‘post, pillar’ (e.g. NE staff, Lith stābas ‘post’) from the root *steh2- ‘stand’; and *ghashdhos ‘rod, staff’ (Lat hasta ‘spear’), which yields OE gierd ‘staff, measuring pole’ which explains the basis of NE yard. Germanic and Slavic attest a meaning ‘roof’ for *krópos ‘roof’ (NE roof, OCS stropu ‘roof’) while its only Celtic cognate attests a meaning ‘hovel, stall’ (MIr crō).

From the West Central region we have a Germanic-Greek isogloss from *dmypedom ‘floor’ (ON topt ‘place for building’, Grk diápedon ‘floor’), a compound derived from *dem- ‘build’ and *ped- ‘foot’. The root *(s)teg- ‘cover’ underlies the Celtic-Greek isogloss of *(s)téges- ‘roof’ (with derivatives such as OIr tech ‘house’, Lat tectum ‘roof, ceiling’, tégula ‘roof-tile’, NE thatch, Grk (s)tégos ‘roof, house’). The array of construction terms comprises *bhēlíhgs ‘plank, beam’ (e.g. NE balk; cf. also Lat fulcī ‘prop up, support’); *k dłhRo-s ‘plank’ from *(s)kel- ‘strike, hew’ (e.g. OIr clár ‘plank’, Grk klēros ‘piece of wood used for casting lots’) and from the same root we also have *(s)kōlos
‘stake’ (e.g. Grk skōlos ‘pointed stake’); *sph,en- ‘flat-shaped piece of wood’ (e.g. Lat sponda ‘frame of a bed, bedstead’, NE spoon, and in derived form NE spade); *swel- ~ *sel- ‘plank, board’ (e.g. NE sill, Grk hélmatan ‘planing, decking’); *ksülom ‘worked, shaped wood; post, stake’ (e.g. Grk ksülom ‘wood’, OHG sül ‘pillar’, Lith šúlas ‘wooden post, stake’); *kroku- ~ *kró-kyeh,ar- ‘post’ (Rus krókva ‘stake’, Grk króssai ‘crenellation’); *(s)teg- ‘pole, post’ (e.g. Lat tignum ‘wooden beam’, NE stake) where we may expect a shift from ‘cover’, the meaning of the verbal root, to ‘cover with poles’ > ‘poles’, *stle,neh,ar- ‘post, support’ from *stel- ‘stand’ (e.g. OHG stillo ‘support’, Grk stélē ‘pillar’); *wálsos ‘stake’ (e.g. Lat vallus ‘post, stake’, NE wale ‘stripe left on the skin by a blow’) may be older if one accepts a potential Indic cognate (Skt vala- ‘pole, beam’); *galghneh,ar- ‘pole, stake’ (e.g. NE gallows, Lith žalga ‘long thin pole’). The root ‘to burn’ also underlies a West Central isogloss for ‘hearth’, *h2eh,ar-tr-eh,ar- (e.g. Lat atriun ‘hall or entrance way’ [< ‘large open space above the central fire for the escape of smoke’], Rus vatra ‘hearth’) while the verb ‘sit’ yields both *sedlom and *sedros ‘seat, chairlike object’ (Lat sella ‘seat, chair’, sedile ‘seat’, NE settle). A Greek-Armenian isogloss gives us *kīh,ar-won- ‘pillar, post’ (Grk kión, Arm siwn).

13.3 Proto-Indo-European Settlement

The reconstructed lexicon provides a very general picture of the residences and architecture of the Proto-Indo-Europeans. Nevertheless, we can at least make an attempt at translating some of the vocabulary into features that might be recoverable from the archaeological record. To begin with, it seems fairly clear that the Proto-Indo-Europeans occupied substantial houses rather than flimsier shelters. For example, among the fourteen terms for dwelling or settlement reconstructed to the largely mobile hunter-fishers of the Uralic language family, we find terms such as the *šarma ‘smokehole of a tent’, *ude-me ‘sleeping tent’, and even the IE loanword *ket- ‘room’ yields the Uralic *kota ‘tent, hut, house’. In contrast, Proto-Indo-European possesses sufficient terms for house, room, and upright timber constructions to suggest a more solid dwelling structure.

The reconstructed lexicon also indicates some form of nucleated settlement, i.e. a group of houses, rather than the type of dispersed settlement that one often encounters on the western periphery of Europe during the Neolithic. We have a series of words for some form of enclosure (*ghōrdhos, *worPo-, *wṛto/eh,ar-, *pelh,ar-, *wriyo/eh,ar-) and the extensions of a term for a
social unit (*wiks) to indicate a village. Without a precise date and location for the Proto-Indo-Europeans it is difficult to make much archaeologically out of such terms, as broad areas of Europe saw evidence for some form of enclosure from the Early Neolithic onwards, e.g. ditched enclosures around southern Italian Neolithic sites, ditched enclosures around central and west European (Danubian) Neolithic sites, causewayed enclosures in Britain, timber palisade around Balkan tell sites. Moreover, evidence for truly defensive enclosures increases as one enters the Eneolithic and Early Bronze Age, especially in eastern Europe (the steppelands, the Balkans) and Anatolia (e.g. Troy). Regarding the *wiks, we do not appear to have an obvious designation for a settlement unit much larger than a clan, i.e. there is no suggestion in the reconstructed vocabulary for the type of proto-urbanism that one encounters in South-West Asia, Central Asia, India, or Anatolia during the Neolithic.

As to actual house structure, it is certainly easiest to imagine some form of timber-built structure given the abundance of words for post (*kred-, *klits, *mits, *steh2ur, *swer-) and perhaps the word for floor (*tely, om) if timber planks are really implicit in our reconstruction. The word *dhi̇ghs is critical if one wishes to imagine some form of clay daub being employed in wall construction. In this case, we might well imagine that the walls involved wattle and daub, especially as there is very good evidence (see Chapter 14) for words for interweaving or wattling, including that concerned with house construction, e.g. *wei(h)- ‘plait, wattle’ which gives ON veggr ‘wall’. The existence of several rooms for ‘chambers’ (*kels, *ket-, *gubho/eh-) suggests the presence of either multi-room constructions or specialized outbuildings for storage and other purposes.

Negative evidence is seldom particularly compelling but the reconstructed lexicon not only does not indicate a word for ‘brick’ but where it does occur among Indo-Europeans who employed bricks in construction, as in Proto-Indo-Iranian *ist(y)a- ‘brick’ (>Av istiia-, Skt istakā-), it is commonly explained as a loanword from a non-Indo-European language, but may be an internal Indo-Iranian derivative of *h_eis- ‘burn’ (Toch B shows a different derivative, aise <*h_oiso- in the meaning ‘pot’). Bricks were made of sun-dried (and later fired) mud/clay and are the diagnostic building technique of the Neolithic (and later periods) in Anatolia, South-West Asia, and central Asia with some evidence from Neolithic Greece, but beyond Macedonia they are essentially unknown during the Neolithic. In short, the evidence for architectural terms in Proto-Indo-European is most consistent with an architectural tradition somewhere in temperate Eurasia where houses were exclusively built of timber rather than brick.
Further Reading

For general discussion see Knobloch (1980), Lejeune (1977); for enclosures see Della Volpe (1986), Driessen (2001), Makkay (1986), and Rau (1973); the hearth is treated in Della Volpe (1990) and Nagy (1974b); the bed in Hamp (1987c) and Maher (1981).
14

Clothing and Textiles

14.1 Textiles

Among the obvious domestic pursuits in any society, at least one inhabiting the temperate regions of Eurasia, is the production of textiles and clothing. The reconstructed lexicon has a considerable number of items pertaining to these activities although they fall far short of providing us with an image of Indo-European fashion. We have already seen that the Indo-European vocabulary includes a very well attested word for ‘wool’ (Section 11.2), a word for ‘linen’ (Section 10.3) is found in the West Central region (as far east as Greece but no further), and there are several words for animal skins, all of which were potentially manufactured into clothes and containers. Table 14.1 presents a list of the basic terms pertaining to textiles.

The word for a skin container, *bhölghis, is well attested and the element ‘skin’ or ‘belly’ is widely found in Celtic (e.g. OIr bolgr ‘sack’, Gaul bulga ‘leather sack’) and Germanic (OE bel(i)g ‘bag’ [> NE belly], OHG balg ‘skin’) while other groups indicate simply ‘pillow’ (Slovenian uses the word blazina for a ‘feather bed’) or ‘bolster’ (Indo-Iranian, e.g. Av bərəziš ‘bolster, cushion’, Skt upa-bárhan- ‘cover, bolster’). It derives from the verbal root *bhelgh- ‘swell’. The word for ‘net’, *h₁ekt-, is found in Greek, Anatolian (e.g. Hit ēkt-), and Indic (e.g. Skt ākṣu-); the Greek forms (Myc dektu-, Grk diktuon) show a prefix (*d-) of uncertain origin which also occurs in some other words, e.g. Grk dákru ‘tear’ from *h₂ékru.
There are two words associated with getting dressed (with some wide semantic variation). Although \*h₁eu- ‘put on clothes, cover’ is limited to Italic (Lat induō ‘put on [clothes]’, exuō ‘take off [clothes]’), Baltic (e.g. Lith aūti ‘put on shoes’), Slavic (OCS obujo ‘put on shoes’, izujo ‘take off shoes’), and Arm aganim ‘dress’, there are also nominal derivatives from this verb in Celtic

| *bhōlghis | ‘(skin) bag; bolster’ | NE belly, Skt upa-bārhanī- |
| *h₁ekt- | ‘net’ | Grk diktuon, Skt âkṣu- |
| *h₁eu- | ‘put on clothes, cover’ | Lat induō, exuō |
| *wes- | ‘be dressed’ | Grk ēnnâmi, Skt váste |
| *wospo/eh₂ | ‘garment’ | Lat vespa |
| *drap- | ‘clothes, cloak’ | Skt drāpi- |
| *véhs₃s- | ‘gird’ | Grk zōnnâmi |
| *gherdh- | ‘gird, surround’ | NE gird, girdle |
| *kenk- | ‘gird, wrap around’ | Lat cingō, Skt kāncate |
| *dek- | ‘thread, hair’ | Skt daśā- |
| *los- | ‘cloth’ | Skt las-pūjanī- |
| *p(e)h₂ño/eh₃ | ‘cloth’ | Lat pammus, NE fane, Grk pēnē |
| *pek- | ‘pull out [wool]’ | Lat pectō, Grk pēkō |
| *reu(h₁) | ‘pull out [wool]’ | Skt röm-an- |
| *kars- | ‘scratch; comb (wool)’ | Lat carrō, carmen |
| *kes- | ‘comb’ | |
| *nak- | ‘press, squeeze’ | Lat naccae |
| *plek- | ‘braid, plait’ | Lat plecō, Grk plēkō, Skt praîna- |
| *resg- | ‘plait, wattle’ | Lat restis, NE rush, Skt rájju- |
| *weih(h₁) | ‘plait, wattle’ | Lat vieō, Skt váyati |
| *kert- | ‘plait, twine’ | Lat crātis, NE hurdle, Grk kurtiā |
| *mesg- | ‘intertwine’ | NE mesh |
| *(s)neh₁(i)- | ‘twist fibres into thread’ | Lat neō, Grk néō, Skt snâyu- |
| *(s)neh₂u- | ‘twist fibres into thread’ | Lat nervus, Grk nēron |
| *(s)pen- | ‘draw, spin’ | NE spin, Grk pēnōmai |
| *(s)terk(w)- | ‘twist’ (< ‘spin’) | Lat torqueō, Grk ātraktos, Skt tarkū- |
| *h₂/seu- | ‘weave’ | NE weeds, Skt u- |
| *h₂/swebh- | ‘weave’ | NE weave, Grk huphainō, Skt ubhnaîti |
| *weg- | ‘plait, weave’ | Lat vēhum, NE wick |
| *melk- | ‘plait, spin’ | |
| *(s)yu₃h₁- | ‘sew’ | Lat suō, NE sew, Grk kassâō, Skt sîvyati |
| *(s)ner- | ‘fasten with thread or cord’ | |
| *ned- | ‘knot’ | Lat nectō, NE net |

| Table 14.1. Textile terms | |

There are two words associated with getting dressed (with some wide semantic variation). Although *h₁eu- ‘put on clothes, cover’ is limited to Italic (Lat induō ‘put on [clothes]’, exuō ‘take off [clothes]’), Baltic (e.g. Lith aūti ‘put on shoes’), Slavic (OCS obujo ‘put on shoes’, izujo ‘take off shoes’), and Arm aganim ‘dress’, there are also nominal derivatives from this verb in Celtic
(e.g. OIr *fían ‘tunic’) and Tocharian (Toch B *ewe ‘inner skin’). As we can see, in
Baltic and Slavic it specifically pertains to the wearing or putting on of shoes.
More widespread is *wes- ‘be dressed’ (e.g. Grk *émunî ‘get dressed’, Arm
*z-genum ‘get dressed’, Hit wess- ‘be dressed’, Skt vâste ‘wear’, Toch B wâs- ‘be
dressed’) with abundant nominal derivations, e.g. Lat *vestis ‘clothes’. Among
the nouns formed from this verb are *wospo/eh₂₇ which is found both in Italic
and Anatolian where it refers to a specific garment; in Anatolian it means a
‘shroud’ (Hit was(sa)pa- ‘garment, shroud’, Luv waspant ‘wearing funeral
shrouds’) and in Latin the derived vespa indicates ‘one who steals clothes
from the dead’. The second term *drap- or *drop- (e.g. Gallo-Roman drappus
‘clothes’, Lith drâpanos [pl.] ‘clothes’, Skt drâpi- ‘cloak’) and may come from
*drep- ‘split off’, i.e. it originally indicated a skin garment.

Some form of belt is indicated by several terms. The verb *yêh₃s- ‘gird’ (e.g.
Lith jiusiu ‘gird, girdle, buckle on [a sword]’, OCS po-jaśq ‘gird’, Alb n-gjesh
‘gird, buckle on’, Grk zômûmi ‘gird’, Av yâh- ‘gird’) not only supplies a word
for girding on a belt but also a number of nominal formations indicating the
‘belt’ itself, e.g. Grk zônē ‘belt’, whence via Latin we get NE zone. Only
Germanic retains the verbal root *gherdh- ‘gird’ (e.g. NE gird) but this verb
appears to underlie all those words associated with a ‘fence, enclosure’,
i.e. *ghórdhs, which is of Proto-Indo-European date (see Section 13.1).
A general verb to ‘gird’ or ‘wrap around’ is found in *kenk- (e.g. Lat cingô
‘gird, surround’, Lith kinkaũ ‘bridle, harness [a horse]’, Skt kâńcâte ‘bind’
kânci- ‘girdle’).

The basic unit of textile manufacture, the ‘thread’, is attested as *dek- in
Germanic (e.g. ON *tág ‘fibre’) and Indo-Iranian (e.g. Khot dasa- ‘thread’, Skt
dasâ- ‘fringe’); extended forms tend to mean ‘hair’, e.g. *dok-ło- give NE tail
(also OIr dúal ‘lock of hair’). Other words for ‘thread’ are regional isoglosses.
There are two general words for ‘cloth’: *los- carries meanings such as ‘rags’ in
Germanic (e.g. MHG lasche), Baltic (e.g. Lith lâskana), and Slavic (e.g. Rus
lûskut) and ‘cloth’ in Indo-Iranian (e.g. Khot r(r)aha- ‘cloth’, Skt las-pûjanî-
‘large needle’ [< *cloth piercer?]—presuming that all these words go together)
while *p(e)h₂₇no/eh₂₇ exhibits wide semantic variance from ‘linen cloth’ (MIr
aran), ‘piece of cloth, garment’ (Lat pannus), ‘thread on the shuttle’ (Grk pêne)
to ‘sheepskin coat’ (Roshani warbûn [< *vara(h)-pûna- ‘sheep(skin)-coat’]; also
belonging here is NE *fane from OE fana ‘banner, standard’, an archaic term for
‘flag’ in NE where a dialectal term survives better in NE vane.

In the preparation of textiles we can begin with the concept of ‘pulling out’
the wool or fibres which is indicated in Proto-Indo-European by *pek- ‘pull out
(e.g. wool), comb out (e.g. wool)’, e.g. Lat pectô ‘comb’ [verb], pecten ‘comb’
[noun], Lith pešû ‘pull, tear out, pluck [fowl]’, Grk pêkô ‘comb, shear’, pêkos
‘(raw) wool, fleece’, OE feax ‘(head) hair’, Toch B pâk- ‘+ comb out [wool],
shear'. The original meaning must have been something like ‘harvest wool [by plucking]’ and came to mean successively ‘harvest wool [by combing]’ and ‘harvest wool [by shearing]’ as the technology of wool-gathering evolved. The meaning became ‘fossilized’ at one semantic stage or another in the various Indo-European groups. Another verb with much the same meaning is *reu(h,)-. The sense of ‘pluck wool’ exists only in ON rýja (also Norw ru ‘winter wool’) but there are numerous nominal forms such as ‘horse’s mane’ (OIr rón), ‘fleece’ (Slavic, e.g. Rus runó), ‘hair’ (Indo-Iranian, e.g. NPers róm ‘pubic hair’, Skt lóman- ~ róman- ‘body hair of men and animals’) so that it suggests that the original meaning did involve plucking hairs or wool. There are two words associated with ‘combing’: *kars- carries the specific meaning ‘comb wool’ in Italic (Lat car(r)ó ‘comb wool’, carmen ‘comb for wool’) and Baltic (e.g. Lith karšiu ‘comb/card wool’); elsewhere it means ‘scratch’. The verb *kes- ‘comb’ is generally but not exclusively applied to combing human hair (e.g. MIr cír ‘comb’, Lith kasa ‘braid’, OCS kosa ‘hair’, Hit kis- ~ kisā(i)- ‘comb’) but could be extended to combing either wool (e.g. Grk ksainó ‘scrape, comb [hair or wool], full [cloth]’) or flax (OE heordan [pl.] ‘hards [of flax], tow’).

One of the most basic methods of producing cloth is through ‘felting’ and there is one verb, *nak-, that may have expressed this concept in Proto-Indo-European. It provides us with the Latin word naccae for ‘cloth-fullers’ (if the latter is not a Greek loanword, related in some fashion to [dialectal] Grk naktá [pl.] ‘felt shoes’) and we have the root employed in Greek ‘felt shoes’, but in Hittite it only means ‘weighty, important’ (nakki-) which takes us closer to the basic verbal root meaning ‘press’, i.e. ‘pressing’. If it only meant ‘press’ in Proto-Indo-European (or Proto-Indo-Hittite), the meaning ‘felt’ may have been a later and secondary development.

There are a number of words for ‘plaiting’. PIE *plek- is well attested (e.g. Lat plectó ‘plait, interweave’, OE fleohtan ‘braid, plait’, OCS pleto ‘braid, plait’, Grk plékó ‘braid, plait’, Skt praśna- ‘braiding, basketwork, turban’) and in derived form (*plok-so-) it gives us NE flax. Another root, *resg-, seems to have included coarser plaiting, i.e. wattling (e.g. Lat restis ‘rope, cord’, NE rush, Lith rezg(i)ù ‘knit, do network’, OCS rozga ‘root, branch’, NPers rayza ‘woollen cloth’, Skt rájus- ‘cord, rope’). A root *weī(h,)- (cf. Lat vieō ‘bind, interweave’, Skt váyati ‘weaves’) was highly productive in providing nouns, e.g. NE withy, Lat vītis ‘vine’, many of which are associated better with the wattling of a house wall (e.g. ON veggr ‘wall’). Some form of wickerwork attends many of the meanings associated with *kert- (e.g. Lat crátis ‘wickerwork, hurdle, honeycomb’, NE hurdle, OPrus corto ‘hedge’, Grk kártallos ‘basket’, kuría ‘wattle’) while ‘interwining’ is indicated by *mesg- (e.g. ON móskví ‘mesh’, Lith mezgu ‘knit’, māzgas ‘knot’, Toch B mesqe ‘joint, knot’); one of the cognate forms, MDutch maesche, gives us NE mesh.
Twisting the fibres into thread is also well attested with several roots. Both *(s)neh₁(i)- and *sneh₁u- supply not only a series of verbs (e.g. MIr snīḍ ‘twists, binds’, Lat neō ‘spin’, OHG mā(w)en ‘sew, stitch’, Latv snāju ‘twist loosely together, spin’, Grk néō ‘spin’) but also nominal forms. For example, the o-grade of *(s)neh₁(i)- with the suffix *-teh₂- supplies NE snood (and OIr snaθ ‘thread’, Latv snaθe ‘linen shawl, cape’) while the root without the initial s-mobile coupled with the instrumental suffix *-teh₂- gives NE needle. The second verbal form underlies Lat nervus ‘sinew, tendon’ (metathesized form *neuros) and Grk neυρον ‘sinew, tendon’. A root *(s)pen- yields meanings such as ‘spin’ and ‘weave’ (e.g. NE spin, Lith pinũ ‘weave’, OCS pinoq ‘tighten, strain’, Alb pe ‘thread’, Grk pēnomai ‘toil [at household tasks]’, Arm hanum ~ henum ‘weave’, Toch B pāmn- ‘draw [out], stretch’). A widely dispersed root *terk(w)- means ‘twist’ and in a number of languages specifically ‘spin’ or, nominalized, ‘spindle’ (e.g. Lat torqueō ‘twist, wind; torment’, Alb tjerr ‘spin’, Grk ατρακτος ‘spindle’, Skt tarku- ‘spindle’).

Verbs indicating ‘weaving’ are several. The most basic is *h₂/₃eu- where we have the NE cognate weeds as in ‘widow’s weeds’ (cf. Skt u- ‘weave’, Rus uslō ‘weaving’) and a derived form *h₂/₃webh- (e.g. NE weave, Alb vej ‘weave’, Grk huphainō ‘weave’, Hit huppai- ‘entangle, ensnare’, Skt ubhnați ‘ties together’, Toch B wāp- ‘weave’) where we not only wind ‘weave’ but also ‘weave’ and even ‘spider’ (i.e. Skt ārṇa-vābhi-, literally ‘wool-weaver’). Another possibility is *weg- (e.g. OIr figid ‘weaves’, Lat vēlum ‘sail, cloth’, NE wick) although the semantic distance of some of the cognates, e.g. Skt vāgurā- ‘net for catching animals’, may suggest something plaited rather than woven. A similar semantic distance is seen among the derivatives of *melk-; in Hittite we have malk- ‘spin, entwine’, Tocharian has mālk- ‘joint together, insert’, and OHG malha ‘bag’.

‘Sewing’ is indicated with the root *(s)yuh₁- which is both geographically and semantically robust across the Indo-European languages (e.g. Lat suō, NE sew, Lith siuvũ, OCS šijō, Grk kassũō, Skt śivyati, all ‘sew’). The root *(s)ner-supplies a meaning of ‘fasten with thread/cord’ in Lith neriū ‘thread (a needle)’, Toch B ŋare ‘thread’ (it gave the OE snēr ‘harpstring’ and in its meaning ‘bind close together’ it may have supplied the basis of NE narrow).

Finally we have *ned- ‘knot, bind’ (both verbally and also nominal derivatives, e.g. OIr naiscid ‘binds’, Lat nectō ‘knot, bind’ [whose shape has been influenced by pectere ‘comb wool’], nōdas ‘knot’, NE net, Av naska- ‘bundle’) and probably also a series of words in Germanic and Greek (i.e. adikē ‘nettle’) cognate with NE nettle, and there is also a *nedskēh₂- ‘tie, ring’ from the
same root in Celtic (OIr nasc ‘fastening tie, ring’) and Germanic (OHG nuska ‘metal clasp’).

The North-West region exhibits a number of cognate terms related to textiles. Italic (Lat quaîlus ‘wicker-basket’, quasillus ‘small basket’) and Slavic (e.g. OCS koší ‘basket’) both share *kʷas- ‘(wicker-) basket’; Germanic (e.g. ON hrip ‘packbasket’) and Baltic (e.g. Lith krępsas ‘large satchel, backpack’) both attest a *kreb- ‘basket’ which has cognate sets in other languages in its o-grade form, e.g. Lat corbis, Lith karbas, Rus kórob, all ‘basket’. Celtic and Germanic share a number of terms such as some form of ‘cloak’ or ‘tunic’ in *ruk- ‘over-garment’ (e.g. OIr rucht ‘tunic’, OE roce ‘over-garment, rochet’); *dhelg- ‘pin’ (e.g. OIr dalg ‘thorn, pin, brooch’, OE dalc ‘bracelet, brooch’); and a word for ‘thread’, *pe/othmo- (e.g. OWels etem ‘thread, yarn’, OHG fadm ‘thread’). This word is derived from *pet- ‘stretch out’, i.e. stretch out the arms while preparing yarn from thread, and in the various languages it means either ‘thread’ or a ‘measure of outstretched arms’, hence the cognate NE fathom.

There is also a rare Celtic-Slavic isogloss in *kerd- ‘belt’ (e.g. OIr cris ‘belt’, Rus cěres ‘leather belt’). Finally, there is an Italic (Lat plūma ‘the downy part of a feather’), Germanic (e.g. NE fleeces), and Baltic (e.g. Lith plūkos [pl.] ‘hair’) isogloss of *pleus- ‘(pluck) fleece, feathers’.

The West Central area provides us with *bhrw- ‘(bolt of) cloth’, a Balto-Greek isogloss (e.g. Lith bu`rva ‘piece of cloth’, Grk phāros [bolto]cloth) which suggests that it derived from a verbal root such as *bher- ‘weave, twine’; Germanic and Greek attest a *baîthea- ‘cloak’ (e.g. Goth paida ‘tunic, shirt’, Grk baîte¯ ‘shepherd’s cloak of skins’) which, with its very rare initial *b-, has suggested to some a loanword from a non-IE language; Italic-Germanic-Greek and Armenian yield *kéntr/n- ‘patch, patched garment’ (e.g. Lat centŏ ‘patchwork clothes’, OHG hadara ‘patches’, Grk kêntrŏn ‘patched clothes’, Arm k’ot’anak ‘clothes’) and Germanic-Baltic-Slavic-Greek show a *lōp- ‘strip of cloth, bast, or hide used for clothing’ (e.g. OE lôf ‘headband’, Lith lōpas ‘patch’, Rus lápoti ‘bast shoe’, Grk lōpos ‘clothes made from skins’), derived from *lep- ‘strip (off)’. A word for a ‘strap’ or ‘sling’ is found in the Italic (Lat funda ‘sling’) and Grk sphendónē ‘sling’ isogloss in *(s)bhond-neh from *bhendh- ‘bind’. While we cannot with confidence reconstruct a Proto-Indo-European ‘shoe’ we do have this word from Celtic (e.g. OIr cairem ‘shoemaker’), Baltic (e.g. Lith kūre ‘shoe’), Slavic (e.g. SC krplje ‘snowshoe’), and Grk krêpis ‘shoe’ and possibly Germanic (e.g. ON hriðingr ‘shoe’) and less certainly Italic (Late Lat carpisculum ‘little shoe’ is surely related but may well be a borrowing from some other Indo-European group) in the form of *kr̥̆hisp which is usually derived from *(s)ker- ‘cut’, i.e. a shoe cut out from leather. In terms of textile preparation we have *g-properties (slo)- ‘sinew, thread’ (e.g. NWels gíau [pl.] ‘nerves, sinews’, Lat fīlum ‘thread’, Lith gijà ‘thread (in a
warp), skein’, OCS žica ‘sinew’, Lith gýsla ‘vein’, Arm ğil ‘cord’) where the focus is on something fashioned from animal sinew rather than twisted fibres. Both OE þrum (NE thrum) and Grk termiōeis ‘be-thrummed’ employ *termn-‘end’ in the form of *t(e)rm- to designate the ‘thread-end’. The word for ‘a single hair’, *piłos, provides the basis for *pił-so- or *pił-do- or, as recently suggested *peld- ‘felt’ (Lat pilleus ‘felt’ [adj.], NE felt, OCS plustí, Alb plis, Grk pîlos). In a number of West Central languages, Germanic (e.g. NE reel), Baltic (e.g. Lith krēklės ‘ragged clothing’), and Greek (e.g. krēkō ‘strike (the web), weave, pluck a stringed instrument’, króks ‘warp’) give us *krek- ‘beat the weft with a stick’. The West Central root *knab(h)- ‘pick at, tease out’ (e.g. NWels cnaiif ‘fleece’, Lith knabęnti ‘to pick/peck at’, MDutch noppe ‘nap, pile’ [borrowed into NE as nap], Grk knāphō ‘full (cloth)’) is our only possible linguistic attestation of the concept of ‘fulling’ wool, i.e. felting an already woven fabric.

Germanic (NE string) and Grk straggōs ‘drawn through a small opening’, possibly Celtic (MIr sreng ‘string, cord’ [if not an ON loanword]), give us *strenk- ‘string, to pull (tight)’. Our only two words for some type of headband are confused to Graeco-Aryan correspondences: *pkû- ‘headband’ (Grk ámpuks (metal) headband’, Av pusā- ‘diadem’) and *dēh,mn̆ ‘band’ (Grk diádēma ‘diadem’, Skt dāman- ‘band’), the latter from *deh1- ‘bind’. Finally, our word for ‘dye’, *reg-, is attested in Grk hrézō ‘dye’ and Indo-Iranian, in the latter generally indicating a reddish colour (e.g. NPers rang ‘colour’, Skt rájyati ∼ rájyate ‘is coloured; reddens’).

14.2 Proto-Indo-European Textile Production

It is obvious that we are not able to reconstruct a very elaborate ‘wardrobe’ for Proto-Indo-European speakers. We are essentially left with a very nondescript development of the verb *wes- and possibly some form of skin-made garment in *drap-. The cognate terms supporting a PIE *wospo- certainly appear to support the notion of some form of blanket rap. This could then be fastened with the help of a *yēh3s- ‘belt’. Elizabeth Barber reminds us how versatile a simple blanket wrap can be as it may vary in size from a kilt to a cloak to, and as we see in *wospo-, a shroud. We also have a regional (West Central) word for ‘shoe’ (*kỳh1pis). This word is usually derived from *(s)ker- ‘cut’ which supports the notion of a leather shoe. The Tyrolean ‘Iceman’, Ötzi, who lived c. 3300 BC, wore leather soles and fur uppers. Neolithic shoes were also made of bast (cf. *lōp- > Rus lápoti ‘bast shoe’ above). The northern neighbours of the Indo-Europeans, the Proto-Uralics, were no better blessed with clothing terms. Their
reconstructed lexicon yields only eight terms, including some form of shirtlike clothing, two words for belt, and one word for glove (but no word for shoe).

We are, however, able to reconstruct a fairly elaborate vocabulary for textile manufacture, beginning with the harvest of a sheep’s wool (by plucking or combing, e.g. *pek-, *reu(h₂)-, *kars-, *kes-) and proceeding through spinning (*s)neh₁(i)-, *sneh₂ᵣ-, *(s)pen-, *terk(w)-), weaving (*h₂/swebh-, *weg), and sewing (*syuh₁-), with stops along the way, so to speak, for felting (*nak-), plaiting (*plek-, *resg-, *wei(h₃)-, *kert-), fulling (regional *knab(h)-), and dyeing (regional *reg-). It seems clear that, in addition to animal skins (*bhölghis, perhaps *drap- or *drop-), Proto-Indo-European dress was largely of woollen (*wl₈h₆a-) manufacture with a lesser role played by plant materials such as flax (*linom).

The material of textile manufacture has been seen to be an important diacritic of the period or place of the Proto-Indo-Europeans. Naturally, skin garments have been employed since long before the existence of Proto-Indo-European and remain in use to this day. The spread of flax (and to a lesser extent hemp) was a product of the Neolithic where it has been attested since about the seventh millennium BC. The production of flax or linen garments predominated during the Neolithic, roughly in the period c.7000–3500 BC, and the recovery of textiles from archaeological sites in Europe during this period is exclusively of linen or some other plant material. Our single cognate term for ‘flax’ (*linom) appears to be restricted to the West Central region and there is some question of a loan (Latin into Germanic) here as well. Theoretically, flax could date from the beginnings of the Neolithic onwards; however, in peripheral areas of the Indo-European world, e.g. Ireland and India, it does not appear earlier than the Bronze Age. Moreover, the words for a white linen garment in several Indo-European languages, i.e. Grk khítōn, Lat tunica (<*ktunika), and probably Hit kattanipu- all appear to be borrowed from Semitic, e.g. Akkadian kitimmu-; this item being one of the linguistic consequences of what has been called the Bronze Age ‘international garment industry’. In short, although the Proto-Indo-Europeans may well have worn linen garments, it is by no means certain that we can recover their original word for this term. What also is apparent is that their textile industry seems to have been more narrowly focused on wool.

The earliest domestic sheep lacked a woolly fleece and were rather covered with coarse hairs or kemps. The earliest evidence for a woolly sheep so far (the depiction of clumps of wool on the figurine of a sheep) derives from Iran and dates to the seventh millennium BC. But actually solid evidence for woolly sheep or woollen textiles outside this area does not appear until about the fourth millennium BC when we have evidence from Mesopotamia, Egypt, and the Caucasus; among the criteria for identifying woolly sheep is the appearance
of a significantly taller variety and thus height is sometimes employed as proxy evidence for the spread of woolly sheep. Such taller sheep appear in the steppelands by about the fifth and certainly the fourth millennia BC. The importance of these considerations is that by and large, our evidence for woollen textiles or the exploitation of woolly sheep does not in general date before the fourth millennium BC. We have already seen in Chapter 11 that we have a PIE word for ‘wool’ (*(Input)-), which is unambiguously attested with this meaning in nine IE groups, including Hittite, and there is sufficient corollary evidence in the terms for textile manufacture, e.g. *peₖ-, *reu(h)-, that the exploitation of woollen textiles should be reconstructed to the speakers of the proto-language. This has been a substantial argument for those who suggest that the Proto-Indo-Europeans had not experienced serious linguistic divergence much prior to the fourth millennium BC, i.e. the Proto-Indo-Europeans are ‘post-wool’.

Elizabeth Barber has also attempted to provide some further geographical dimension to Indo-European textile terminology by observing that the reconstructed lexicon attests nothing more than the simple band loom, and where different IE groups such as the Greeks or Latins required terminology for the more sophisticated warp weighted loom, they had to borrow the terminology from other languages. As the warp weighted loom was typical for western and central Anatolia, Greece, the Balkans, and throughout central Europe during the Neolithic, this suggests to Barber that the Proto-Indo-Europeans should have been located somewhere outside this zone.

Further Reading

Other than the encyclopedic entry in Mallory and Adams (1997), the main works on IE textiles are to be found in Barber (1975, 1991, 2001); see also Knobloch (1987b, 1992), Watkins (1969), and Driessen (2004).
In addition to textiles and clothing, there is considerable reconstructable vocabulary pertaining to the rest of material culture. While skin, plant fibres, or wool might be fashioned into containers, there were a variety of other materials—wood, ceramics, and possibly metal—that were also employed to contain materials and these are listed in Table 15.1.

A possible word for ‘case’ is *welutrom (it means ‘case’ in Lat involúcrum and Grk élutron but ‘cloak’ in Skt varútra-) and as a derivative from ?*wel- ‘wind, turn’, it may have been independently formed in some or all the languages. The root *h₂em-‘hold, contain’ provides a series of words for ‘container’ in Grk ámē ‘water bucket, pail’, Arm aman ‘container’, and Indo-Iranian (Khot handra- ‘jar, pot’, Skt ámatram ‘large vessel’) although these may be independently formed as well. Much solider are the correspondences that suggest *kumbho/eh₂- ‘bowl’ (e.g. OIr coim ‘pot’, Grk kúmbē ‘bowl’, Av xumba- ‘pot’, Skt kumbhá- ‘pot’) which are found from Ireland to India although its derivation, either from *keu- ‘bend’ or possibly a loanword into Proto-Indo-European, is disputed. A large ‘vessel’ or ‘cauldron’ is indicated by *kʷerus or derivatives, again from Ireland (OIr coire ‘cauldron’) to India (Skt carí- ‘cauldron’), via Germanic (e.g. OE hwer ‘pot, bowl, kettle, cauldron’). Toch B keru ‘drum’ might be historically another derivative. The *pēl(h₁)ewis is some form of
‘container’ whose semantics range from ‘goblet’ to ‘milk-can’ and it has usually been derived from *pelh₁- ‘fill’ (e.g. Lat pélvis ‘basin’ [whence medical Latin and English pelvis], OE full ‘goblet’, Grk pélla ‘milk-can’, Skt paḷavi- ‘pot’). Both Grk patánē ‘bowl, flat dish’ and Hit pattar ‘dish’ suggest that the *póth₂g₃ ‘spread out’. Derived from *tek´s₃- ‘hew, fashion’, one might presume that *teksteh₃- (Lat testa ‘plate, bowl’; Grk patáne) originally indicated a wooden vessel. Many of the cognates of *h₂/₃ukʷ/p- (Lat aulla ‘pot’, OE ofen ‘furnace’ [> NE oven], OPrus wumpnis ‘bake-oven’, Grk ipno´s ‘oven’, Hit hûppar(a)- ‘bowl, pot’, Skt ukhā- ‘cooking-pot’) suggest an association with cooking and so it may be presumed that this particular vessel was so employed (although in Hittite it may also indicate a ‘unit of measure’). The vowels that one reconstructs for *kVlVkʰ- ‘cup, drinking vessel’ are uncertain, and as the distribution is limited to Lat calix ‘cup, goblet’ [> NE chalice], Grk kúliks ‘cup’, and Skt kalāśa- ‘pot, pitcher’, some suggest we may be dealing with a Near Eastern loanword. The Italic-Indic isogloss of *poh₃tlom ‘drinking vessel’ (Lat pōculum ‘cup’, Skt pātra- ‘drinking vessel’) derives from *peh₂r- ‘drink’ and may be banal independent formations, i.e. ‘an instrument for drinking’.

From the North-West we have *bhidh- ‘large pot’ (Lat fidēlia ‘earthenware pot’, Icelandic biða ‘small tub’), possibly from an otherwise unattested *bheidh- ‘bend’ (from either coil-built pottery or basketry), and *h₄enseh₃- ‘handle’ (Lat ānsa, MHG öse ‘ring, loop’, Lith ąsā ‘pot handle’) which refers to a pot handle in Italic and Baltic. From the West Central region there is *louh₁rom ‘(wash-) basin’ (OIr lóthar ‘tub, basin’, Lat pō-lābrum ‘wash-basin’, Grk loetrón ‘bath’) from *louh₁r- (also reconstructed as *leuh₁r- ‘wash’; *kuh₃p- ‘water vessel’ (e.g. Lat căpa, NE hive, Grk kūpellon ‘cup’) from *keu(h₃)- ‘curve’; *kelp- ‘jug, pot’ (OIr cilorn ‘pitcher’, Grk kálpis ‘jug, [water] pitcher’)—there is a possibility of an

<table>
<thead>
<tr>
<th>Table 15.1. Containers</th>
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</thead>
<tbody>
<tr>
<td>*velutrom</td>
</tr>
<tr>
<td>*h₂em-</td>
</tr>
<tr>
<td>*kumbho/eh₂g₃</td>
</tr>
<tr>
<td>*kʷerus</td>
</tr>
<tr>
<td>*pelh₁ewis</td>
</tr>
<tr>
<td>*póth₂g₃</td>
</tr>
<tr>
<td>*teksteh₃-</td>
</tr>
<tr>
<td>*h₂/₃ukʷ/p-</td>
</tr>
<tr>
<td>*kVlVkʰ-</td>
</tr>
<tr>
<td>*poh₃tlom</td>
</tr>
</tbody>
</table>
Indic cognate in Skt karpara-‘cup, pot’; *(s)pŏndh(n)os ‘wooden vessel’ (e.g. ON spann ‘pail’, Lith spandis ‘pail’, OCS spođá ‘measure [of grain]’, Arm p’und ‘pot’—the German cognates are uncertain). The Central area (Thracian-Greek) suggests the possibility of a *gh(e)utreh่า ‘± pot’ (Thrac zetraίa ‘pot’, Grk khútra ‘pot’) but again they may be independent developments.

15.2 Metals

The rather limited vocabulary pertaining to metallurgy in Proto-Indo-European is listed in Table 15.2.

The basic word for ‘metal’ in Proto-Indo-European is *h₁ey-es- (e.g. Lat aes ‘copper, bronze’, NE ore, Av ayah- ‘metal (probably bronze)’, Skt áyas- [earlier] ‘copper’, [later] ‘iron’) and it is generally presumed to mean ‘copper’ or the copper-tin alloy of ‘bronze’ although it has come to mean ‘iron’ in some of the Indo-European languages, e.g. Indo-Iranian; however, there is clear evidence that it earlier meant ‘copper’ or ‘bronze’. In the Germanic languages it tends to mean ‘ore’ and it is possible it simply meant ‘metal’ rather than a specific type of metal. The second term, *h₁roudhoś, is widely enough attested (e.g. ON rauði ‘red iron ore’, OCS ruda ‘ore; metal’, NPers rõd ‘copper’, Skt lohá- ‘copper’) but it is such a banal derivative of *h₁reudh- ‘red’, i.e. the ‘red metal’ or ‘copper’, that it probably represents independent developments in different Indo-European groups.

There are two potential words for ‘gold’. The more reliably attested is *h₂eusom/C₂4 *h₂weseh่า (e.g. Lat aurum, OPrus ausis, Toch B yasa, all ‘gold’), a noun ultimately derived from the root *h₂ewes- ‘shine’ which also underlies the word for ‘dawn’, *h₂eúsōs (see Section 18.6). It has been plausibly suggested that an Indo-European form similar to the one ancestral to Tocharian has been widely borrowed into the Uralic languages, e.g. Proto-Balto-Finnic-Lapp-Mordvin *waške ‘copper, brass’, Proto-Ugric *waś ‘metal, iron’, Proto-Samoyed *wesā ‘metal, iron’. The second word, ?*ghel-, is a colour word ‘yellow’ which is often used to supply a word for ‘gold’, and although the

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>*h₁ey-es-</td>
<td>‘metal &gt; copper &gt; bronze’</td>
<td>Lat aes, NE ore, Skt áyas-</td>
</tr>
<tr>
<td>*h₁roudhoś</td>
<td>‘the red metal, i.e. copper’</td>
<td>Skt lohá-</td>
</tr>
<tr>
<td>*h₂eusom</td>
<td>‘gold’</td>
<td>Lat aurum</td>
</tr>
<tr>
<td>?*ghel-</td>
<td>‘yellow’</td>
<td>NE gold</td>
</tr>
<tr>
<td>*h₂erg-ŋ-t-om</td>
<td>‘white (metal), silver’</td>
<td>Lat argentum, Skt rajatām</td>
</tr>
</tbody>
</table>
same root is shared across Germanic-Baltic-Slavic, and Indo-Iranian, the differing ablaut grades and suffixes suggest post-Proto-Indo-European formation (e.g. NE gold, Latv zēlts, Rus zóloto, Av zaranyam, Skt hiranyam, all ‘gold’). In addition to the ‘red metal’ (copper) and the ‘yellow metal’ (gold) we have the ‘white metal’ (silver), *h₂erǵ-ṇ-om ~ *h₂erǵ-ṇ-om (e.g. Olr argat, Lat argentum, Arm arcat’, Av ārōzatām, Skt rajatām, Toch B ǹkante [with *r ... n assimilated to *n ... n], all ‘silver’). Formed like our first word for ‘gold’, this suggests the use of an adjective (perhaps *h₂erǵ-ṇ-, genitive *h₂erǵ-ṇ-ós, which was subsequently made thematic) before some noun such as *h₂dey-es-, i.e. ‘silver-metal’.

The North-West region provides evidence of an early Wanderwort in *silVḅVr- ‘silver’ which occurs in Ibero-Celtic (alone of the Celtic languages) śilaPur, Germanic (e.g. NE silver), Baltic (e.g. Lith sidābras), and Slavic (e.g. Rus serebró) and its doubtful vowels and various outcomes of the consonants suggest that it has been borrowed from some non-Indo-European source.

15.3 Tools

The evidence for basic agricultural and woodworking tools is indicated in Table 15.3.

There are four words associated with tillage. The verb ‘to plough’ is attested as *h₂erǵye/o- (e.g. MIr airid ‘ploughs’, Lat arō ‘plough’, Goth arjan ‘plough’, Lith ariu ‘plough’, OCS orjo ‘plough’, Grk aróo ‘plough’.

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Language(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*h₂erǵye/o-</td>
<td>plough</td>
<td>Lat arō, NE ear, Grk aróó</td>
</tr>
<tr>
<td>*mat-</td>
<td>hoe, plough</td>
<td>Lat mateola, Skt matyá-</td>
</tr>
<tr>
<td>*h₁/okēteh₃a-</td>
<td>harrow, rake</td>
<td>Lat occa</td>
</tr>
<tr>
<td>*g̣hel-</td>
<td>plough</td>
<td>Skt hala-</td>
</tr>
<tr>
<td>*spto/eh₄a-</td>
<td>sickle</td>
<td>Grk hárpë</td>
</tr>
<tr>
<td>*g̣ṛeh₃-w-on-</td>
<td>quern</td>
<td>NE quern, Skt grávan-</td>
</tr>
<tr>
<td>*h₂edhēs-</td>
<td>axe, adze</td>
<td>NE adze</td>
</tr>
<tr>
<td>*pelekus</td>
<td>axe</td>
<td>Grk péleukus, Skt parašú-</td>
</tr>
<tr>
<td>?*tekso/eh₄a-</td>
<td>axe, adze</td>
<td></td>
</tr>
<tr>
<td>*h₂oleh₄a-</td>
<td>awl</td>
<td>NE awl, Skl ārā-</td>
</tr>
<tr>
<td>*ḳoh₃-nos</td>
<td>whetstone, hone</td>
<td>Lat côs, NE hone, Skt sāna-</td>
</tr>
<tr>
<td>*ko(n)gos</td>
<td>hook</td>
<td>NE hook</td>
</tr>
<tr>
<td>*h₂ónkos</td>
<td>something bent, hook</td>
<td>Lat uncus, Skt ankā-, Grk ógkos</td>
</tr>
<tr>
<td>*ḳ₂twis</td>
<td>± tool</td>
<td>Skt ḳwí-</td>
</tr>
</tbody>
</table>

Table 15.3. Tools
and perhaps Toch A āre if it means ‘a plough’, Hit hars ~ harsiya- ‘till the earth’—assuming the Hittite word belongs here, the initial has been specified as *h₂j) and the nominal derivative, *h₂érh₃trom ‘plough’, is also widely found (e.g. Mlr ararath, Lat arātrum, ON arðr, Grk árotron, Arm arawr, all ‘plough’). The NE cognate ear (from OE erian) meaning ‘to plough’ survives only dialectally. That the Proto-Indo-European plough was a fairly primitive one may be indicated by OHG huohhili ‘wooden hook plough made from a curved branch’ and OCS sokha ‘(primitive) wooden plough’ which are both derivatives of a Proto-Indo-European word for ‘branch’ (see Section 10.1). Of course it would not be surprising if the Proto-Indo-European plough were a curved and forked branch since such ploughs are attested well into the Middle Ages. A word ‘hoe, plough’ or perhaps better ‘mattock’ is attested by *mat- (e.g. Lat mateola ‘hoe’, OHG medela ‘plough’, OCS motyka ‘hoe, mattock’, Skt matyā- ‘harrow’; NE mattock is generally derived from a Late Latin form of this word). Words for ‘harrow’ or ‘rake’ (or ‘furrow’) derive from *h₁/₄okétehərə which is widely found among the Indo-European languages (e.g. NWels oged ‘harrow’, Lat occa ‘harrow’, OE eg(e)ðe ‘harrow, rake’, Lith akęčios [pl.] ‘harrow’, Oss adəg [< *aɡəd] ‘furrow’). Finally, *ghel- ‘plough’ is attested in Baltic, Armenian, and Indic (Lith žuolis ‘sleeper, tie’, Arm jlem ‘plough’, Skt halā- ‘a plough’). The ‘sickle’, *spgo/eh₂ɜə- is attested in Anatolian (Hit sarpa- ‘agricultural tool [used in ritual along with a plough]’) as well as Baltic (Latv sirpis ‘sickle’), Slavic (e.g. Rus serp ‘sickle’), Grk hárpe- ‘sickle’, and Iranian (Oss æksyrf ‘sickle’); Lat sarpō ‘cut away, prune’ supplies a verbal form while the word was borrowed from Baltic into Finnish as sirppi ‘sickle’. The root *gʷr(e)h₃(-u) ‘heavy’ provides the basis for *gʷrēh₃-w-on- and several other formations that indicate a ‘quern’ (e.g. OIr bráu ‘quern’, NE quern, Lith girna ‘millstone’, girnos [pl.] ‘quern’, OCS žrūny ‘quern’, Arm erkan ‘quern’, and perhaps Skt grāvan- if it does indicate a ‘stone for pressing soma’ and Toch B kárweñe ‘stone’ [if <*’millstone’]).

There are three words that will out the semantic field of ‘axe’ or ‘adze’. One is supported by an English (OE adesa > NE adze) and Hit ates- and atessa-isogloss, i.e. *h₄edhēs-. The second is the much discussed *pelekus ‘axe’. We find cognates in Grk pēlekos, Oss færæt, and Skt paraśu-, and the proto-form is often compared with Semitic forms, e.g. Akkadian pilakku which some translate as ‘axe’ but others translate as ‘spindle’, which is semantically very distant from ‘axe’. Generally, the Proto-Indo-European word is treated as a Wanderwort, a loanword that crossed a number of different languages or language families. Finally, the verb *teks- ‘fabricate’ provides the basis of *tekso/eh₂ɜə- ‘axe, adze’ and several other formations (e.g. OHG dehsa ‘axe, hatchet’, Av taśa- ‘axe’, and with a derivative in *-lo/eh₂ɜə-, OIr tal ‘axe’, OHG
dehsala ‘adze, hatchet’, Russian Church Slavonic tesla ‘axe’) that may have been independently created in a number of Indo-European groups but might also have some form of late Proto-Indo-European antiquity.

For working leather or drilling wood, we have the *h₂*oleh₁- ‘awl’ which is attested in Germanic (e.g. NE awl), Khot aïysna-, and Skt ārā-. An instrument for sharpening, the ‘whetstone’ or ‘hone’, is indicated by *k₁oh₁nos and various other formatives built on a verb *k₁eh₁- ‘sharpen’ (e.g. Lat cōs [genitive cōtis] ‘whetstone’, NE [a] hon, NPers san ‘whetstone’, Skt śaṇa- ‘whetstone’).

Some form of ‘hook’ is attested by *ko₂(g)os (e.g. MIr alchaing ‘weapon rack’, NE hook, Rus kógoti ‘claw’, Hit kagas ‘tooth’) and *h₂onkos (e.g. OIr écath ‘fishhook’, Lat uncus ‘hook, barb’, OHG ango ‘fishhook’, Lith ţanka ‘knot’, OCS ņokoti ‘hook’, Grk ógkos ‘barb [of an arrow]’, Av aka- ‘hook’, Skt ankā- ‘curve; hook’), the latter from *h₂enk- ‘bend’. It is almost anyone’s guess as to the underlying meaning of *k₃r₃wis which gives us Lith kir̃vis ‘axe’, Rus cervî ‘sickel’, and Skt saṇ- ‘whetstone’.

The North-West yields *sekūr- ‘axe’ (Lat secūris, OCS sēkyra, both ‘axe’) from *sek- ‘cut’; and *kreidhrom ‘sieve’ (e.g. OIr crīthar ‘sieve’, Lat crībrum ‘sieve’, OE hrīder ~ hridder ‘coarse sieve’ [> NE ridder]) from *(s)ker- ‘cut’. From the West Central region: *h₃egwisy(h)₁- ‘axe’ (Lat ascia ‘adze of carpenters and masons’, NE axe, Grk aksíne- ‘axe’); *wog₃hni ‘ploughshare’ (Lat vōmis ‘ploughshare’, OHG wagniso ‘ploughshare’, OPrus wagnis ‘coulter’, Grk ophnís ‘ploughshare’); *seh₁-i- ‘sift’ which provides the basis for a number of formations that indicate ‘sieve’ (e.g. NWels hidl, ON sādl, Lith sietas, OCS sito, Alb shosh); *tērh₁trom ~ *tērh₁dhrom ‘auger’ (e.g. OIr tarathar ‘auger’, Lat terebra ‘auger’, Grk tēretron ‘borer, gimlet’) from *terh₁- ‘pierce’; *kleh₂wis ‘bolt, bar; (wooden) hook’ (Lat clāvis ‘bolt, key’, Grk kleís ‘bar, bolt’); *gāhwa₃s ‘torch’ (Lat fax ‘torch’, Lith žvākė ‘candle’); and possibly *dhūbhos ‘wedge, peg’ (NE dowel, dialectal Grk túphos ‘wedge’). A Greek-Indic isogloss (Grk ksurón, Skt ksura-) gives us *ksuróm ‘razor’ from *kseu- ‘rub, whet’.

15.4 Weapons

Although the Indo-Europeans have been cast often enough as warlike conquerors, their reconstructed arsenal is not particularly extensive. In addition to the ‘axe’ which we have treated under tools but might also indicate ‘battle-axe’, we have the weapons indicated in Table 15.4.

There are four words associated with the ‘spear’. The *g₃wéru means ‘spear’ or ‘spit’ in both Celtic (e.g. OIr biur) and Italic (e.g. Lat verū) but ‘staff’ in Iranian
(e.g. Av grava-). An Armenian-Indo-Iranian isogloss gives us *kuslos (Arm *slak ‘pike, spear, dagger, arrow’, MPers *swlck ‘grill’ [< *complex of spits’], Skt sâla- ‘pike, spit, javelin’) which does return a meaning ‘spear’ while *kel(h)- can mean anything from ‘spear’ to ‘arrow’ to ‘staff’ (e.g. ON hali ‘point of shaft, tail’, OPrus kelian ‘spear’, Alb thêl ‘big nail, spike’, Grk kêla [pl.] ‘arrowshafts’, Skt salya- ‘spear, arrowhead’). Although Greek shows ‘herdsman’s staff’ (*kaïos) for *gai-sos, Celtic (e.g. OIr *gae ‘spear’), Germanic (e.g. OE gàr ‘spear’ [cf. gàr + lêac ‘leek’ > NE garlic]), and Indic (Skt hēsas- ‘missile’) all indicate a ‘spear’ or some other form of missile and it would appear to be from *gai- ‘throw’. A Germanic (NE weapon)-TocharianAB (yepe ‘weapon, knife’) isogloss suggests a PIE *weben ‘knife’. Of considerable interest is the word *h2n8sis as it means ‘large (o)ensive knife’ Lat énsis, Av ahû-, and Skt âsi-; it can also mean ‘slaughtering knife’. These attested meanings might at first seem to favour a reconstruction as ‘sword’ but the word would generally be regarded as semantically incongruent with any date before c. 2000–1500 B.C. when the earliest swords began to appear in the archaeological record (there are a very few exceptions). The presumption then is that the word may have originally indicated a ‘dagger’ or ‘knife’ (as it seems to do in the earlier Vedic literature) and that it developed the meaning ‘sword’ independently in each of the language groups in which it is found. Some support for this comes from the fact that there is also a Palaic cognate (hasîra-) which gives us our earliest citation of this word and here it means ‘dagger’. Other words for ‘knife’ are of dubious antiquity. A PIE *kos-trom/dhrom is attested with a denominative verb in Lat castrô ‘I prune’, Alb thadër ‘adze’, and Skt sâstra- ‘knife, dagger’, all possibly independent creations from *kès- ‘cut’ and the instrumental suffix. In the case of a potential *klôr ‘knife’, it is uncertain whether the Lat culter ‘(butcher’s) knife’ and Skt kuthâra- ‘axe’ are cognate as some take the Indic form to have been borrowed from Dravidian.

Shields are also a more recent item of defensive armament, at least in the archaeological record, and while *spelo/eh1r does yield meanings of ‘shield’ in

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**Table 15.4. Weapons**

<table>
<thead>
<tr>
<th>Form</th>
<th>Meaning</th>
<th>Language</th>
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</thead>
<tbody>
<tr>
<td>gwruru</td>
<td>‘spear, spit’</td>
<td>Lat verû</td>
</tr>
<tr>
<td>kuslos</td>
<td>‘spear, spit’</td>
<td>Skt sâla-</td>
</tr>
<tr>
<td>kel(h)-</td>
<td>‘(spear)point’</td>
<td>Grk kêla, Skt salya-</td>
</tr>
<tr>
<td>ghai-sos</td>
<td>‘throwing spear’</td>
<td>NE garlic, Grk kaïos, Skt hēsas-</td>
</tr>
<tr>
<td>wêben</td>
<td>‘cutting weapon, knife’</td>
<td>NE weapon</td>
</tr>
<tr>
<td>h2n8sis</td>
<td>‘large (offensive) knife’</td>
<td>Lat énsis, Skt âsi-</td>
</tr>
<tr>
<td>*kos-trom/dhrom</td>
<td>‘knife’</td>
<td>Lat castrô, Skt sâstra-</td>
</tr>
<tr>
<td>*klôr</td>
<td>‘knife’</td>
<td>Lat culter, Skt kuthâra-</td>
</tr>
<tr>
<td>spelo/eh1r</td>
<td>‘shield’</td>
<td>Skt phâlakam</td>
</tr>
</tbody>
</table>
Indo-Iranian (e.g. MPers ispar ‘shield’, Skt phālakam ‘shield, board’), its Germanic cognate means ‘board’ (ON fjöl) and the possible Luvian cognate (palahsa-) means ‘blanket’ or ‘coat’ so that it may have only developed the meaning ‘shield’ in Indo-Iranian. It is commonly derived from *(s)p(h)el- ‘strip, tear off’, suggestive of a wooden or leather shield (see Section 22.1).

The North-West provides evidence of *h₁erkw₁os ‘bow and/or arrow’ (Lat arcus, NE arrow); *skéits ‘shield, board’ (e.g. OIr scíth ‘shield’, OE scíd ‘thin piece of wood, shingle’, OCS štitā ‘shield’, and with an o-grade in Lat scūtum ‘large leather-covered shield’); and possibly *lorgeh₂- ‘club’ (e.g. OIr lorg ‘club’, ON lurkr, if Germanic has not actually borrowed the word from Celtic). A more widely distributed (West Central) root for ‘club’ is *bak- (e.g. OIr bacc ‘staff’, Lat baculum ‘staff’, Grk báktron ‘staff’); a Middle Dutch cognate pegge supplies NE peg); the initial *b- has been explained either as the mark of a ‘popular word’ (i.e. one apparently used only in informal contexts and subject to the possibility of special phonological changes) or a loanword from some non-Indo-European language. A word for ‘spear’ or ‘spit’ is seen in *h₁ei̯kšmo/eh₂- ‘spear, pointed stick’ (e.g. Lith iėsmis ‘spit, spear’, Grk ai̯khmē ‘point of spear, arrow, spear’). An Old Norse-Thracian isogloss attests a *skolmeh₂- ‘sword’ (ON skólm, Thrac skálmě).

Graeco-Aryan isoglosses include several words pertaining to archery. We have *g⁹(i)yēh₃ (e.g. Grk biós ‘bow’, Av jyā ‘bowstring’, Skt jyā ‘bowstring’). This word has cognates in Baltic (Lith gijā ‘warp threads’) and Slavic (e.g. OCS žica ‘thread’) but here they refer exclusively to ‘thread’ and it seems more probable that the underlying PIE meaning simply referred to a ‘taut thread’ and was specialized to bowstring in Greek and Indo-Iranian. There is also *h₁isus ‘arrow’ (Grk iós, Av išu-, Skt īṣu-); *tóksom ‘bow’ (Grk tókson, which must go back to the Bronze Age at least as it is attested in Mycenaean to-ko-so-wo-ko ‘bow-makers’, Scyth taxša-); and *wágros ‘cudgel’. The latter gives us the mythical vájra- ‘cudgel’ of the Indic god Indra where it also indicates the ‘thunderbolt’ (cf. also Av vazra- ‘mace, cudgel’ [whence Finnish vasara ‘hammer’]); in Greek it occurs in the personal name of Meleāgros which means ‘caring for the cudgel’. There is also a possible Eastern isogloss in *kert- ‘knife’ with cognates in Indo-Iranian (Skt kṛti- and Av karoti both ‘knife’) and possibly Toch B kertte ‘sword’ although the latter could have been borrowed from Iranian.

### 15.5 Ornament

Terms for ornament are extremely few in Indo-European and are largely limited to regional isoglosses. We have already seen the two regional words
for ‘headband’ in Section 14.1. From the West Central area we have *ānos ‘circle, ring’ which is attested in OIr āinne, Lat ānus, and possibly Arm anur, all ‘ring’. The only possibility of an ornament with PIE distribution may be found in *moni- ‘necklace’ where cognates may be claimed for Celtic (OWels minci ‘collar’), Lat monile ‘necklace’, Germanic (OE mene ‘necklace’), Slavic (OCS monisto ‘necklace’), and Indo-Iranian (e.g. Skt mani-grīvā- ‘carrying a neck ornament’). The word clearly derives from *mono- ‘neck’ but the consistently different stem form (i.e. *-i- rather than *-o-) suggests that ‘necklace’ is not just a metaphorical extension of ‘neck’.

15.6 Transport

Words associated with vehicles and boats are listed in Table 15.5.

There are two words that indicate a ‘wagon’. The first is *weḡnos from the verbal root *weḡ- ‘ride in a vehicle’ and the word is found in the e-grade in Celtic and Tocharian (e.g. OIr fën, Toch B yakne ‘way, manner’) and the o-grade in Germanic (e.g. OE wægn > NE wain; NE wagon is a loanword from Middle Dutch) and with a different suffix *weḡhitlos as Lat vehiculum and Skt vahitram; still another formation gives us Slavic (e.g. OCS vozū ‘wagon’) and Grk ὄkhos ‘chariot’, including Mycenaean wo-ka ‘chariot’.

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>*weḡnos</td>
<td>‘wagon’</td>
<td>NE wagon</td>
</tr>
<tr>
<td>?*h2-em-h2ekś-ih₂</td>
<td>‘wagon-chassis’</td>
<td>Grk ámaksa</td>
</tr>
<tr>
<td>*k2ekślóm</td>
<td>‘wheel’</td>
<td>NE wheel, Grk kúklos, Skt cakrá-</td>
</tr>
<tr>
<td>*h₂sgt-</td>
<td>‘wheel’</td>
<td></td>
</tr>
<tr>
<td>*rōth₂o/eh₂a</td>
<td>‘wheel’</td>
<td>Lat rota, Skt rátha-</td>
</tr>
<tr>
<td>*yugóm</td>
<td>‘yoke’</td>
<td>Lat iugum, NE yoke, Skt yugám</td>
</tr>
<tr>
<td>*dhwerh₂-</td>
<td>‘yoke’</td>
<td>Grk théraps, Skt dhār</td>
</tr>
<tr>
<td>*h₂ekś-</td>
<td>‘axle’</td>
<td>Lat axis, Grk áksōn, Skt áksa-</td>
</tr>
<tr>
<td>*h₂niobh-</td>
<td>‘nave’</td>
<td>NE nave</td>
</tr>
<tr>
<td>*h₂ensiyo/eh₂a</td>
<td>‘reins’</td>
<td>Grk ēnta</td>
</tr>
<tr>
<td>*h₂éih₂os</td>
<td>‘shaft (of a cart or wagon)’</td>
<td>NE oar, Grk oiéion, Skt īṣā-</td>
</tr>
<tr>
<td>*néh₁us</td>
<td>‘boat’</td>
<td>Lat nāvis, Grk nāüs, Skt nau-</td>
</tr>
<tr>
<td>*h₁oldhu-</td>
<td>‘(dugout) canoe, trough’</td>
<td></td>
</tr>
<tr>
<td>*(s)kolmo/eh₂a</td>
<td>‘boat’</td>
<td></td>
</tr>
<tr>
<td>*h₁erh₁trom</td>
<td>‘oar, paddle’</td>
<td>Skt aritra-</td>
</tr>
</tbody>
</table>
A Greek-Tocharian isogloss (Grk ámaksa ‘[framework or chassis of] a four-wheeled wagon’, Toch A amäks-pänte ‘wagon-master’) gives us *h₂em-h₄ëks-ih₄ which has been explained as a compound of *h₂em- ‘hold on to’ and *h₄ëks- ‘axle’, i.e. the chassis of a wagon that holds the axle.

There are three words that indicate the ‘wheel’: *k₅wëkmolóm, *h₂/₃wr₈gi-, and *röth₂₀/ehᵢᵢ. The first indicates the ‘wheel’ in Germanic (e.g. NE wheel), Phrygian (kiklēn ‘Ursa Major’, i.e. ‘the chariot’), and Indo-Iranian (e.g. Av čаксra- ‘wheel’, Skt cakr- ‘wheel; sun-disc’); a form *k₅wōk₈los is found in Grk kūklos and Tocharian (e.g. Toch B kokale, where it means ‘wagon’). The word is derived from *k₅wel- ‘turn’ after reduplication; in some languages we find it without the reduplication, e.g. *k₅wōlos underlies OIr cul ‘wagon’ while *k₅wōles- yields OCS kolo ‘wagon’. An Anatolian-Tocharian isogloss gives us *h₂/₃wr₈gi- ‘wheel’ (e.g. Hit hurki- ‘wheel’, Toch A wa¨rkant ‘wheel’) while the meanings of the various languages that yield Proto-Indo-European *röth₂₀/ehᵢᵢ- are as likely to indicate ‘wagon’ (e.g. Lat rota ‘wagon’, Lith ra˚tai [pl.] ‘wagon’, Av raβa- ‘wagon, chariot’, Skt raθha- ‘wagon, chariot’) as they do ‘wheel’ (e.g. OIr roθ ‘wheel, circle’, Lat rota [again] ‘wheel’, OHG rad ‘wheel’, Lith rātas [sg.] ‘wheel’) and show the easy transference of the concept, comparable to English slang where ‘having wheels’ means having a car. A derivative, *röθṣikos, gives Alb reθt ‘ring, hoop, tyre (for carriages)’ and the Tocharian word (Toch B rokte) for ‘army’ (< *chariotry’).

One word for ‘yoke’, *yugóm, is widespread (e.g. OWels iou, Lat yugum, NE yoke, Lith jūgas, Grk zugón, Arm luc, Hit yukan, Av yugam, Skt yugám, all ‘yoke’) and derives from *yeug- ‘join, harness’ (see Section 22.5). There is also *dhwerp₅- ‘yoke’ seen in Hit türives- ‘harness’, Skt dhūr ‘yoke’, dhūriya- ‘draft animal’, Toch B trusk- ‘harness’, probably also pyorye ‘yoke’ (if Proto-Tocharian *twyüyoruyen- < *dhwerp₅-uhᵢᵢ) and Grk thérapys ‘comrade; servant’ (if < *dhwerp₅-–hₑp- ‘yoke-joined’) and thus the whole family in English slang where ‘having wheels’ means having a car. A derivative, *röθṣikos, gives Alb reθt ‘ring, hoop, tyre (for carriages)’ and the Tocharian word (Toch B retke) for ‘army’ (< *chariotry’).

The ‘axle’ was *h₄ëks- (e.g. Lat axis, OE eax, Lith ašis, OCS osi, Grk áksōn, Skt ákṣa-, all ‘axle, axis’; NE axle is a Norse loanword and derivative of this word) while the root *h₂nobh- supplies meanings of both ‘nave’ and ‘navel’ (e.g. NE nave, navel, OPrus nabis ‘nave, navel’, Skt nābhya- ‘nave’). Incidentally, the Germanic word for an ‘auger’ was a ‘nave-piercer’, i.e. *naba-gaizaz, e.g. OE nafo-gar. With the indefinite article, i.e. *a nauger, this was falsely analysed as *an auger and hence NE auger. The word for ‘reins’, *h₂ensiyo/ehᵢᵢ-, is based on an Irish-Greek isogloss (OIr eig(s)še, Grk énā, both ‘reins’) with the possibility of an Indic cognate (Skt nāsyam ‘nose cord [of a draft-ox, etc.]’ where the form, nā- instead of the expected *ān- may reflect the influence of the word for ‘nose’).
The ‘shaft of a wagon’ is indicated by *h₂/šēih₁os and similar forms; it means ‘pole’ or ‘shaft’ in Slavic (e.g. Rus *vojě), Anatolian (Hit *hísa- ‘pole, shaft, thill [for harnessing draft animal to a cart]’), and Indo-Iranian (Av *aēša-[pole]-plough, pair of shafts’, Skt *āśa- ‘pole, shaft’) but has shifted to nautical terminology in Germanic, e.g. NE ‘oar’, and Grk οἰέιον ‘tiller, helm, rudderpost’.

From the reconstructable words it is clear the Proto-Indo-European community were familiar with wheeled vehicles and had the necessary terminology for wheels, axles, shafts, and yokes. It may be significant that the words we can reconstruct for this semantic field are both semantically and morphologically transparent, e.g. *kʷekʷlo- ‘wheel’ (< *‘turner, roller’) or *róth₂os ‘wheel’ (< *‘runner’). That may suggest that, while well established in late Proto-Indo-European, this terminology (and the objects they represent?) was not particularly ancient in the language. The earliest attested wheels are solid, tripartite disc wheels, i.e. wheels made of three planks joined together by mortise and tenon with their outer edges trimmed to a circle. The invention of the spoke, which made wheels much lighter and therefore transportation much swifter, was considerably later and it may be significant that we can reconstruct no word for ‘spoke’, even on a regional basis (unless Toch B *pwenta ‘spokes’ and Skt *pavi- ‘wheelband’ go together). It is probable that the invention of the spoked wheel (c. 2500–2000 BC) may post-date the time of Proto-Indo-European unity.

Water transport is indicated by four words. The basic word for ‘boat’ appears to be the widely attested *nēh₂us from *(s)nēh₃a- ‘swim’ (e.g. OIr *nāu, Lat nāvis [> NE nave (of a church)], Grk nāuis, Oss naw, Skt naw-, all ‘boat’). Because *h₂oldhu- preserves meanings such as Germanic (e.g. OE *ealdōh) ‘trough’ beside ‘boat’ in other language groups (e.g. Lith aldijā ‘boat’, Rus lódka ‘boat’, Toch B *olyi ‘boat’), it suggests that the original referent may have been a dugout boat of some sort. A Germanic-Tocharian isogloss (e.g. OHG skalm, Toch B *kolmo, both ‘boat’) secures *(s)kolmo/eh₃a- which is derived from *(s)kel- ‘cut’. Baltic and Indic attest a *h₁erh₁trom ‘oar, paddle’ from *h₁erh₁- ‘row’ (Lith įrklas, Skt aritra-). Other formations from the same root include Lat rēmus ‘oar’ and OE réðor ‘steering-oar’ whence NE rudder. None of the reconstructable terminology for boats suggests anything more than canoes or other small craft suitable for crossing rivers or lakes.

Regional transport terms comprise (from the North-West) *k₄sos ‘wagon’ (Lat currus ‘chariot, wagon’, MWels carr ‘wagon’ [> by borrowing NE car]) from *k₃ers- ‘run’ and *tengh₃s- ‘pole’ (e.g. Lat *temō, OE ḫōsl ‘wagon-pole, shaft’) from *ten- ‘pull, stretch’. The root *dhregh₃- ‘run’ supplies the basis for the noun *dhoğhos ‘wheel’ in Celtic (OIr droch), Grk *trokhos, and Arm durgn
'potter’s wheel’ although this nominalization may have been independently formed.

15.7 Roads

Most words for ‘path’ or ‘road’ tend to be transparent derivations from verbal forms ‘go’. For example, the verbal root *h₁ei- ‘go’ yields an extended (and heteroclitic) noun *h₁éit (genitive *h₁i tínós) ‘way, road’ which is seen in Lat iter ‘a going, walk, way’, Hit itar ‘a going’, and Tocharian (e.g. Toch B ytārye ‘road, way’). The root *pent- ‘find one’s way’ provides the base of *pöntṓhs (untraced) path’ seen in Celtic (e.g. OIr āitt ‘place’, Lat pōns ‘bridge’, OPrus pintis ‘way’, OCS pōtī ‘way’, Grk pōntos ‘sea’ (< ‘path through the sea’) and pātos ‘path’, Arm hun ‘ford’, and Indo-Iranian (e.g. Skt pānthās ‘path’); an Iranian form was borrowed into Germanic to give us NE path. PIE *per- ‘go across’ gave *pértus ‘passage, way’ which is known from Celtic (e.g. Gaul ritu- ‘ford’), Lat portus ‘harbour’, Germanic (e.g. NE ford), and Iranian (e.g. Av pə́r tu- ‘ford, bridge’). And if not independently formed from *sent- ‘go’, we may have in *sentos ‘way, passage’ another word of IE antiquity with cognates in Celtic (e.g. OIr se¯t ‘road’), Germanic (e.g. OE sı̄þ ‘way’), Arm ənt’ac ‘way, passage’, and Toch A ə́ọ́nt ‘street’. Finally, from the noun *ped- ‘foot’, we have *pedom ‘footprint, track’, attested in Celtic (MIr inad < *enipedo- ‘position, place’), Lat peda ‘sole, footprint’, Germanic (ON fet ‘step’), Baltic (e.g. Lith pėdà ‘footprint’), OCS podū ‘ground’, Grk pédon ‘ground’, Arm het ‘footprint, track’, Hit pēdan ‘place’, Indo-Iranian (e.g. Skt padám ‘track’), and perhaps Tocharian (e.g. Toch B pā́tsa ‘bottom’).

Regionally, we have from the North-West a possible Latin-Baltic isogloss in Lat via ‘way, road’, Latv veža ‘track’ (or merely independent derivations from *weğh- ‘move’ that also yields a series of other similar nominalizations, e.g. *weğhos > NE way). From the West Central region we have *stighs

Table 15.6. Roads

<table>
<thead>
<tr>
<th>Form</th>
<th>Meaning</th>
<th>Language(s)</th>
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</thead>
<tbody>
<tr>
<td>*h₁éit</td>
<td>‘way, road’</td>
<td>Lat iter</td>
</tr>
<tr>
<td>*pöntṓhs</td>
<td>(untraced) path</td>
<td>Lat pōns, Grk pōntos, Skt pānthās</td>
</tr>
<tr>
<td>*pértus</td>
<td>‘passage, way’</td>
<td>Lat portus, NE ford</td>
</tr>
<tr>
<td>?*sentos</td>
<td>‘way, passage’</td>
<td>Lat peda, Grk pédon, Skt padám</td>
</tr>
<tr>
<td>*pedom</td>
<td>‘footprint, track’</td>
<td></td>
</tr>
</tbody>
</table>
‘path’ with cognates in Germanic (ON stig ‘step’), Slavic (OCS stídza ‘step’), and Grk stikhos ‘row, line’; it derives from the verbal root *steigh- ‘step, go’.

15.8 Proto-Indo-European Material Culture

The reconstructed lexicon provides broad categories of PIE material culture that can be compared with the archaeological record. Some of the terms for containers, e.g. *welutrom, *h₂em-, *poh₁tlom, may be independent creations; others may suggest vessels made of wood (*tekšteh₂-) or perhaps skin (*pēl (h₁)ewis). Nevertheless, there are also words such as *kʷerus that suggest the existence of an originally ceramic container which, over time and space, was transferred to later metal containers such as cauldrons. Another probable ceramic vessel would have been the *h₂/₃ukʷ- and, regardless of the etymological force of some of the other words, e.g. *kumbho/eh₁-; they are often described as ceramic. Other terms for the manipulation of clay and the extensive evidence for domestic cereals clearly indicate that the Proto-Indo-Europeans possessed a ceramic inventory. Our failure to reconstruct more terms is probably due to the instability of a semantic category which was so prone to change because the ceramic forms of the Indo-Europeans in their expansions frequently changed so much that many original terms were probably replaced over time (this stylistic instability can be compared with many traditional Chinese vessels whose forms can be traced back to the Neolithic).

The vocabulary associated with metallurgy is very restricted and at best we can attest the existence of copper/bronze, gold, and silver; words associated with later technologies such as ‘iron’ escape reconstruction to any great antiquity. Copper has considerable antiquity and appears from the Early Neolithic in restricted areas of Eurasia (South-West Asia, Anatolia, the Balkans), and by the fourth millennium BC it was widely found over much of Europe. It may be significant that we cannot reconstruct a word for ‘tin’ to any degree of antiquity and so the original meaning of the word was more likely ‘copper’ than the ‘copper-tin’ alloy, i.e. ‘bronze’. Gold is temporally a little more diagnostic in that it does not appear anywhere in quantity until the fifth millennium BC when it is found in abundance, particularly in south-eastern Europe, and by the fourth millennium BC it spread over a substantial area of Eurasia. Silver is the most diagnostic metal in that it does not appear anywhere earlier than about the mid fourth millennium BC when we can find it from eastern Europe to the Yenisei; it appears somewhat later in the Aegean and the rest of Europe. For this reason, acceptance of a metallurgical package that includes copper, gold,
and silver suggests a horizon for Proto-Indo-European in the later Neolithic to Early Bronze Age.

Three of the names for metals are associated with colour terms (see Section 20.4) and it has been argued that such colour terms, i.e. *h₁roudhos ‘red metal’, *ghel- ‘yellow metal’, and *h₂erg-ut-om ‘silver metal’, are more likely to have been formed on the basis of the metals rather than the reverse, e.g. the plant names ‘rose’ and ‘orange’ give us colour words, the turquoise shell gives the colour ‘turquoise’. Some have claimed that *h₁roudhos derives from Sumerian urudu ‘copper’, hence, the ‘copper colour’. But *h₂eusom ‘gold’ from a root ‘shine’ indicates that the reverse process might also have obtained in Proto-Indo-European.

Of the terminology for tools, the most diagnostic are those associated with ploughing (*h₁ër₂ye/o-, *ghel-, *mat-). The earliest evidence for the plough anywhere is about the sixth millennium BC (Near East) and solid evidence for ploughs or ploughing (archaeologists can occasionally uncover the scratch marks of early ploughs) in Europe dates to about 3500 BC with some potential evidence that might place it a millennium earlier. Cultivation during the Early Neolithic is generally associated with digging sticks and hence the attribution of the plough to the proto-lexicon provides further support for those who believe that Indo-European ‘unity’ existed until the later Neolithic.

Most of the remaining tools refer to fairly generic implement types. Axes, for example, have existed since the Lower Palaeolithic (in stone), and while it is perhaps somewhat more likely that the Proto-Indo-European terms referred (at least initially) to stone axes (either chipped flint or polished stone), copper axes are also fairly widespread by the fourth millennium BC.

The reconstructed Indo-European arsenal is not extensive. In the strict sense the lexical evidence for archery is limited to Greece and the Indo-Iranian world. Since the bow and arrow was ubiquitous across Eurasia during the Mesolithic and Neolithic, there is no doubt that the Proto-Indo-Europeans possessed archery and that the lexicon suffered severe attrition; one major cause of loss was the downgrading (in some cases total abandonment) of archery during the Bronze and Iron ages in some regions of Europe. Spears have an even longer pedigree (extending well back into the Palaeolithic) and may again have suffered lexical attrition due to the proliferation of later bronze and iron spearhead types. The tendency for the reflexes of *h₂aŋsis to mean ‘sword’ makes it attractive to imagine its proto-referent to have been a metal dagger; such daggers, made in copper or bronze, appear during the fourth millennium BC.

The vocabulary concerning wheeled transport has often been regarded as one of the most diagnostic semantic fields in the reconstructed lexicon. The existence of wheeled vehicles in Proto-Indo-European appears unassailable
given the number of terms for the vehicle (*weghnos, *h₂em-h₂eks-iho₃*), wheel (*k₃welo₃m, *h₂dggi₃*-), axle (*h₂eks₃*-), shaft (*h₂éih₁os₃*), and probably the nave (*h₂nobb₃*- and reins (*h₂ensiyo/eh₂r₃*-). The participation of Hittite in this semantic sphere is admittedly weak: it lacks a specifically IE word for the actual wagon (Hittite employs the word tiyarit- and huluganni- for wheeled vehicles) and the Hittite-Tocharian isogloss *h₂dggi₃* for ‘wheel’ is contested by some; this leaves *h₂éih₁os₃* ‘shaft’ and *dhwerh₂₃* or *yugóm₃*, both ‘yoke’, which, some have suggested, might be extended to the pulling of ploughs and not necessarily vehicles. Others would not read this evidence so negatively and would accept that Anatolian also received some of the PIE vocabulary relating to vehicles (and did not separate itself prior to the invention of wheeled vehicles). The earliest evidence for wheeled vehicles, in this case heavy four-wheeled wagons, dates to the fourth millennium BC both in Mesopotamia and in central and eastern Europe, including the north Caucasus.

**Further Reading**

The basic encyclopedias such as Schrader–Nehring (1917–28) and Mallory–Adams (1997) cover material culture in considerable detail. Other readings include tools (Hamp 1975, Puhvel 1964, Thomson 2001, Wüst 1956); ornament (Mayrhofer 1974); weapons (Huld 1993, Maher 1986, Watkins 1986a, Schlerath 1997, Schrijver 2004); transport (Darden 2001, Raulwing 2000), roads (Benveniste 1954, Kololiec 1984), and metals such as ‘gold’ (Witczak 1994b, Driessen 2003) and ‘silver’ (Mallory and Huld 1984, Untermann 1989).
16 Food and Drink

16.1 Eat and Drink

The topic of this chapter is hunger, the preparation and ingestion of food, and the limited evidence there is in Proto-Indo-European for various foods and drinks. Table 16.1 lists the vocabulary associated with hunger and the ingestion of food.

There is only one word reconstructed to Proto-Indo-European that means ‘hunger’ (a Hittite-Tocharian isogloss) and even this is problematic in that a comparison between Hit $\text{kást}$- ‘hunger’ and Toch B $\text{kest}$ ‘hunger’ still only yields a PIE $\text{Kos-t}$-, i.e. we can only say that the word begins with a velar but must be uncertain which velar that is (it could be $\text{ges}$-, for example) since in both Anatolian and Toch A an initial stop will always be voiceless, whatever voicing or aspiration it may have had in Proto-Indo-European.

Many languages distinguish the consumption of foods by animals from that of humans (e.g. NHG $\text{essen}$ ‘to eat’ but $\text{fressen}$ ‘to eat like an animal’) and a number of the verbs listed here may originally have applied exclusively to one or the other. The most widely attested, apparently the basic, word for ‘eat’ is $\text{*h₁édmī}$ which is found in every major IE group save Albanian (e.g. OIr $\text{ithid}$ ‘eats’, Lat $\text{ēdō}$, NE $\text{eat}$, Lith $\text{ėdu}$ ‘eat’, Grk $\text{ēdō}$ ‘eat (up), devour’, Arm $\text{utem}$ ‘eat’, Hit $\text{ētmi}$ ‘eat’, Av $\text{ādāti}$ ‘let eat’, Skt $\text{ādmi}$ ‘eat’, Toch A $\text{nātsw}$- ‘starve’ < *‘not-eat’). Albanian does share a cognate with Indic words that
attest *həeu- ‘eat’ (e.g. Alb ha ‘eat’, Skt āvayati ‘eats, consumes’). This *həeu-may be the same as the root reconstructed as *həeu- ‘favour, enjoy’ (see Section 20.6). The verb *gras- generally means ‘eat, swallow’ (e.g. ON kras ‘delicacy’, Grk gra´o¯ ‘gnaw, eat’, Skt gra´sate ‘swallows, consumes’) but as it also yields the word for ‘grass’ in Lat gra¯men, it is possible that it may have originally referred to herbivores (or Latin transferred the word to herbivores). Variation in the final (ambiguous) labial in *gˆeP- has suggested that it might have been a popular word (and therefore frequently altered); in Celtic and Germanic it is represented as nouns pertaining to the ‘orifice’, e.g. ‘mouth, beak, jaw, snout’ (OIr gop ‘muzzle, snout, beak’, OE ceafl ‘jaw, jowl’ [> NE jowl]) but it appears in verbal form in Baltic and Slavic (e.g. Lith žebiu¯ ‘masticate, eat slowly’, Rus zobâtî ‘eat’); in Avestan a nominal derivative zafar- ~ zafan- refers exclusively to the ‘mouth of a demonic being’, the Avesta often distinguishing words applied to demons from those applied to gods or humans. The verb ‘chew’ is found in *gˆeuh-x- (e.g. NE chew, Rus žujú ‘chew’, NPers jāvīdan ‘chew’, Toch AB šuvā- ‘eat’) and perhaps also as *treg- (Grk trōgō ‘gnaw [particularly
raw fruit], Arm *t'urc ‘jaw’, Toch B *tresk- ‘chew’) which may also mean ‘gnaw’. There are three verbs associated with ‘swallowing’. The best attested is *g"erh₃- (e.g. Lat vorō ‘swallow [up], devour’, Av jaraiti ‘swallows’, Skt girāti ‘swallows’; some of the cognates indicate swallowing a liquid, e.g. Lith geriū ‘drink’, while others are clearly associated with devouring meat, e.g. Grk borā ‘meat, food of a predator’. There are fewer distinctions in the meanings descended from *k"em- ‘swallow’ (e.g. Icelandic hvōma ‘swallow’, Arm k’imk ‘throat’, Av a-šam- ‘sip’, Skt cămāti ‘swallows’), while *srebh- (e.g. Lat sorbeō ‘sup, swallow, absorb’, Alb gjerb ‘sip, tipple’, Grk hropheō ‘gulp down’, Arm arbi ‘drink’, Hit s(a)rap- ‘gulp’) often means ‘slurp’ (in Germanic, e.g. MHG sürpfleln, Baltic, e.g. Latv strebju ‘slurp, spoon’, Slavic, e.g. OCS srūbati ‘drink noisily’) and suggests onomatopoeia, i.e. the sound (to a Proto-Indo-European speaker) of one gulping down food; curiously enough, the Toch B cognate (sa"rp-) indicates the ‘beating of the heart’ (because of the ‘lub-dub’ noise of the beating heart).

There are two words for ‘drink’. Anatolian retains evidence of *h₁ég"hmi, e.g. Hit ekumi ‘I drink’, and this is probably the earlier word, found in Italic (Lat ēbrius ‘having drunk one’s fill, drunk’), Grk nēphō ‘am sober’ (< *ne-h₁ég"hō ‘not drink’), and Tocharian (Toch AB yok- ‘drink’), which was subsequently replaced (by semantic shift) by *peh₃(i)- ‘drink’, originally indicating ‘swallow’ (e.g. OIr ibid, Lat bibō, OPrus poieiti, OCS pijō, Alb pi, Grk pīnō, Arm āmpem, Skt jībati, all ‘drink’, but Hit pāsi ~ paszī ‘swallows’). This last example is sometimes taken as lexical evidence for the Indo-Hittite hypothesis: the semantic change from ‘swallow’ to ‘drink’ happened to the residual Indo-European community after the Anatolian branch had separated from it.

Other oral activities would include the widespread attested *leig₇- ‘lick’ (e.g. OIr ligid, Lat lingō, NE lick, Lith liežių, OCS lizati, Grk leikhō, Arm līzem, Av raēza-, Skt leh-, all ‘lick’). The concept of ‘taste’ was closely bound to ideas of ‘enjoy, please’ and there are two terms in Proto-Indo-European for this. The root *ģeus- is widespread and the semantics range from ‘taste’ to ‘test’ to ‘that which is pleasing’ (e.g. OIr do-goa ‘choose’, Lat dēgūnō and gustō ‘taste’, NE choose, Grk geúomai ‘taste’, Av zaos- ‘be pleased’, Skt jūṣāte ~ jūṣati ‘enjoys’). The Graeco-Aryan isogloss *sweh₉de/o- (e.g. Grk hēdomai ‘rejoice’, Skt svādate ‘becomes savoury’) is limited in area but underlies the derived adjective found widely in Proto-Indo-European that indicates ‘sweet’ (*sweh₉dūs). The verb ‘suck’ is well in evidence as *dhēh₁- (e.g. OIr denid ‘sucks’, Lat fēlō ‘suck’, OHG tāju ‘suck’, Latv déju ‘suck’, OCS dojō ‘suckle’, Grk thēsato ‘sucked’, Arm diem ‘suck’, Skt dhāyati ‘sucks, suckles’).

Words for ‘food’ in general are uncertain. Grk edanōn, Anatolian (Hit adamma-), and Skt ādamaṁ all attest a noun which both etymologically and colloquially could be translated as ‘eats’, i.e. *h₁edonom from *h₁ed- ‘eat’ but
the formation is so banal that the (approximately) same word may have been created independently in the various groups. A word for ‘nourishment, strength’ is seen in *wör(h)gś but only in Hit wargant- does it mean ‘fat’ while the other cognates all attest more abstract meanings, e.g. ‘anger’ (Grk ὀργή ‘natural impulse, mood, anger’), ‘power’ (e.g. Av varṣ- ‘power’, Skt उर्ज- ~ उर्जय- ‘strength, nourishment’).

We cannot reconstruct a word for ‘meal’ outside a ritual context where we have two words: *dapnom (cf. Lat daps ‘sacrificial meal’, ON tafn ‘sacrificial animal’, Grk δαπανή ‘ostentatious expenditure, consumption’, Arm tawn ‘feast’, Hit tappala- ‘person responsible for court cooking’, Toch A tāp- ‘eat’) which derives from *dap- ‘apportion’, i.e. share out food in the context of a communal feast, and *tolko/eha- which indicates an ‘afterwork feast’ in Baltic and Slavic (e.g. Lith talká ‘collective assistance; feast after such a work’, Rus толока́ ‘afterwork feast’) and ‘sacrifice’ in Tocharian (e.g. Toch B telki).

Finally, there are three terms that are probably confined in their proto-meanings to livestock. The verb *peh₂- generally indicates what a herdsman does, i.e. ‘guard, graze’ the livestock (e.g. Lat pāscō ‘feed, lead to pasture; nourish’, OCS pās- ‘protect, guard’, Hit pah(h)a)- ‘protect’, Av pāti ‘guards’, Skt pāti ‘guards’, Toch B pāsk- ‘guard, protect’), or associated concepts such as ‘meadow’ (NWels pawr) or ‘fodder’ (e.g. NE fodder; OIr aínches shifts the meaning to ‘bread basket’). As opposed to the transitive activities of what a herdsman does to his herds or flocks, the root *wes- ‘graze’ indicates what the animals do themselves (e.g. OIr fess ‘food’, OE wesan ‘feast, cause to graze’, Hit wesi- ‘pasture’, wesiya- ‘graze’, Av vāstar- ‘herdsman’, Toch A wāsri ‘grassy area, pasture’). The root *pen- suggests the ‘fattening up’ of an animal (e.g. Lat penus ‘store of food’, Lith penū ‘fatten’, Pal bānu ‘liver’ (|=*’the fattened one’)).

North-Western words include *smeg- ‘taste (good)’ (e.g. OE smæc ‘taste’, Lith smaguriąuti ‘delight in, nibble on, have a sweet tooth’); *seug/k- ‘suck’ (e.g. Lat sūgē, NE suck, Latv sūzu ‘suck’, OCS sūṣo ‘suck’); and possibly *pitus if the Celtic (OIr ith ‘grain’), Baltic (Lith pieštā ‘meal’, and Slavic (OCS pišta ‘meal’) words are not independent creations from an unattested verbal root *peih₂- ‘be fat/swollen’ (for other derivatives of this putative root see Section 16.3). The West Central region evidences *kenk- ‘hunger’ (e.g. NE hunger, Lith kanką ‘pain, torment’, dialectal Grk κέγκει ‘is hungry’; *dórkʷ-om ‘evening meal’ (e.g. Alb darkē, Grk dórpon, cf. also Alb drekē ‘breakfast’, Bret dibri ‘lunch’); *mandh- or *mant- ‘chew’ (e.g. Lat mandō, OIr métal ‘belly’, OHG mindil ‘bite’, dialectal Grk máthuiai ‘jaws’) with phonological reshaping suggestive of a ‘popular’ word; *lab- ‘lick’ (e.g. Lat lambō, NE lap, Grk lápē ‘slurp, drink’, Arm lap‘el ‘lick’) and *lak- ‘lick’ (e.g. Lith lakū ‘lap up’, OCS loču ‘lick’, Arm lakem ‘lick’), both ‘popular words’, the first with both uncharacteristic
\*a and \*b, and \*sap\- or \*sep\- ‘± taste, come to know’ (e.g. OE sefa ‘understanding’, Osc sipus ‘knowing’), difficult because the Armenian cognate (ham ‘taste, juice’ [\< \*sapno\-?]) is uncertain; Lat sapiō ‘taste’ provides a basis for sapiēns ‘wisdom’.

16.2 Preparation

There are a number of verbs that may be grouped under a general concept of ‘food or drink preparation’. These are listed in Table 16.2.

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>*h₂eu(h₃)s-</td>
<td>‘draw water’</td>
<td>Lat haurio¯, Grk aiō</td>
</tr>
<tr>
<td>*h₂en-</td>
<td>‘draw (liquids)’</td>
<td>Grk ántlon</td>
</tr>
<tr>
<td>*yeuh₂x-</td>
<td>‘mix something moist’</td>
<td>Lat iūs, Grk zūmē, Skt yāuti</td>
</tr>
<tr>
<td>*kerh₂-</td>
<td>‘mix’</td>
<td>Grk kírnēmi, Skt śṛmāti</td>
</tr>
<tr>
<td>*meik-</td>
<td>‘mix’</td>
<td>Lat misceō, NE mix, Grk mısго, Skt mekṣayati</td>
</tr>
<tr>
<td>*menth₂-</td>
<td>‘stir’</td>
<td>Skt ma(n)th-</td>
</tr>
<tr>
<td>*yeug-</td>
<td>‘stir up, incite; be unquiet’</td>
<td>Lat fermentum, Grk porphūrō, Skt bhurāti</td>
</tr>
<tr>
<td>*bher-</td>
<td>‘seethe, bubble’</td>
<td>Lat ferveō, NE brew, Skt bhurvāti-</td>
</tr>
<tr>
<td>*bhreu-</td>
<td>‘seethe’</td>
<td>NE seethe</td>
</tr>
<tr>
<td>*seu-</td>
<td>‘boil (something)’</td>
<td>NE yeast, Grk zēō, Skt yāsyati</td>
</tr>
<tr>
<td>*yes-</td>
<td>‘boil’</td>
<td>Grk hrotos</td>
</tr>
<tr>
<td>*sret-</td>
<td>‘boil, be agitated, move noisily’</td>
<td>Lat cāseus, Skt kvāthati</td>
</tr>
<tr>
<td>*kwat-</td>
<td>‘ferment’</td>
<td>Lat frīgō, Grk phrūgō, Skt bhejjāti</td>
</tr>
<tr>
<td>*bhrg-</td>
<td>‘roast’</td>
<td>Lat coquo¯, Grk péssō, Skt pācāti</td>
</tr>
<tr>
<td>*pek&quot;-</td>
<td>‘cook, bake’</td>
<td>Grk ōmōs, Skt āmā-</td>
</tr>
<tr>
<td>*wer-</td>
<td>‘boil, cook’</td>
<td></td>
</tr>
<tr>
<td>*h₂omōs</td>
<td>‘raw, uncooked’</td>
<td></td>
</tr>
</tbody>
</table>
forms meaning ‘pottage’ and ‘soup’ (see Section 16.3). The other two roots, *kerh*- (e.g. OE hrīran ‘move, stir’, Grk kīrēmi ‘mix’, Av sar- ‘associate with, mix with’, Skt śrīnāti ‘mixes, mingle’)) and *meik-* (e.g. Olr mescaid ‘mixes, agitates, troubles’, Lat misceō ‘mix’, NE mix, Lith miščsti ‘mix’, OCS měšti ‘mix’, Grk misgō ‘mix’, Av minashti ‘mixes’, Skt mekṣayati ‘mixes, stirs’), mean ‘mix’ and ‘stir (up)’. The act of ‘stirring’ is found in both *menth*- (e.g. ON mondull ‘handle on a pestle’, Lith mėšti ‘stir, agitate’, OCS městi ‘disturb, molest’, Skt mānt ‘stir, whirl, churn, hurt, destroy’, Toch B mant- ‘remove, destroy, pour out’) and *yeug-* (e.g. Goth jukan ‘fight, struggle’, Av yaozatti ‘stirs oneself up’, Toch B yuκ- ‘overcome, surpass’). Obviously, these roots can also mean ‘stir up’, i.e. ‘agitate’, but the first does show occasional culinary contexts.

There are a number of terms employed to indicate ‘boiling’. The root *bher-* shows considerable semantic variation, e.g. ‘well’, ‘yeast’, ‘bubble’, ‘move quickly’ (e.g. Mlr fobar ‘well’, Lat fermentum ‘ferment, leaven’, OE beorma ‘yeast, leaven’, Grk porphărō ‘bubble’, Skt bhurāti ‘moves rapidly, quivers’) so its underlying meaning is somewhat conjectural. However, in its extended form as *bhreu-* it is clearly associated with ‘boiling’ or more specifically with ‘brewing’ in its European cognates (e.g. Olr herbaid ‘boils, seethes’, Lat fervēō ‘boil’, NE brew, Alb brumē ‘dough’, Skt bhuvāṇi- ‘restless, excited’). The meaning ‘brew’ is found only in the Germanic outcomes of *bhreu-* but there are nominal forms in Italic (Lat defrutum) and Thracian brūtōs ‘a kind of beer’ that indicate an alcoholic drink. The root *seu-* has both concrete meanings, e.g. ‘boil’ (e.g. NE seethe) or ‘stew’ (Av hāvayeitti), and more abstract ‘joke around with’ (Rus shtit). More clearly associated with food preparation is *yes-* (e.g. NWels ias ‘boiling’, OE gist ‘foam, yeast’ [> NE yeast], Grk zēō ‘boil, cook’, Av yaēšya- ‘boil’, Skt yāṣyati ‘boils’, Toch A yās- ‘boil’, Toch B yās- ‘excite, ravish’ [< *‘make boil’]) which generally does mean ‘boil’ (in Hittite the derivative ist(s)na- means ‘dough’) while *sret- or *sredh- can mean ‘boil’ but also it can mean ‘be agitated’ (e.g. Mlr srithit ‘spurt of milk or blood’, OHG stradan ‘effervesce, whirl, boil’, Grk hrōthos ‘rushing noise, roar of waves, clash of oars’, Toch B šārtt- ‘incite, instigate’). A meaning more akin to ‘ferment’ may be suggested for *kwat- which has meanings ranging from ‘cheese’ (Lat cāsequ) to ‘leaven, sour drink’ (OCS kvasů) and ‘boil’ (Skt kvāthati), or ‘foam up’ (Goth hvājian).

Words specifically indicating the ‘cooking’ of food are several. An extension of a root *bher-, i.e. *bhr-, may underlie cognate terms for ‘cook’ in Lat fūrō ‘roast, bake, fry’ (NE fry), Grk phrūgō ‘roast’, and Indo-Iranian (e.g. Skt bhṛjjāti ‘roasts’). More strongly attested and more productive is *pek-* which not only provides a word for ‘cook’ in nine groups (e.g. NWels pobiaf ‘bake’, Lat coquō ‘cook’ [> NE cook], Lith kepū ‘bake’, OCS pek ‘bake, roast’, Alb pjeq
‘bake’, Grk πέσσο ‘make ripen, cook’, Av pačaiti ‘cooks’, Skt pácati ‘cooks’, Toch AB pāk- ‘become ready for eating [i.e. ripen, be cooked]’) but also yields nominal forms, *pekʷtis ‘cooking’ in five and even a possible agent noun, *pekʷter- ‘cook’, in three groups. There is *wer- which also returns a meaning ‘cook’ or ‘boil’ across a number of Indo-European groups (e.g. Lith vėrdu ‘cook, boil’, OCS vīrjo ‘cook, boil’, Hit war- ‘burn’, Toch A wrātk- ‘cook’). Finally, five groups share a common Proto-Indo-European word for ‘raw’ or ‘uncooked’, i.e. *h₂omós (e.g. OIr om, Grk ὀμός, Arm ħum, NPers xām, Skt āmā-, all ‘raw’).

The West Central region provides *sem- ‘draw water’ (Lat sen-tīna ‘bilge-water’) if one accepts some questionable Greek cognates (e.g. āmē ‘bucket’) to go with the Celtic (OIr do-essim ‘pours’), Italic, and Baltic (Lith sēmti ‘draw water’). More secure is *bhōg- ‘bake, roast’ (e.g. NE bake, Grk phōgō ‘roast, toast, parch’).

16.3 Foods and Meals

The reconstructed menu of the Proto-Indo-Europeans is limited to the list of cognates indicated in Table 16.3.

<table>
<thead>
<tr>
<th>Cognate</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>*mē(m)s</td>
<td>‘meat’</td>
</tr>
<tr>
<td>*pīh₄-wr</td>
<td>‘fat(ness)’</td>
</tr>
<tr>
<td>*sēlpes-</td>
<td>‘oil, fat, grease’</td>
</tr>
<tr>
<td>*smērə-</td>
<td>‘oil, grease’</td>
</tr>
<tr>
<td>*h₁opīs</td>
<td>‘(animal) fat’</td>
</tr>
<tr>
<td>*seh₂-(e)l-</td>
<td>‘salt’</td>
</tr>
<tr>
<td>*h₄melg-</td>
<td>‘to milk’</td>
</tr>
<tr>
<td>*g₁lākt</td>
<td>‘milk’</td>
</tr>
<tr>
<td>*dhēdhh₁i</td>
<td>‘± coagulated (sour) milk’</td>
</tr>
<tr>
<td>*pīph₁usih₁a</td>
<td>‘rich in milk’</td>
</tr>
<tr>
<td>?*(k)sweid-</td>
<td>‘milk’</td>
</tr>
<tr>
<td>*ksih₃róm</td>
<td>‘± (skim) milk, whey’</td>
</tr>
<tr>
<td>*tēnk₁</td>
<td>‘buttermilk’</td>
</tr>
<tr>
<td>?*rēughmen-</td>
<td>‘cream’</td>
</tr>
<tr>
<td>*twōh₂</td>
<td>‘curds, curdled milk’</td>
</tr>
<tr>
<td>*mēlīt</td>
<td>‘honey’</td>
</tr>
</tbody>
</table>

(Cont’d)
Widely and solidly attested, almost invariably with the same meaning of ‘meat’ across eight groups, is *me¯´ (m) which also has derived forms such as Lat membrum ‘member’ (which originally indicated a part of a carcass), Grk meˆnigks ‘skin, meninges’, OIr mı¯r ‘bit [< *bit of meat], portion, share’, Rus mjazdra´ ‘meat side of skin’. There are a number of words associated with ‘fat’. A Greek-Indic isogloss guarantees *pı´h ḡw (Grk pıˆar ‘fat, tallow’, Skt pı¯´vas- ‘fat’) but it is suggested that it also has Celtic cognates including the name of ‘Ireland’ itself, i.e. both the goddess Eriu and the name of the island is ‘fertile’ (< *pı´h weryo¯n), i.e. fertile land (one might compare the name of a district in Thessaly, Pı¯erı´a¯, and the Homeric phrase pı¯´eiran a´rouran ‘fertile land’). The o-grade of *sępıes- is found in Germanic where it yields NE smear and perhaps in Alb gjalpê ‘butter’. The e-grade is to be seen, for example, in Grk élpos ‘oil, fat, grease’, Skt sarpi- ‘melted butter’, Toch B šalye ‘unguent, fat’ (and possibly Alb gjalpê). The Germanic and Tocharian reflexes of *smé- indicate ‘oil’ or ‘grease’ (e.g. NE smear, Toch B śnare ‘oily, greasy’) while the Celtic mean ‘marrow’ (e.g. OIr miur). A well-attested series indicates a word for ‘animal fat’, i.e. *h₁opı¬s (e.g. Lat ad-eps ‘lard, suet’, Hit apuzzi ‘animal fat, tallow’, Roshani aḍawof (< *ad-op-eko-) ‘piece of lard’, Toch B op ‘± fatness’, and probably Arm atoc ‘abundant, fertile’). The preservation of meat was effected through the use of ‘salt’, *sehₐ(e)l-, a word attested in no less than ten groups (e.g. OIr salann, Lat sāl, NE salt, Latv sāls, OCS soli, Grk hāls, Arm al, Toch B saliye, all ‘salt’, Lith sōlymas ‘brine’, Alb ngjelmēt ‘salty’, Skt salilā- ‘sea, flood’).

The dairy vocabulary of the Indo-Europeans is impressively extensive. The verb ‘milk’, *hₐmelg-, is widely attested (although not in Indo-Iranian) and also serves as the basis for a series of nominalizations (e.g. for the verb: OIr bligid ~ bluigid, NE milk, Lith mėlžu, ORus múlzu, Grk amėlgō, Lat mulgeō, Toch A

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>*médhu</td>
<td>‘mead’</td>
<td>NE mead, Grk méthu, Skt mádhu</td>
</tr>
<tr>
<td>*kh₁ōnks</td>
<td>‘honey-coloured, golden’</td>
<td>Lat canicae, NE honey, Grk knēkós, Skt kánaka-</td>
</tr>
<tr>
<td>*kóhₐt</td>
<td>‘wax’</td>
<td>Grk kērós</td>
</tr>
<tr>
<td>*h₁elut-</td>
<td>‘beer’</td>
<td>NE ale</td>
</tr>
<tr>
<td>*sálehₐ-</td>
<td>‘± (fermented) juice’</td>
<td>Skt sürā-</td>
</tr>
<tr>
<td>*medhwihₐ-</td>
<td>‘intoxicator’</td>
<td>Skt Mādhavī-</td>
</tr>
<tr>
<td>*spend-</td>
<td>‘make an offering’</td>
<td>Lat spondeō, Grk spéndō</td>
</tr>
<tr>
<td>*yühₐs-</td>
<td>‘broth’</td>
<td>Lat ūs</td>
</tr>
<tr>
<td>*korn-</td>
<td>‘broth, mash?’</td>
<td>Lat cremor, Skt karambhā-</td>
</tr>
<tr>
<td>*wiss</td>
<td>‘poison’</td>
<td>Lat vīrus, Grk iós, Skt viśā-</td>
</tr>
</tbody>
</table>
mål:-; and, e.g., for the noun: OIr mlicht, Rus molokó, Alb mljel, Toch B malkwer). Another noun for milk,*g(ŋ)lákτ, is attested in Hittite as galaktar, a ‘milky fluid from trees and plants’ or, perhaps more generally, ‘soothing substance, balm, nutriment’ and in Grk gála ‘milk’, Lat lac ‘milk’, and in Nüristānī languages such as Waigali zór ‘milk’. The underlying verb is present only in Hit kala(n)k- ‘soothe, satisfy’. The more general meaning in Anatolian as opposed to the more specific ‘milk’ of the rest of Indo-European may be another instance of an ‘Indo-Hittite isogloss’ where residual Indo-European, after the separation from the Anatolian branch (or the reverse), underwent a specific lexical innovation not shared by Anatolian. A ‘sour milk’ is suggested by a noun,*dhédhh,i (e.g. OPrus dadan ‘milk’, Alb djathë ‘cheese’, Skt dádhi ‘coagulated milk, thick sour milk, curds and whey’), formed from *dheh1(i)- ‘suckle’. Both Baltic and Indic share a participial form of *peih₃- ‘be fat/swollen’, *pípíh₃,usíh₁, which means ‘rich (overflowing) in milk’ (e.g. Lith papíjusi ‘cow which produces milk’, Skt pípyuš- ‘rich in milk’). A possible Baltic-Iranian isogloss (e.g. Lith svı́estas ‘butter’, Av xšvı́- ‘milk’) yields *(k)sweid- ‘milk’ while Albanian provides the sole European example of an otherwise Asiatic *ksíh₁róm ‘milk’ (e.g. Alb hirrë ‘honey’, NPers šír ‘milk’, Skt kṣírām [thickened milk]). The verbal root *tenk- ‘become w rm, curdle’ yields a noun *teñkl8 ‘buttermilk’ (e.g. ON þél ‘buttermilk’, Skt takrám ‘buttermilk mixed with water’). A possible Germanic-Iranian isogloss also suggests a word for ‘cream’, *réugmen-, which survives in the British dialectal term ream (cf. also Av røỹna- ‘butter’). A word for ‘curdled milk’ is also indicated by a Slavic-Greek-Iranian isogloss,*twóh₁x. In Greek this word is reflected in túros ‘cheese’ and boutíros literally ‘cow-cheese’, i.e. ‘butter’, which was borrowed into Lat bātýrum - bātārum and then into English as butter; in Slavic we have for instance Rus oró ‘curds, soft cheese’, in Iranian we have Av tūrī- ‘curdled milk, whey’. Finally, the verbal root *ser- ‘flow’ has given rise to a number of words for ‘whey’ or ‘cheese’, i.e. Lat serum ‘whey, serum’, Alb gjițë ‘cottage cheese’, Grk orós ‘honey’, Toch B ʂarwiye ‘cheese’. Another semantic field with very good attestation is that of ‘honey’. The noun *mélit is found widely in the West and Centre (e.g. OIr mël ‘honey’, Lat mel ‘honey’, NE mildew [< *sweet sap], Alb bletë ‘honey-bee’, Grk méli ‘honey’, mêlissa ‘honey-bee’, Arm mehr ‘honey’, including Anatolian, e.g. Hit mēlīt- ‘honey’) and has one Iranian cognate in the form of a reference to melition, a drink of the Scythians. The fermented drink made from honey, ‘mead’, is *mēdhu (OIr mid ‘mead’, NE mead, Latv medus ‘honey; mead’, OCS medu˘ ‘honey; wine’, Grk méthu ‘wine’, Av maθu ‘berry wine’, Skt mādhu ‘honey; wine’, Toch B mit ‘honey’, mot [< *mēdhu- ] ‘alcoholic drink’). The Proto-Tocharian antecedent of mit ‘honey’ was borrowed into Chinese and appears in contemporary Chinese as mi ‘honey’. Although *kh₄,ônks
‘honey-coloured’ is basically a reference to a golden colour (e.g. Lat canicae [pl.] ‘bran’, Grk knēkós ‘pale yellow’, Skt kānaka- ‘gold’), it does yield the meaning ‘honey’ in Germanic (e.g. NE honey) and ‘bee’ in Tocharian (Toch B kronkšē). The related *kōh₂r- gives us the word for ‘wax’ or ‘honeycomb’ (e.g. Lith korūs ‘honeycomb’, Grk kērion ‘honeycomb’, kērōs ‘wax’). We have already seen that it is possible to reconstruct a word for ‘wine’ (cf. Section 10.3) and to this we can tentatively meet our criteria for positing a Proto-Indo-European ‘beer’, *h₂elut-, if we add to the North-Western forms (e.g. NE ale, OPrus alu ‘mead’, Lith alūs ‘beer’, OCS olū ‘beer’) an Iranian (Ossetic) cognate ælu¯ton ‘beer’. Some form of intoxicating drink is suggested by *silēh₂r- with meanings ranging from ‘curdled milk’ (OPrus sulo) and ‘kumiss’ (Av hura¯) to ‘(birch) sap’ (Latv sula) and an unspecified ‘intoxicating drink’ (Skt sūrā-; perhaps the word originally designated fermented [birch] sap). In addition to intoxicating beverages, one might also find the possible Celtic-Indic cognate *medhwhih₂r-, ‘intoxicator’ (OIr Medb, the queen of Connacht, Skt Mādhavī, a daughter of Yayāti), which is employed as the name of a deity. Within a religious context, the verb *spend- means ‘pour a libation’ in both Greek and Hittite (Grk spēndō, Hit sippand- ~ ispant-).

A ‘broth’ of some sort is clearly indicated by *yūh₂s- (e.g. Lat iūs ‘broth, sauce, juice’ [> NE juice], Lith jūše ‘fish soup’, Rus ukhā ‘broth, fish soup’, Grk zūmē ‘leaven’, Skt yūs- ‘soup, broth, water in which pulses of various kinds have been boiled’) from the root *yeuh₂- ‘mix together’ and less certainly by *korm- which may be a ‘broth’ in Italic (Lat cremor ‘broth, pap’) and Indic (Skt karam-bhā- ‘barley porridge, soup’) but is resolutely consumed as an ‘alcoholic drink’ in the different Celtic languages (e.g. OIr cuirm ‘beer’).

Finally, the noun ‘poison’, *wǐss, is unambiguously attested from Celtic to Tocharian (e.g. Mīr fī ‘poison’, Lat vīrus ‘potent liquid, poison, venom’, Grk iōs ‘[organic fluid] poison; stagnant smell and taste’, Av viš(a)- ‘poison’, Skt viśā- ‘poison’, Toch B wase ‘poison’) and derives from *weis- ‘flow (slowly)’.

From the West Central we have a word for ‘butter’, *h₂ēngʷn̩ (e.g. OIr imb ‘butter’, Lat unguen ‘fat, grease’, OHG ancho ‘butter’, OPrus anctan ‘butter’) from *h₂ēngʷ- ‘anoint’. A word *polt- ‘pap, porridge’ (e.g. OIr littiu ‘porridge, gruel’, Lat puls ‘pap, porridge, mash’, Grk pōltos ‘pap, porridge’) is found in Celtic, Italian, and Greek; *dhrogh- ‘dregs’ is attested in the West and Albanian (e.g. ON dregg, Lith drągēs [pl.], OCS drozdijë, Alb dra, and probably also Lat fracēs [pl.], though the phonological development is not altogether regular, all ‘dregs’; NE dregs is a Norse loanword). An Italic-Greek isogloss yields *leib- ‘pour, make a libation’ (Lat libāre, Grk leibō ‘pour out [drop by drop]’) while the root *gheu- ‘pour’ provides the basis for the nominal *gheumn- ‘libation’ in Grk xēīma ‘that which is poured’, Phryg zemām ‘libation’, and Skt hōman- ‘libation’. Finally, the Greek food of the gods, ambrosiā, finds an Indo-Iranian
cognate in the epithet (Av amśa-) or name of a diety (Skt Amśta-) and indicates a regionally attested ṣ-mr-tós ‘undying’ as an epithet for a sacred drink.

Given the strong evidence for cereal-growing (cf. Section 10.3) in the Proto-Indo-European community, it is a bit surprising that there is no unequivocal word for ‘bread’ (although there are terms for processed cereals). There is, however, a West Central word for ‘dough’, *(s)ṭeh₂ist (e.g. OIr taís ‘dough’, OE þœ¯ sma ‘leaven’, OCS tešto ‘dough’, Grk staĩs ‘dough of spelt flour’). This is a neuter noun of a very archaic shape and that archaic shape might argue for a greater antiquity for the concept ‘dough’, and hence bread-making in general, than its restriction to the West Central groups might otherwise suggest. That it would appear to be derivative of *(s)ṭeh₂- ‘stand’ suggests that we may well be reconstructing a term originally meaning ‘leavened dough’ rather than ‘dough’ in general. Words such as NE bread and Albanian brumė ‘dough’ from *bhreu- ‘boil, brew’ also suggest leavened bread but it is the archaic nature of *(s)ṭeh₂-ist that suggests a PIE antiquity for leavened bread.

16.4 Proto-Indo-European Diet

The proto-lexicon emphasizes a diet that included meat, broth, salt, dairy products, the consumption of alcoholic beverages (beer, mead, possibly wine); the reconstructed lexicon of plant remains (Chapter 10) suggests the range of vegetables that may have been consumed. While much of this vocabulary is fairly generic (Proto-Uralic attests the existence of animal fat and broths; its word for honey (*mete) is, as in the case of Chinese, a loan from Indo-European), some of the reconstructed food terminology is of more specific interest. The word for ‘salt’ (*seh₂(e)l-) for example, was a major issue of discussion among linguists of the nineteenth century because it was regarded as diacritical in locating the homeland near a natural source of salt such as the Black Sea or Aegean. In reality, salt springs and later salt mines were exploited over many areas of Eurasia since the Neolithic shift in diet that required salt both for dietary reasons (increasing consumption of cereals resulted in a reduction of salt intake from a meat diet) and for the preservation of meat.

Of greater interest is the abundance of terms associated with milk products, i.e. *h₂melǝ-, *gil(ǝ)lakt, *ḏédhḥi, *pipih₇usih₂, *(k)sweid-, *ksihᵿróm, *tënkl, *rückmen-, *twōḥ, which clearly indicates the exploitation of livestock for secondary products. Although both sheep and goats can be milked, the abundance of terms for dairy products in the proto-lexicon suggests the more intensive exploitation of cattle for milk. The chronological significance of dairying is mitigated by our inability to establish the date by which milking was developed in Eurasia. Some would suggest that dairying belongs to the
same horizon as other secondary products such as the plough and wheeled vehicles, i.e. the fourth millennium BC, while others would employ either age-slaughter patterns of cattle or the evidence of possible ceramic (milk) strainers to suggest an earlier date. The consumption of milk by adults also has genetic implications in that many people become lactose intolerant after childhood, i.e. become ill when they consume milk. This situation is particularly prevalent in the Mediterranean while lactose tolerance increases as one moves northwards. The ability to consume milk has been seen as a selective advantage among northern Europeans in that it helps replace the necessary quantities of vitamin D which is reduced in regions of poor sunlight. The processing of milk into butter or cheese reduces the ill effects of lactose intolerance.

The different alcoholic beverages also merit brief discussion. The word for ‘mead’ (*médhu) is well attested phonologically although it has seen some semantic shift in some of the Asiatic languages, e.g. Av madu- ‘berry wine’ (the Ossetic cognate myd, however, continues a base meaning ‘honey’). There is archaeological evidence for mead from the third millennium BC but it may be considerably older. Beer (*h₂elut-) is earliest attested, about the mid fourth millennium BC (Iran and Egypt), but it too may be older. The proliferation of drinking cups that is seen in central and eastern Europe about 3500 BC has been associated with the spread of alcoholic beverages and, possibly, special drinking cults.

Further Reading

17
Proto-Indo-European Society

17.1 Social Organization

There is a large number of words or roots that pertain to the general spheres of society, law, exchange, and warfare that can be reconstructed to various levels of Indo-European. Interpreting these semantic fields in very broad terms, we can indicate those that relate to society and social organization in Table 17.1.

The most loaded term in the reconstructed lexicon is *h₂erós or *h₂eryós ‘member of one’s own group’ which in Indo-Iranian is generally represented as ‘Aryan’. From *h₂erós we have Anatolian, e.g. Hit arā- ‘member of one’s own group, peer, friend’, Lyc arus- ‘citizens’, while *h₂eryós yields (perhaps) OIr aíre ‘freeman’, more certainly Av aírya- ‘Aryan’, Skt aíryá- ‘kind’, ārya- ‘Aryan’ (cf. ari- ‘faithful’). The evidence suggests that the word was, at least initially, one that denoted one who belongs to the community in contrast to an outsider; a derivative of the word is found in Hit āra ‘(what is) fitting’ and natta āra ‘not right’, cf. the use of kosher which originally meant (in Hebrew) ‘what is fitting’. Although in Indo-Iranian the word takes on an ethnic meaning, there are no grounds for ascribing this semantic use to Proto-Indo-European, i.e. there is no evidence that the speakers of the proto-language referred to themselves explicitly as ‘Aryans’. Another word for ‘people’, *h₁leudhos, is largely confined to the West (e.g. OE lēod ‘people, nation’, NHG Leute ‘people’, Lith liūdис ‘people’, OCS ljudje [pl.] ‘people’) but also has an Iranian cognate in Khowar
Table 17.1. Society and social organization

| **h**₄erós | ‘member of one’s own group’ | Skt árya- |
| **h**₁leudhos | ‘people, freeman’ | |
| *s*(w)ødhs | ‘custom, characteristic’ | Lat sodális, Grk éthos, Skt svadhā- |
| **h**₁euk- | ‘become accustomed’ | Skt úcyati |
| *kr*(e)u-bh- | ‘gather, amass’ | Grk krúptō |
| *sök*-h₂-ōi | ‘follower, companion’ | Lat socius, Grk aosséō, Skt sākhā- |
| **h**₆egmen- | ‘troop’ | Lat agmen, Skt ájman- |
| *p[th]₂w-ih₂|- | ‘country, land’ | Skt prthivī- |
| *w(n)nakts | ‘leader, lord’ | Grk (w)ánaks |
| **h**₃régς | ‘ruler, king’ | Lat rēx, Skt rāj- |
| *tagós | ‘leader’ | Grk tágōs |
| *wikpots | ‘master of the clan’ | Skt viśpáti- |
| *pótyetoi | ‘rules, is master’ | Lat pōtir, Skt påtyati |
| *wal- | ‘be strong, rule’ | NE wield, Lat valeō |
| *h*₂enthbi-kʷ-ōlos | ‘servant’ | Lat amculus, Grk amphípolos, Skt abhicara- |
| *h*₄upo-sth₂-i/o- | ‘servant’ | Skt úpasti- |

 roi ‘people; man, person’; it derives from the verbal root *h₁leudh- ‘grow, increase’, which in other forms is found, for example, in Lat liberī ‘children’.

The concept of ‘custom’ appears in *s(w)ødhs- (e.g. Lat sodális ‘companion’ [< *‘member of a group’], OE sidu ‘custom’, Grk éthos ‘custom, habit’, Skt svadhā- ‘character, peculiarity, custom’, Toch B sōtrī ‘sign, characteristic’) which has been analysed as a compound of *s(w)e- ‘own’ and *dl(e)h₁- ‘set, establish’. The verb ‘to become accustomed’ was expressed with *h₁euk- (e.g. OIr do-ucci ‘understands’, Goth bi-uhts ‘used to’, Lith juńksťu ‘become accustomed to’, OCS učiti ‘teach’, vyknoti ‘become accustomed’, Arm uṣanim ‘learn, be used to’, Skt úcyati ‘is accustomed to’). There is no word for ‘assemble’; the closest is ‘gather’, *kr(e)u-bh-, which can mean ‘herd together’ but does not really indicate a human assemblage (e.g. Grk krúptō ‘hide’, Toch B kraup- ‘gather, amass; herd’).

A ‘companion’ was quite literally a ‘follower’, i.e. *sökʷ*-h₂-ōi, from the verbal root *sekʷ- ‘follow’, and in Germanic explicitly indicates those who follow a leader into battle; Latin and Indo-Iranian tend to denote ‘friend, companion’ (Lat socius ‘partner, companion’, OE secg ‘follower’, Grk aosséō ‘help’, Av ḫaxā- ‘friend, companion’, Skt sākhā- ‘friend, companion’). Another transparent derivative is *h₆egmen- ‘troop’ from *h₆eḡ- ‘drive’ which is found in Lat agmen ‘troop, train’ and Skt ájman- ‘train’.
There is one word preserved that designates 'country' as a landmass, i.e., *plt-(thx)-h2w-ihɔr- which derives from *plethɔ- ‘broad, flat’, i.e. the ‘broad one’ (e.g. OE folde ‘land’, Arm hol ‘earth, country’, Skt prthiv- ‘earth’). The Celtic languages retain the word to designate Brittany (e.g. MIr Letha, NWels Llyddaw) while the Greeks similarly used it as a place name, i.e. Plátaia; both Celtic and Indic also deified the concept as an ‘(earth) goddess’ (Skt Prthiv- and Gaul Litavī(s)).

There are several words associated with leadership positions. A Greek-Tocharian isogloss secures *w(n)na̱kts which means ‘lord’ in both groups (Grk (w)ánaks ‘ruler, lord, prince’, Toch A nātūk ‘lord’). This correspondence is actually a double one since both Greek and Tocharian also reflect the derived feminine equivalent *wnáktihɔ (Grk (w)anassa ‘queen’, Toch A nāši ‘lady’). The far more widely discussed *h3re̱gɔs is taken to mean ‘king’ as it does carry this meaning in Celtic (e.g. OIr rı̱' (king)), Italic (e.g. Lat re̱x ‘king’), and Indo-Iranian (e.g. Av bārazi-rāz- ‘ruling in the heights’, Skt rāj- ‘king’) and it is also associated with verbs ‘to rule’. However, it appears not to have been exclusively political in its meaning but rather to have referred to a person who also had religious functions. Indeed in those situations where the monarchy itself disappeared, as in Rome or Athens, the title of ‘king’ remained in its priestly function (e.g. the Roman rēx sacrōrum). This word too has beside it a widespread feminine derivative (e.g. OIr ṛgain, Lat rēgīna, Khot ṛrṇa, Skt ṛjī-, all ‘queen’), though the details of the formation differ a bit in the various branches. The deeper etymology of this word has been frequently discussed; it is usually explained as an agent noun of *h3re̱g- ‘stretch out the arm, direct’ with some arguing that the word derives from the concept of a king who stretches out his arms in rituals, especially those laying out a precinct, or perhaps a more direct semantic development from ‘direct’ to ‘rule’. Another Greek-Tocharian isogloss is *tagɔs which indicates a ‘leader’ in both groups (e.g. Grk tāgɔs ‘leader’, Toch A tāši [pl.] ‘leaders’, and derives from *tāg- ‘put in order, arrange’) while the ‘master of the clan’ is indicated by *wikpots (e.g., Lith viėšpatis ‘master’, Av vispaiti- ‘master of the clan’, Skt viśpāti- ‘head of the household’). The verbal expressions of leadership are found in *pōtyetoi (e.g. Lat potior ‘I am master’, Av paṭṭyeiti ‘rules’, Skt pātyati ‘rules’); a denominative verb derived from *pōtis ‘head of house’; cf. Section 12.2) and *wal- which is widespread (e.g. Lat valeō ‘am strong’, OE wieldan ‘govern’ [> NE wield], Lith valdýti ‘rule’, OCS vlado- ‘rule’) and means generally ‘rule’ except where it has been nominalized in Tocharian to mean ‘king’ (e.g. Toch B walo).

There are two compound nouns, both from verbal roots, to indicate ‘servant’. Latin, Greek, and Indic all attest *h2enthi-kwɔlos (Lat anculus ‘servant’, Grk amphipolos ‘servant, priest’, Skt abhikara- ‘servant’), literally one who
'moves about on both sides' while Celtic (e.g. MIr foss ‘servant’) and Indic (e.g. Skt úpasti- ‘subordinate, servant’) show evidence of having inherited (or perhaps independently created) *h₁upo-sth₁-o- ‘servant’ (literally ‘one standing below’); a Celtic loan into Latin gives us the Late Lat vassus or vassalus, whence NE vassal.

The North-Western region provides evidence of *dhthroughós ‘companion, comrade’ (e.g. OE ge-dreág ‘troop’, Lith draugas ‘friend’, OCS drugú ‘friend, companion’); *ghostis ‘guest; stranger, enemy’ (e.g. Lat hostis ‘stranger, enemy’, hospēs ‘foreigner, guest; host’ [< *ghosti-pot- ‘guest-master’], OE slōg ‘army, host; crowd, company’, Lith slaugā ‘service’, Rus slug ‘servant’). More words derive from the West Central area: *dhēmos (‘segment of’ people) (e.g. OIr da¯m ‘troop, company, retinue’, Grk deˆmos ‘people’) from the verbal root *deh₁- ‘cut, divide’; *pleh₁dhweh₁s (‘the mass of’ people) (Lat plēbēs ‘plebeians [as opposed to the patricians]’, Grk plēthās ‘throng, crowd; [common] people’) whose root also supplies NE folk; and *teutēh₁- ‘the people (?under arms)’ (e.g. OIr tūath ‘a people, nation; [common] people’, Oscan touto ‘community’, OE þe¯od ‘folk’, Lith tautà ‘people’). The last and much discussed word may be Proto-Indo-European (if one accepts Hit tuzzi- ‘army’ as cognate) and was also employed in tribal and personal names, e.g. it provides NHG Deutsch (from OHG diutisk ‘belonging to the people’). A verb for meeting is seen in *mōd- ‘meet’ (NE meet) while a nominal form *ger- ‘herd, crowd’ also suggests the meaning ‘gather’ (e.g. MIr graig ‘horse herd’, Lat grex ‘herd, company’, Grk gārgara ‘crowd’). A ‘leader’, here specifically military, is seen in *koryonos ‘leader’ from *koryos ‘army’ (see Section 17.5). The verbal root *h₁eģ- ‘drive’ is at the basis of *h₁eģōs ‘leader’ (e.g. Grk agōs ‘leader’, Skt ajā- ‘driver’). Among the Graeco-Aryan isoglosses we find *h₁,ēpis ‘confederate’ (e.g. Grk ἑπισ ‘gentle, kind, soothing, friendly’, Skt āpi- ‘ally, friend, acquaintance’, āpyam ‘confederation, alliance, friendship’), possibly from *h₂ep- ‘join’; a possible *des- ‘enemy’ exists if one wishes to accept a questionable Greek cognate (doúlos ‘slave’ [< *dos-e-lo-], the semantic shift would result from the pragmatic fact that the source of most slaves was captured enemies); otherwise the word exists only in Indo-Iranian (e.g. Av dahyu- ‘region’, Skt dāśu- ‘demon, enemy; barbarian; slave’, dāsyu- ‘demon, enemy of the gods, impious man’) and has also been explained as a central Asian loanword into Indo-Iranian. Finally, we also have *ikēh₁- ‘rule’ (e.g. Grk ktaomai ‘procure’, Av xšayati ‘has power’, Skt ksáyati ‘possesses, rules’) which also supplies nominal derivatives, e.g. OPers xāyāhiya ‘king’ > NPers sāh ‘king, shah’ (> by borrowing NE shah and by a long route into NE checkmate in the game of chess [MPers sāh mat ‘the king [is] dead’]).
The verbal expressions of ‘giving’ and ‘taking’ are heavily weighted toward the latter as there are only three words that appear to be specifically ‘give’. The root *h₂ei- yields ‘give’ in Anatolian and Tocharian (e.g. Hit pai- ‘give’ [< *pe-ai-], Toch B ai- ‘give’) but ‘take’ in Grk aïnumai ‘take, seize’, a situation that we see does have quite a few parallels in that the action requires a ‘giver’ and a ‘taker’ and either side may become the focal point of the word (cf. NE take to but also take from). The Latin word (aemulus ‘emulator, rival’) is not entirely secure here. A far better attested word is *deh₃- (e.g. Lat dō ‘give’, Lith dūoti ‘give’, OCS dati ‘give’, Arm tam ‘give’, Hit dā- ‘take’) which is found in the reduplicated present form in Grk didōmi ‘give’ and Indo-Iranian (e.g. Av dadāiti ‘gives’, Skt dādāti ‘gives’), and Italic (e.g. Lat reddō [< *re-didō] ‘give back’). Only Hittite preserves the verbal form of *h₂/₃enk¬ (henkzi ‘bestows’) but there are nominal forms in Grk ógkos ‘burden’, Arm hunjk’ [pl.] ‘harvest’, and Indo-Iranian (Av āsa- ‘group of followers’, Skt āṃśa- ‘portion, share’) that show the root was once more widely attested.

Table 17.2. Give and take

<table>
<thead>
<tr>
<th>Root</th>
<th>Meaning</th>
<th>Latin</th>
<th>Greek</th>
<th>Sanskrit</th>
</tr>
</thead>
<tbody>
<tr>
<td>*h₂ei-</td>
<td>‘give’</td>
<td>Lat aemulus,</td>
<td>Grk aïnumai,</td>
<td></td>
</tr>
<tr>
<td>*deh₃-</td>
<td>‘give’</td>
<td>Lat dō, Grk</td>
<td>didōmi,</td>
<td>Skt dādāti</td>
</tr>
<tr>
<td>*h₂/enk¬</td>
<td>‘bestow’</td>
<td>Grk ógkos, Skt</td>
<td>āṃśa-</td>
<td></td>
</tr>
<tr>
<td>*h₁/ep-</td>
<td>‘take, seize’</td>
<td>Skt āpnóti</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*kap-</td>
<td>‘seize’</td>
<td>Lat capiō, NE</td>
<td>have,</td>
<td>Skt kapaṭi</td>
</tr>
<tr>
<td>*ghabh-</td>
<td>‘take, seize’</td>
<td>Lat habeō, Skt</td>
<td>gābhasṭin-</td>
<td></td>
</tr>
<tr>
<td>*ghrebh-</td>
<td>‘grasp, take, enclose’</td>
<td>Skt gṛbhṇāti</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*la(m)bh-</td>
<td>‘seize’</td>
<td>Grk lāmbānō, Skt</td>
<td>lā(m)bhaṭe</td>
<td></td>
</tr>
<tr>
<td>*nem-</td>
<td>‘take/accept legally’</td>
<td>Grk nēmō</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*dek-</td>
<td>‘take, accept’</td>
<td>Lat decect, Grk</td>
<td>dék(h)omai,</td>
<td>Skt dāśnōti</td>
</tr>
<tr>
<td>*dekes-</td>
<td>‘honour’</td>
<td>Lat decus, Grk</td>
<td>dékomai,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skt daśayātī</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*h₂/erk-</td>
<td>‘hold back’</td>
<td>Lat arceō, Grk</td>
<td>arkeō</td>
<td></td>
</tr>
<tr>
<td>*dher-</td>
<td>‘be immobile; support’</td>
<td>Lat jīrmus, Skt</td>
<td>dhārāyati</td>
<td></td>
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<tr>
<td>*h₂/eik-</td>
<td>‘possess’</td>
<td>Skt īše</td>
<td></td>
<td></td>
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<tr>
<td>*skabh-</td>
<td>‘hold up’</td>
<td>Lat scamnum, Skt</td>
<td>skabhṇāti</td>
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There are more words for ‘take’. Perhaps the oldest word is \(^*\text{h}_1\text{ep}\)-which is found in Anatolian and five other groups (e.g. Alb \textit{jap} ’give’, Arm \textit{unim} ’possess’, Hit \textit{epzi} ’takes’, Av \textit{apayei} ’obtains’, Skt \textit{āpōti} ’obtains’, Toch B \textit{yapoy} ’land’ [\(<\ast*\pm\) dominion]); the o-grade verb \(^*\text{h}_1\text{op}\)-’desire’ (Lat \textit{optō} ’wish’, OCS \textit{za-}(\textit{f})\textit{apū} ’presumption, suspicion’, Grk \textit{epi-ōpsomai} ’choose’) would appear to be a derivative. Also widespread is \(^*\text{kap}\)- which means ‘have’ in Germanic but tends to mean ‘seize’ in Baltic and Albanian (e.g. OIr \textit{ca¯in} ’law, tribute’, Lat \textit{capio¯} ’take’, NE \textit{have}, Latv \textit{ka`mpju} ’seize’, Alb \textit{kap} ’catch, grab, seize’, Grk \textit{kápto¯} ’gulp down’, Skt \textit{kapat} \_\[dual\] ‘two handfuls’). Although \(^*\text{ghabh}\)- is primarily attested in the West (e.g. OIr \textit{gaibid} ’takes’, Lat \textit{habeō} ’have’, Lith \textit{gabenu`} ’present’, Pol \textit{gabaś} ’seize’), it provides one of the Sanskrit words for ‘hand’ (\textit{ga´bhastin}-). A verb ‘grasp’ is seen in \(^*\text{ghrebh}\)-(Middle Dutch and MHG \textit{grabben} ’seize’, Latv \textit{grebju} ’seize’, OCS \textit{grabiti} ’snatch up’, Hit \textit{k(a)rap-} ’de- 17. SOCIETY
vor’, Av \textit{gərəwnātī} ’takes’, Skt \textit{grbhnātī} ’grabs’); the NE \textit{grab} is also related but is a loanword, probably from Middle Dutch. The root \(^*\text{la-}\text{mbh-}\) is generally found to underlie words for ‘goods, possessions’ but still retains a verbal meaning ‘seize’ in Indic (e.g. Lith \textit{lōbis} ’possessions, riches’, Grk \textit{lamba´no¯} ’seize, take’, Skt \textit{la´(m)bhate} ’seizes, takes’). The verb \(^*\text{nem}\)- yields ‘gift’ in OIr \textit{nem}, ‘rent’ in Baltic (e.g. Lith \textit{nu´oma}), ‘loan’ in Av \textit{namah}-, ‘harvest’ in Toch B \textit{n̥emek} but ‘distribute, possess’ in Grk \textit{némō} and ‘take’ in Germanic (e.g. NHG \textit{nehmen}), again showing the bipolar nature of giving and taking. The root \(^*\text{dek}-\) is associated with the concepts of ‘order’ and ‘proper behaviour’ which suggests that it originally meant ‘accept properly or graciously’ (e.g. Lat \textit{decet} ‘it is proper’, \textit{doceo¯} ’seem, appear’, OE \textit{teohhian} ‘determine, consider; think, propose’, ORus \textit{dositi} ‘find’, Grk \textit{dek(h)omai} ‘take, accept; receive graciously; expect’, Hit \textit{takki} ‘is the same as’, Skt \textit{daśnótī} ‘brings an offering’). An extended form \(^*\text{dekēs}\)- gives us the notion of ‘honour’, e.g. Lat \textit{decus} ’honour’, Av \textit{das-} ’defence, respect’, Skt \textit{daśasyātī} ’serves, obliges’; it also gives OIr \textit{dech} ‘best’.

The concept of ‘hold, possess’ sometimes crosses with ‘hold up, support’ and we include both meanings here. The first meaning is clearly seen in \(^*\text{h}_2\text{erk}\)- which means ‘hold, have’ in Hittite and some other groups (e.g. Lat \textit{arceō} ’shut in; keep at a distance, prevent’, Grk \textit{arkēō} ’ward off, defend; assist’, Arm \textit{argelum} ‘hinder, restrain, hold back’, Hit \textit{hark}- ’hold, have’, possibly Toch B \textit{ārk-} ‘be obliged to’ [if with a semantic development like NE \textit{have to}] while possession is also indicated in \(^*\text{h}_1\text{etk}\)- (e.g. OE \textit{āgan} ’possess’ [whence NE \textit{own}], Av \textit{ise} ’is lord of’, Skt \textit{īśe} ’owns, possesses’, Toch B \textit{aik-} ’know’). The root \(^*\text{dher-}\), on the other hand, may have originally meant something like ‘immobile’ (e.g. Lat \textit{firmus} ’solid, firm’, OE \textit{darian} ’lie motionless, lurk’) then ‘hold fast’ (e.g. Av \textit{dārayat} ’holds fast’) and finally ‘holds’ (as in Skt \textit{dhārayati}) while the semantic field of \(^*\text{skabh-}\) also seems to mean ‘hold up’ (e.g. Lat
scamnum ‘stool, bench’, Av upa-skambōm ‘support, prop’, Skt skabhṇāti ‘supports, fixes’.

There are two North-Western regional terms for ‘take’: *ghreib- ‘grip, grasp’ (e.g. NE grip, gripe, and grope, Lith griēbti ‘seize’), and *h₁em- ‘take, distribute’ (e.g. Lat emō ‘take’, Lith imū ‘take’, OCS imǫ ‘take’). Verbal roots from the West Central region are plentiful: *h₁rep- ‘snatch, pluck’ (e.g. Lat rapō ‘snatch away, carry off, plunder’, Lith ap-rēpti ‘seize, embrace’, Alb rjep ~ rrijep ‘flay, rob’, Grk erēptomai ‘browse on, feed on’ [< *pluck’]); *ghe(n)dh- ‘seize, take in’ (e.g. OIr ro-geinn ‘finds a place in’, Lat pre(he)ndō ‘grasp’, NE forget, origin), Lith godōti ‘guess, suppose’, OCS gadati ‘imagine, guess’, Alb gjej ‘find, obtain’, Grk khanda´no¯ ‘take in, comprise’); *kagh- ‘catch, grasp’ (e.g. NWels cau ‘close, clasp’, Lat cōlō ‘tend, take care of’, OE haga ‘hedge’, Alb ke ‘has, holds’); *sel- ‘seize, take possession of’ (e.g. OIr ro-selb ‘possession’, OE sellan ‘hand over’ [> NE sell], Grk helên ‘take’); *twer- ‘take, hold’ (e.g. Lith tveriū ‘seize, take hold of’, turō ‘have, hold’, OCS tvoriti ‘shape, make’, Grk seirá ‘band, bond’); possibly *dergh- ‘grasp’ (e.g. MIr dremm ‘troop, band of people’, ON targa ‘shield’, NE targ, Grk drássomai ‘lay hold of, grasp with the hand’, Arm trc’ak ‘bundle of brushwood’); *(s)lag- ‘take, hold’ (NE latch, Grk látomai ‘take, hold’); and *wer- which means ‘find’ but in extended form also ‘take’ (e.g. Arm gerem ‘take prisoner’, Lith su-resti ‘catch’).

17.3 Exchange and Property

There are a number of terms specifically associated with the activities involved in exchange (Table 17.3), a better word than ‘trade’ when dealing with the level of social complexity probably obtaining among the Proto-Indo-Europeans.

The basic root indicating ‘exchange’ is *mei- which underlies verbal forms in Baltic (Latv mīju ‘exchange’), Indo-Iranian (e.g. Av fra-mita- ‘changed’, Skt māyate ‘exchanges’, mināti ‘exchanges, deceives’), and Tocharian (Toch B māsk- ‘exchange’) but also a number of nominal forms with meanings ranging from ‘treasure’ (OIr mōin) to ‘punishment’ (Av maēnī-); NE mean is included here, originally from a meaning ‘common’ in Germanic. One should also compare Lat commūnis ‘common’ (whence, via Old French, comes NE common). We also have the root in an extended version, *meit- (e.g. Lat mūtō ‘change’, Goth maidjan ‘exchange’, Latv mietuot ‘exchange’, Skt méhati ~ mithāti ‘exchanges’), which underlies the name of the Indo-Iranian Mitra/Mithra, the god in charge of contractual relationships. The concept of ‘purchase’ is found in *wes-no- (e.g. Lat vēnum ‘that which is sold’, OCS vēno ‘bride-price’, Arm gin ‘price’, Skt vasnā- ‘price’, and, with a different ablaut grade, Grk ōnōs ‘price [usually of a
which derives from \(^{*}\)wes- ‘buy’ (e.g. Hit \(\text{was}^{i}\) ‘buys’) while \(^{*}k^{\prime}\text{rei}(h_a)\)-
‘pay’ (e.g. OIr \(\text{crei}^{\prime}\) ‘buys’, ORus \(\text{kr}^{\prime}\) ‘buy’, Grk \(\text{priamai}^{\prime}\) ‘buy’, Skt \(\text{kri\’}^{\prime}\) ‘buys’, Toch B \(\text{k}\) ‘buy’) has adopted the specific meaning of ‘bride-price’ in
Celtic (OIr \(\text{tinnscra}^{\prime}\)) and Baltic (Lith \(\text{krieno}\)) derivatives. Another word for
‘exchange’ is also seen in \(^{*}\)per- (e.g. OIr \(\text{renaid}^{\prime}\) ‘sells, barters, exchanges’, Lat
\(\text{interpres}^{\prime}\) ‘go-between’, \(\text{pretium}^{\prime}\) ‘price’, Grk \(\text{pe\’}^{\prime}\) ‘sell’, Av \(\text{pairyante}^{\prime}\) ‘they
compared’; the Lat \(\text{pretium}^{\prime}\) via French gives NE \(\text{price}\) and \(\text{interpres}\) provides the
base of NE \(\text{interpret}\)). The root \(^{*}\)pel- is Proto-Indo-European if one accepts a
potential Indic cognate (e.g. ON *fælr ‘to be sold’, Lith *pelnas ‘profit’, Rus *polón ‘booty’, Grk *pôleō ‘sell’, Skt *pānate ‘bargains, haggles’). A very particular economic term, *kuh₃-s-, ‘to hire (goods or services),’ is preserved in a Germanic-Hittite correspondence (e.g. NE hire, Hit kuss- ‘hire’).

A number of words indicate ‘lack, want of’. Although *deu(s)- indicates lack of energy or colour in OE *te¯orian ‘faint, grow weary; fade [of colurs]’ > NE tire, it indicates a more general ‘lack’ in Grk déomai and not only ‘want’ but also ‘crime’ in Indic (Skt dosa-). A wider semantic variability is found in those words that may derive from *h₁eg- (e.g. Lat egeō ‘need’, ON ekla ‘lack’, Hit aki ‘dies’, Toch AB yűk- ‘neglect, be careless about’ [<*‘be lacking with regard to’]). Semantically more secure is *menk- which does generally mean ‘lack’ from Latin to Tocharian (e.g. Lat mancus ‘maimed’, OHG mengen ‘be lacking’, Lith men˜kas ‘feeble, weak; scanty; insignificant’, Skt manku´- ‘wobbly’, Toch AB ma¨n- ‘be deprived of; lack’). The root *das- yields a very specific meaning in Hittite, i.e. das(u)want- ‘blind’ (cf. dialectal Norw tasa ‘unravel’, Skt dásyati ‘suffers want, becomes exhausted’).

There are quite a few words to indicate ‘possessions of some sort or another. The verbal root *deh₂- ‘give’ provides the basis for the well-attested *déh₃r/n- ‘gift’ (e.g. OIr dān, Lat dōnum, OCS danı˘, daru˘, Grk dōron, Arm tur, Skt dāna-, all ‘gift’). Other products of giving are *h₂/₃ónkós ‘what is bestowed’ (e.g. Grk ògkos ‘burden’, Arm hunjk’ [pl.] ‘harvest’, Hit henkan- ‘fate, death’, Skt āṃśa- ‘portion, share’), a noun formed from the verb *h₂/₃enk- ‘bestow’; and *ph₁(h₁)tis ‘what is distributed’ if the putative cognates (in Latin pars ‘part’, portiō ‘portion’, and Skt pūrtā- ‘gift, granting, reward’) are not independent creations from *per(h₁₃)- ‘sell, distribute’. The concept of ‘apportion’, *bhag-, has religious associations in Phrygian where Bagaiōs is an epithet of Zeus, and the Skt bhāga- ‘apportion’ was deified as one of the Vedic gods; an Iranian cognate (e.g. Av baga- ‘good fortune’) was borrowed into Slavic to give the word for ‘god’, bogu˘; in Tocharian (e.g. Toch B pāke) the word retains the meaning ‘share’ (see Chapter 22). The word *h₂elgʷho/eh₃r ‘payment, prize’ (e.g. Lith algà ‘payment, salary’, Grk αlφè ‘earnings’, Hit halkuesser ‘produce, supplies [for cultic use],’ Av ar̃jah- ‘value, price’, Skt arghá- ‘value, price’) was borrowed from early Indo-Iranian into Uralic, e.g. Finnish arvo ‘prize’, while *misdhós seems to indicate a similar meaning (e.g. OE meord ‘reward, pay’, OCS mīžda ‘reward, wages’, Grk misthós ‘reward, wages’, Av mīzhā- ‘reward, gift’, Skt mīdhā- ‘competition, contest, prize’); both terms range in their meanings from ‘prize’ to ‘wages’. Goods in terms of ‘wealth’ is clearly seen in *h₂op/ép(e)n- (e.g. Lat opulentus ‘rich, wealthy; opulent’, Ops ‘deity of abundance’, Grk ἀophonos ‘wealth’, Hit happina(nt)- ‘rich’, Av afnah-vant- ‘wealthy’, Skt ãpnas- ‘wealth’) although its root derivation is disputed: both *h₂op- which underlies a set of Anatolian words relating to ‘business’ and *h₂op- ‘work’ have
been suggested and here we have followed the latter suggestion. The concept of ‘possessions’ is also found in *rēh₂is (e.g. Lat rēs ‘thing, affair, circumstance; possessions, wealth; business matter; law-suit’, Av raēvānt- ‘rich, splendid, ostentatious’, Skt rayi- ‘possessions, wealth’). Possessions in terms of ‘leavings’, i.e. inherited possessions, was indicated by *lōi₃nex- from *lēikʷ- ‘leave’; it retains the meaning ‘inheritance’ in Indo-Iranian (e.g. Av raēxnah- ‘inheritance, goods’, Skt rēkṇas- ‘inherited possessions’) but tends to mean a ‘loan’ in Germanic (e.g. OE lān ‘loan, lease, grant, leased land’; NE loan is borrowed from Old Norse). The underlying word ‘good’ is found nominalized in both Anatolian (Luv wāsu ‘goods’) and Indic (Skt vāsu- ‘wealth, goods, riches, prosperity’) which at least suggests the possibility of a PIE *wṓsu ‘goods’ if these are not independent creations (cf. the same semantic development in NE goods). Possessions as a ‘burden’ is indicated by the Italic-Indic isogloss that yields *h₁ōnḥḗ- (Lat onus ‘burden’, Skt aṇaś- ‘wagon-load’). Goods in terms of the spoils of war, i.e. ‘booty’, may be attested in *soru which exists only in Anatolian (Hit sāru ‘booty [particularly captured men, cattle, and sheep]’ but there are derived forms in Celtic that indicate ‘raiding’ (perhaps Mīr serb ‘theft’, NWels herw ‘raid [whose principal goal was usually cattle]; outlawry’) which strengthen the reconstruction; possibly Lat servus ‘slave’ is to be placed here if slaves are seen as booty (cf. the possible history of Grk doułos ‘slave’ in Section 17.1). Those with the ‘wealth’, one might expect, would be *speh₁(i)- ‘be satisfied, successful’ (e.g. Lat spēs ‘hope’, OE spōwan ‘thrive, succeed’, Lith spėju ‘have free time’, OCS spēti ‘be successful, prosper’, Hit ispā(i)- ‘get full, be filled, be satiated’, Skt spāyate ‘grows fat’, Toch B spāw- ‘spread out’; see Section 20.7).

For those without wealth who wish to acquire it illegally, there are three words for ‘steal’. The first, *(s)teh₄-, is closely associated with derivatives meaning ‘secret’ and hence this indicates stealth (e.g. OIr tāid ‘thief’, OCS tajo- ‘hide’, Grk tētáomai ‘deprive, rob’, Hit tāyetti ‘steals’, Av tāyu- ‘thief’, Skt (s)tāyū- ‘thief’, Toch B ene-stai ‘in secret’); no such connotations are indicated by *mus- which may have originally meant ‘move aside’ (e.g. OHG [Lex Salica] chrēo-mōśido ‘grave-robbery’, Skt musnāti ‘steals’, Toch B mus-stal ‘steal’, Toch AB mus- ‘lift, move aside’), perhaps a concept not far removed from modern NE lift for ‘steal’. A Germanic-Tocharian isogloss supplies us with *teubh- ‘steal’ (e.g. NE thief, Toch B cowat ‘theft’).

In the North-West the verbal root *kob- ‘suit, fit’ yields a nominal *kobom ‘success’ (e.g. OIr cob ‘victory’, ON happ ‘luck’ [NE hap, whence the adjective happy, is related but is a loanword from ON], OCS kōbī ‘divination’), *lau- ‘benefit, prize’ (e.g. OIr lōg ‘reward, prize’, Lat lucrum ‘gain, benefit’ [slightly pejorative, whence NE filthy lucre], OE lēan ‘reward, recompense’). The West Central region offers *ster- ‘steal’ (e.g. perhaps OIr serb ‘thief’, Grk sterḗō
deprive, rob) which, in Germanic, reveals itself as *stel- (e.g. NE steal). To be rich is indicated in (the poetic language) of Greek and Indic as *h₁su-duh₁-énos ‘rich, well-off’, literally ‘well-placed’ (Grk euthénéō ‘thrive, flourish’, Skt su-dhána- ‘rich’). And a far eastern isogloss (Indo-Iranian-Tocharian) is seen in *yem- ‘hold’ (e.g. Av yam- ‘hold’, Skt yam- ‘hold, sustain, offer, grant’, Toch B yäm- ‘achieve, obtain; reach’ [< * ‘come to hold’ or the like], yâm- ‘do, make, effect’).

17.4 Law and Order

The vocabulary of law (Table 17.4) is not extensive in Proto-Indo-European and much of the concept of ‘law’ derives from that of ‘order’ or ‘what is fitting’. For example, we have *h₂értus from the root *h₂er- ‘fit’ which had already shifted to an association with cosmic order by the time of Indo-Iranian (e.g. Lat artus ‘joint’, MHG art ‘innate feature, nature, fashion’, dialectal Grk artús ‘arranging, arrangement’, Arm ard ‘ornament, shape’, Av arəta- ‘order’, Skt rtú- ‘right time, order, rule’, Toch B ārtt- ‘love, praise’). More closely associated with ritual propriety is the Italic-Indo-Iranian isogloss that yields *yew(e)s- (Lat iūs ‘law, right, justice, duty’, Av yaoz-dā- ‘make ritually pure’, Skt śāmca yóśca ‘health and happiness’) with a derived adjective *yust(i)yos seen certainly in OIr uissse ‘just right, fitting’ and possibly OCS istu- ‘actual, true’. ‘Law’ itself, *dhéh₁-men-/i-, is ‘that which is established’ and derives from *dhéh₁- ‘put, establish’ but occurs in that meaning only in Grk thémis ‘law’ and Skt dháman- ‘law’ (we also have *dhéh₁tis [e.g. Lat conditiō ‘basis’, NE deed, Grk thésis ‘order’, and Skt -dhiti- ‘position’]) though the same kind of semantic development is seen in Germanic (e.g. NE law) and Italic (e.g. Lat lex)

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<tr>
<td>*h₂értus</td>
<td>‘fitting, order’</td>
<td>Lat artus, Grk artús, Skt rtú-</td>
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<tr>
<td>*yew(e)s-</td>
<td>‘order’</td>
<td>Lat iūs, Skt yóśca</td>
</tr>
<tr>
<td>*dhéh₁mi-/men-</td>
<td>‘what is established, law’</td>
<td>Grk thémis, Skt dháman-</td>
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<tr>
<td>*dhéh₁tis</td>
<td>‘what is established’</td>
<td>Lat con-diti-o-, Grk thésis, Skt – dhiti-</td>
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<tr>
<td>*h₂/wergh-</td>
<td>‘± commit a crime’</td>
<td>Grk élégkhō</td>
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<td>*h₁lengh-</td>
<td>‘blame, reproach’</td>
<td>NE oath, Grk oātos</td>
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<tr>
<td>*h₁oítos</td>
<td>‘a going; oath’</td>
<td>Grk poínē</td>
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<tr>
<td>*kʷaínch₁-</td>
<td>‘compensation’</td>
<td>Grk tínō, Skt cāyati</td>
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<tr>
<td>*kʷei-</td>
<td>‘pay, compensate’</td>
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<tr>
<td>*serk-</td>
<td>‘make restitution’</td>
<td>Lat sarcīo</td>
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Table 17.4. Law and order
‘law’), both from *legh- ‘lie’, i.e. ‘that which is laid out’, and thus the concept is pan-Indo-European. We have *h₂/₃wergh- ‘commit a crime’ (e.g. ON vargr ‘felon, criminal; wolf’, OPrus wargs ‘evil’, Rus vórog ‘enemy, devil’, with different formations in Anatolian [Hit hurkil ‘sin, sexual perversion’] and Tocharian [Toch B wārsse ‘highwayman, bandit’]) which has taken on the secondary meaning ‘wolf’ in ON. A word for ‘blame’ possibly underlies the Greek-Anatolian isogloss *h₁lengh- where ‘blame’ is found in Grk elégkhô but ‘swear’ in Anatolian, e.g. Hit lī(n)k- where it is taken to indicate the practice of calling down a curse on oneself if one violated an oath. The word for ‘oath’, *h₁ōito-, is found in Celtic (e.g. OIr oeth ‘oath’), Germanic (e.g. NE oath), Grk oítoς ‘course, fate’, and Tocharian (Toch B aittaŋka ‘directed towards’) but it only carries the meaning ‘oath’ in the two Western language groups. It is commonly derived from the verb *h₁ei- ‘go’ which has been explained by a practice of walking between slaughtered animals as part of taking an oath (see Section 20.1).

The making of ‘restitution’ is indicated by two roots: *kʷoimeh₄- (e.g. Lith kāïna ‘price’, OCS cēna ‘price’, Grk poïnê ‘compensation for a crime, blood-price’, Av kaēna- ‘vengeance, hatred’) from the root *kʷei- ‘pay, compensate’ seen in OPrus er-kṁint ‘freed from the devil’, Grk tinoς ‘make someone pay (a debt, ransom, fine)’, Lyc tti- ‘pay, requite’, Av kāy- ‘pay, compensate’, Skt cāyati ‘pay, compensate’ (compare another derivative from this verb, MIR cīn ‘guilt, crime, payment due’) and *serk- which is a semantic extension of ‘make a circle, complete’, perhaps in the sense of restoring the integrity of the system (e.g. Lat sarcīō ‘make restitution; make whole [i.e. repair]’, Hit sarnikzi ‘makes restitution’, Toch B serke ‘circle’; see Section 13.2).

From the North-West is *dhlgh- ‘debt’ (e.g. OIr dlígid ‘is entitled to, is owed’, Goth dulgs ‘debt’, OCS długů ‘debt’). The West Central region supplies *h₄eigʷhes- ‘shame’ (e.g. Goth aïwiski ‘shame’, Grk aîskhos ‘shame’). Greek-Indic cognates include *h₄eɡos ‘shame’ (Grk ἁγός ‘guilt, pollution’, Skt āgas ‘guilt, sin’) and *h₄emh₃- ‘lays hold, grasps; swears’ (Grk ómnūmi ‘swear’, Skt ámīti ‘lays hold of, grasps; swears’); the meaning ‘swears’ may be a late development in the groups involved and reflects the custom of grasping some sacred object while one makes an oath (cf. the practice of swearing with one’s hand on the Bible in a contemporary court).

17.5 Strife and Warfare

The Indo-Europeans are often stereotyped as warriors, and it must be admitted that they did possess a rich vocabulary relating to strife and conflict (Table 17.5)
Table 17.5. Strife and warfare

| *hsenh₂- | ‘contend, quarrel’  | Grk ὀνόμαι |
| *mel-     | ‘argue, contend’    | Grk μολέω |
| *reus-    | ‘± contend with, be angry at’  | Skt rōsati |
| *h₄erg²-  | ‘argue, assert’     | Lat arguō |
| *peh₃(i)- | ‘harm’              | Lat patior, Grk pēma, Skt pīyati |
| *dhebh-   | ‘harm’              | Skt dabhnōti |
| *mel-     | ‘harm’              | Skt dvārati |
| *keh₄u-   | ‘strike, hew’       | NE hew |
| *ker-     | ‘decay’             | Lat cariēs, Grk keraῖζo, Skt śīryate |
| *hₑei-    | ‘assail, afflict’   | Skt ēnas- |
| *g"hen-   | ‘strike’            | Lat défendō, Grk theinō, Skt hánti |
| *wen-     | ‘strike, wound’     | NE wound |
| *bher-    | ‘strike (through), split’  | Lat fēriō, NE bore, Grk pharōō, Skt bhṃāti |
| *wedh-    | ‘push, strike’      | Grk ēthei, Skt vadḥ- |
| *(s)peud- | ‘push, repulse’     | Lat pudet, Grk speūdō |
| *per-     | ‘strike’            | Skt prt- |
| *kreu(s)- | ‘strike’            | NE rue, Grk krouō |
| *pyek-    | ‘strike’            | NE fight |
| *temhₓ-   | ‘be struck, be exhausted’ | Lat tēmētum, Skt tāmyati |
| *bheihₓ-  | ‘strike’            | Lat perfīnō |
| *hₑg₃-    | ‘fight’             | Grk āgōn, Skt ājī- |
| *yeudh-   | ‘moved, stirred up; fight’ | Lat īubeō, Grk husmēnē, Skt yūdhyati |
| *dhg"hei- | ‘destroy’           | Grk phthinō, Skt ksīnāti |
| *h₃elh₁-  | ‘destroy’           | Lat ab-oletō, Grk ālūmi |
| *h₃erk-   | ‘rend, destroy’     | |
| *h₃erh₁-  | ‘destroy’           | |
| *bhrehₓ-  | ‘destroy, cut to pieces’ | Lat friō, Skt bhṛnānti |
| *segh-    | ‘hold fast, conquer’| Grk ἕκθο, Skt sāhas- |
| *g"yeh₃- | ‘physical power; overcome’ | Grk biā, Skt jyā |
| *hₑeuges- | ‘strength’          | Lat augustus, Skt ójas- |
| *weih₉-   | ‘vital force’       | Lat viś |
| *hₑlek-   | ‘defend, protect’   | Grk alēksō, Skt rákṣati |
| *ser-     | ‘protect’           | Lat servō |
| *gheugh₉- | ‘protect, hide’     | Skt gāhati |
| *keudh-   | ‘hide’              | NE hide, Grk keuṭhō |
| *dhrs-    | ‘brave’             | NE dare, Grk thérsos, Skt dhīṣṇōti |
| *leh₂wós  | ‘people (under arms)’| Grk lā(w)ōs |
| *koryos   | ‘people (under arms)’| Grk koiranos |
although many of the verbal roots listed below may also have been associated with non-aggressive physical acts (see Section 22.3).

The vocabulary of the quarrel includes at least four verbs. A Celtic-Greek-Anatolian isogloss secures *h₂enh₂- which takes on the meaning of ‘sue’ in Hit hann(a)- ‘contend against, contest, take legal action [against], sue’ and Grk ónomai ‘impugn, quarrel with’ but OIr on ‘shame, disgrace, dishonour’. There are also legal aspects to some of the German and Greek cognates derived from *mel- while the Tocharian means ‘argue, contest’ (ON mäl ‘speech, legal dispute’, Grk môleō ‘contend, bring an action in a suit’, Toch B māl- ‘argue, contest’). The verb *reus- indicates the notion of anger or rage in its Germanic and Indic forms (e.g. MHG rūn ‘make a noise, uproar; bluster, rave, rage’, Skt ros- ‘displeases, takes offence at’, Toch B rūs- ‘criticize, accuse, object to’) while the meanings indicated in Lat arguō ‘assert, prove, accuse’ and Hit arkuwai- ‘plead, argue, make excuses’) suggest that we reconstruct ‘argue, assert’ for *h₄erg-.

Verbs indicating ‘harm’ are several. Although the Lat patior is not entirely secure here (it may be *ph₁t₁-, but it need not), there is still enough evidence to postulate *peh₁(i)- ‘harm’ (e.g. Goth fījan ‘hate’, Grk pēna ‘suffering, misfortune’, Skt pīyati ‘blames, reviles’). The precise underlying semantics of *dhebh- are somewhat obscure as meanings range from ‘hit’ (Baltic, e.g. Lith dobiū ‘beat, hit, kill’), ‘harm’ [in general] (Indic, e.g. Skt dabhno´t ‘hurts, injures; deceives; abandons’), ‘belittle’ (Anatolian, e.g. Hit tepnu-), and ‘deceives’ (Av dab-). A rare Celtic-Tocharian isogloss supports *mel- (OIr millid ‘harm’, Toch B māl- ‘wound, damage’) which is perhaps related to the verb *melh₂- ‘grind’, while *dhwer- ‘pierce’ may underlie *dhwerh₂- ‘harm’ which does involve physical damage (e.g. Hit duwarnai- ‘break, shatter’, Skt dhvārati ‘bends, cause to fall, hurts’). Although *kër- carries an intransitive meaning ‘decay’ (e.g. OIr ara-chrin ‘decays’, Lat cariēs ‘decay’, Skt śīryate ‘decays’), it also furnishes transitive verbs ‘harm, injure’ (e.g. Alb ther ‘slaughter, stab, goad’, Grk kēraizō ‘devastate, kill’, Av a-sarēta- ‘unbroken’). A possible Anatolian-Indo-Iranian isogloss underlies *h₄ei- ‘assail’ (e.g. Hit inan- ‘illness’, Av aēnah- ‘violence, damage’, Skt ēnas- ‘sin, guilt’; also perhaps dialectal Grk zētrós ‘executioner’, and Skt yātār- ‘avenger’ if from a derivative *h₄y-eh₄-).

The verbal act of striking is very well represented although the semantic differences among the various terms are unclear. The best-attested root is *gʷhen- which is found in eleven different groups (OIr gonaid ‘wounds, strikes’, Lat défendō ‘protect’, ON gunm ‘combat’, Lith genū ‘drive cattle; hunt’, Rus gon ‘a drive, a hunt’, Grk theinō ‘strike’, phōnos ‘murder’, Arm ganem ‘strike’, Hit kuēnzi ‘strikes’, Av jainti ‘strikes, Skt hānti ‘strikes’, Toch B kāsk- ‘scatter [violently]’); this is the predominant verb used in the ‘hero slays a serpent’ motif which plays an important role in Indo-European mythology (see Section 25.5).
The root *wen- means ‘wound’ in general but the semantics of NWels *gueint ‘bored through’ and Hit *wen- ‘copulate with’ suggest a piercing motion (cf. also NE wound, Arm *vandem ‘destroy’). An action involving a boring motion can also be seen in *bher- (MIr *bern ‘gap, chasm’, Lat *feriō ‘strike, pound’, NE bore, Lith *bario (revile, abuse), Rus *borju ‘subdue, throw down’, Grk *pharō ‘plough’, Arm *brem ‘dig up, hollow out, bore’, NPers *burrad ‘cuts’, Skt *bhratiti ‘wounds’). The root *keh₂uru- is associated with both striking down and forging (e.g. NE *hew, Lith *kauja ‘strikes, forges’, OCS kovo ‘forge’, Toch B *ka⁻ ‘strike down, kill, destroy’). Although the root *wedh- ‘push, strike’ may indicate a meaning ‘press’ in some of its cognate sets, it also carries the connotation of strike (with a weapon or tool) in many others: Celtic (OIr *faiscid ‘presses’ but *fodh ‘weapon’), Baltic (e.g. Lith vedegà ‘a kind of axe’), Grk éthei ‘destroys’, Anatolian (e.g. Hit wezz- ‘strike, urge’), Indo-Iranian (e.g. Skt *vadh- ‘strikes, pushes, slays’), Tocharian (e.g. Toch B *wät- ‘fight’). The derivative *wedhris ‘castrated’ (Grk *ethri’s, Skt *vadhri-) certainly suggests a striking blow. Another word for ‘push’ or something similar (the semantic range of the cognates is wide) is indicated by *(s)peud- which underlies Lat pudet ‘shames’ and repudiwm ‘casting off; divorce’, Baltic (Lith spausdu ‘press, squeeze’), Alb punē ‘work’, Grk speudō ‘urge on, hasten’, Arm p‘oyt ‘zeal’, and NPers poy ‘haste, speed’.

Beating and battle are concepts associated with *per- (e.g. Lith *periū ‘beat with brushwood, flog’, Rus pru ‘press, oppress’, Alb pres ‘cut down, cut off, split’, Arm hari ‘struck’, Av pārūt ‘battle, strife’, Skt prt- ‘battle, strife’). With or without the s-extension, the root *kreul(-s)- indicates ‘strike’ (e.g. NE rue, Grk krouinō ‘stamp, strike with the hoof [of a horse]’, Toch AB kārn- ‘strike, afflict’; ON hrosti ‘mashed malt’, Lith krušū ‘smash, crash; grind’, OCS sukrusiti ‘shatter’, Grk krouō ‘strike [together], strike a stringed instrument with a plectrum, knock [at the door]’). Germanic develops the idea of ‘fight’ (e.g. NE fight) from *pyek- which otherwise means ‘strike’ (e.g. Alb pēr-pjek ‘strike’, Toch B pyāk- ‘strike [downward], batter, beat [of a drum], penetrate [as the result of a downward blow]’). Only Slavic exhibits the active meaning ‘torture’ for *temhi₃- (OCS tomiti ‘torture, harass, tire’); the other cognates indicate the state of being struck down (by disease, drink, exhaustion) (e.g. MIr tām ‘sickness, death’, Lat tēmētum ‘any intoxicating drink’, NHG damisch ‘foolish, silly’, Skt tāmyati ‘gasps for breath, is faint, stunned, exhausted’). The root *bheih₂ar- uniformly supplies meanings of ‘strike’ (e.g. OIr benaid ‘strikes’, Lat perfinō ‘break through, shatter’, OCS bijo ‘strike’, Av byente ‘they struggle, strike’). The verb to ‘fight’ is also indicated through the use of *h₂eḡ- ‘drive’ which was already extended in Proto-Indo-European times to mean ‘combatative activity’ (e.g. Grk agôn ‘athletic contest’, Skt ājman- ‘career, passage, battle’, ājī- ‘race, fight’, OIr tāin [< *to-ag-no-] ‘raid’). A meaning of ‘fight’ survives in
Celtic, Greek, and Indo-Iranian to reconstruct *yeudh- (e.g. Lat iubeō ‘order, command’, Lith judū ‘move, stir’, Grk husmînē ‘battle’, Av yāśyeiti ‘fights’, Skt yudhyati ‘fights’, Toch A yutk- ‘be anxious’).

Increasing the effect of the violence, we can move to ‘destroy’ which includes *dhgew- with a secure Greek-Indo-Iranian correspondence (Grk phthîno¯ ‘destroy’, Av djanārdrōt- ‘destroying Arta’, Skt ḱınāti ‘destroys’) and less secure cognates from Celtic (OIr tinaid ‘vanishes’) and Italic (Lat situs ‘abandonment’). Along with Latin and Greek we can also include Anatolian to support the reconstruction of *h3elh1- ‘destroy’ (e.g. Lat ab-oleō ‘destroys’, Grk ὀλλάμι ‘destroy’, Hit ḫullā(i)- ‘combat, fight’). Hittite and other correspondences secure both *h2erk- (e.g. OIr οτρί ‘slays’, Arm harqanem ‘split, fell’, Hit harkzi ‘is destroyed’) and *h2erh₁ (e.g. Lith ĭrti ‘dissolve, go asunder’, OCS oriti ‘destroy’, Hit harra- ‘destroy’) to this semantic set. More questionable is *bhreh₁ (e.g. Lat friō ‘tear apart’, Rus brît ‘shave’, Skt bhr₃ṁánti ‘injure, hurt’) with a doubtful Celtic cognate (OIr ro-bria[subj] ‘may spoil, destroy’). To conquer one’s enemy is indicated by *segh- and its derivatives which mean ‘conquer’, ‘victory’ (e.g. OIr seg ‘strong’, NHG Sieg ‘victory’, Grk ekhuro’s ‘firm, strong’, Hit sakkuriya- ‘overcome’, Skt sāhas- ‘victory’, sāhuri- ‘victorious’), and ‘hold fast’ (it supplies the basic Greek verb e´kho¯ ‘hold’). The word was also a popular element in personal names among the Celts (e.g. Gaulish Sego-marus) and Germans (ON Sigrór). Probably originally a nominal root, *g"yeh₁ which means ‘physical force’ in both Greek and Indic can also mean ‘overcome’ (e.g. ON kveita ‘make an end to, kill’, Grk biā ‘physical force, violence’, Skt jyā ‘force, violence’, jināti ‘overpowers, suppresses’). Other words indicating ‘physical strength’ include *hₑeuges- (e.g. Lat augustus ‘sacred’, Av aojah- ‘strength’, Skt ójas- ‘strength’), which has generally been linked to the type of strength required of a warrior. The word *weih₁s ‘strength’ (e.g. Lat vīs, Grk ḫis both ‘strength’) seems to be a ‘vital force’ and has been linked with one of the words for ‘man’, *wihr₁s (see Section 12.1).

There are several words for ‘protect’ or ‘defend’. A verbal root *h₁lek- is attested in Germanic (OE ealdgian ‘protect’), Grk alēksō ‘defend’, Arm aracel ‘tend’, and Skt ráksati ‘protect’; in Germanic and Baltic this root was extended to include temples and sacred groves, e.g. OE ealh ‘temple’, Lith alkas ‘sacred grove’. Three groups attest a root *ser- ‘protect’ (Lat servō ‘guard’, Lydian sarēta ‘protector’, and Av haraiti ‘defends’). A root *gheugh- ‘protect, hide’ is attested in Baltic (Lith gūžti ‘cover with something warm’) and Indo-Iranian (e.g. Av gāzra- ‘hidden, secret’, Skt gāhati ‘conceals’). Another root, *keudh- ‘hide’, appears in Germanic (e.g. NE hide), Grk keúthō ‘hide’, and Arm suzanem ‘hide’ and then, after metathesis into *dheuk-., in Germanic (e.g. for Tolkien fans OE dēagol ‘secret, hidden’) and Tocharian (Toch B tuk- ‘be hidden’). And the quality associated with warriors is suggested by a PIE
*dhers- ‘brave’ with cognates in Germanic (e.g. NE dare), Baltic (e.g. Lith drens ‘dare’), and Indo-Iranian (e.g. Skt dhṛṣṇāti ‘is bold, dares’).

A Proto-Indo-European word for ‘army’ remains illusive with the best candidate being *leh₂wós from a root *leh₂- ‘military action’. It is attested in Grk lä(w)ós ‘people’, [pl.] ‘army’, Doric Grk lágeítás ‘leader of the people’, and Phryg *lawagtei ‘military leader’ in terms of a military leader or his unit; only Hit lahha- ‘campaign’ increases the number of cognates but the Hittite word does not actually indicate a military unit, but rather military action. A second and similar word *koros appears as OPers kara- ‘people, army’ and Lith kašras ‘war’ and in derived form, *koryos ‘army, war-band, unit of warriors’, in MIr cuire ‘troop, host’, OE here ‘army’, Lith karias ‘army’, Grk koironos ‘army leader’ (see Section 17.1).

The North-West region yields evidence of *katu- ‘fight’ (e.g. OIr cath ‘battle’, OHG hadu- ‘fight’, OCS kotora ‘fight’; also widely employed in Celtic [e.g. Gaul Caustrix] and Germanic [e.g. OHG Hadubrant] personal names); *weik- ‘fight’ (e.g. OIr ficht ‘fights’, Lat vincō ‘conquer’, OE gewegan ‘fight’, Lith apveikiū ‘defeat’, Rus vek ‘force’); the noun *nant- ‘combat, fight’ (OIr neit ‘battle, combat’, ON nenna ‘strive’); *beud- ‘strike, beat’ (e.g. OIr bibdu ‘guilty; enemy’, Lat fūstis ‘cane, cudgel’, NE beat); *bhlag- ‘strike’ (Lat Xagrum ‘whip’, ON blekkja ‘strike’, Lith blasˇkau ‘throw, Xing’); *slak- ‘strike’ (e.g. MIr slacc ‘sword’, NE slay), and the participle from *kap- ‘seize’, *kaptos ‘captive’ (e.g. Lat captus ‘captive’, NE haft); *bhergh- ‘keep, protect’ in Germanic (e.g. OE beorgan ‘keep’), Baltic (Lith birgingti ‘be parsimonious’) and Slavic OCS brēsti ‘care for’; and possibly *wreg- ‘press, oppress’ if Lat urgeō ‘press, oppress’ is indeed cognate with a Germanic series (e.g. ON reka ‘avenge, punish’, OE wrecan ‘avenge, punish’ > NE wreak). The West Central area shows *sket(h)- ‘injure, harm’ (e.g. OIr scith ‘tired’, OE skad ‘injure’ [NE scathe is related but a Norse loanword], Grk askēthēs ‘uninjured’), and to add to the number of words for ‘strike’ we have *pleh,k/g- ‘strike, strike one’s breasts’ (e.g. in various forms seen as Lat plectō ‘strike, punish’ and plangō ‘strike, strike one’s breast in lamentations, bewail’, OE flōcan ‘strike, clap’, Lith pläkti ‘strike’, OCS plakati se ‘weep, be sorrowful’, Grk plαssō ‘strike’); *g” el- ‘strike, stab’ (e.g. NWels ballu ‘die’, NE kill and quell, OPrus gallan ‘death’, Lith gėlti ‘sting’, ache, Arm kelem ‘torture’), a word that also provides the base for an ‘insect’s stinger’, i.e. *gwelön (Lith geluō ‘insect’s stinger’, dialectal Grk delithēs [pl.] ‘wasps’); another verb *kelh₁- ‘strike’ (e.g. Lat calamitās ‘loss, injury, damage, misfortune’ [> by borrowing NE calamity], Lith kalū ‘strike, forge’, OCS koljo ‘stab, slaughter’, Grk keleōs ‘green woodpecker’); *bhih,g- ‘strike’ (e.g. Lat fīgō ‘strike’, Latv blaižī ‘crush, strike’, Grk phlōbō ‘press’), and a Serbo-Croatian-Armenian isogloss *deph,₁ ‘strike’ (SC depit ‘strike’, Arm top’em ‘strike’. Baltic and Greek provide *yeh₁g”eh,₁ ‘power, youthful vigour’
(e.g. Lith jegā ‘strength, power’, Grk ἰδῆ ‘youth, vigour, puberty’). The Graeco-Aryan isoglosses comprise *tken- ‘strike’ (Grk kteίνω ‘kill’, Skt kṣanōti ‘hurts, injures, wounds’) and *dusmenēs ‘hostile’, literally ‘bad-thought’ (Grk dusmenēs ‘hostile’, Av duśmanah- ‘hostile’, Skt duśmanās ‘sad’).

17.6 Occupations

The creation of agent nouns in the different Indo-European languages is so productive that there are few words for occupations that can be attributed to Proto-Indo-European with any degree of certainty. The lack of reconstructable occupational terms may also suggest that Proto-Indo-European society was not one with much occupational specialization.

A word *tekṣ-(t)or/n- can be reconstructed from Italic, Greek, and Indo-Iranian; the meanings range from ‘weaver’ (Lat textor) to ‘carpenter’ (Grk téktōn, Skt tākṣan-) to ‘creator’ (Av tašan-). It derives from the verbal root *tekṣ- ‘fabricate’, and the semantic divergence may be due either to the fact that the verbal root itself is ambiguous or the fact that the craft of the carpenter also included the construction of wattled (‘woven’) walls. The herdsman, *wěstor-, is reconstructed from Hit westara- ‘herdsman’ and Av vāstar- ‘herdsman’ and derives from the verbal root *wes- ‘graze’. The verb *yeudh- ‘fight’ underlies *yudhmōs ‘fighter’ which is attested in Slavic (OCS o-jīminū ‘warrior’) and Indic (Skt yudhmā-).

Regionally attested occupations are from the West Central region and comprise a word for ‘craft’, *kėrdos, attested in Celtic (OIr cerd ‘craftsman’, NWels cerdd ‘song, poem; craft’) and Greek (kērdos ‘profit’ but in the plural it means ‘cunning arts; craft’); *dhabhros ‘craftsman’ (Lat faber ‘workman, artificer, smith’, Arm darbin ‘smith’) from the root *dhabh- ‘put together’ and two words for ‘herdsman’, *g"ou-k"olos ‘cowherd’, literally ‘one who turns/moves cows’ (e.g. MIr buachail ‘cowherd’, Grk boukōlos ‘cowherd’), and *pohzimēn- ‘herdsman’ (Lith tėrga ‘herdsman’, Grk poimēn ‘herdsman’) from *pohz(i)- ‘watch (cows)’.

| *tekṣ-(t)or/n- | ‘one who fabricates’ | Lat textor, Grk téktōn, Skt tākṣan- |
| *wěstor- | ‘herdsman’ | |
| *yeudhmōs | ‘fighter’ | Skt yudhmā- |

Table 17.6. Occupations
17.7 Proto-Indo-European Society

The degree of social complexity generally correlates with the size of the social aggregates and the nature of the economic system involved. Although there are always exceptions to the rule, hunter-gatherer societies are most often egalitarian, lacking strong positions of leadership and social ranking; moreover, they tend to be organized into relatively small social aggregates—families, bands, possibly small tribes. A presumably hunter-gathering society such as Proto-Uralic reveals little more than a word for ‘lord’ which is itself a loanword from Indo-Iranian. The Proto-Indo-Europeans with their clear evidence for an economy based on domesticated plants and animals, settled life, metallurgy, and the more advanced technology (plough, wheeled vehicles) of the so-called Secondary Products Revolution would suggest that we might find a larger semantic field for social institutions. And this, indeed, is precisely what we do find although we must always beware of attempting to reconstruct an entire social system from the residue of the lexical debris that has survived.

Proto-Indo-European seems to have had some form of social ranking with various degrees of social status. Leadership positions would include the *w(n)ákt’s ‘leader, lord’, *h₃réğs ‘ruler, king’, *tagos ‘leader’, and *wikpōts ‘master of the clan’ and there are even verbal expressions of authority seen in *pótyetoi ‘rules, is master’, *wał- ‘be strong, rule’, and possibly *h₃réğıti ‘rules’. The nature of leadership probably involved a sacerdotal element if we can correctly recover the etymological nuances of *h₃réğs. But terms such as *tagos ‘leader’, i.e. ‘the one who puts in order’, and *sōk”-h₂-ōi ‘follower, companion’ suggest at least the image of leaders in warfare as well, and this possibility is greatly enhanced by the recovery of other names for warrior sodalities i.e. *leh₂wōs ‘people (under arms)’, *h₃eγmen- ‘troop’, and *koryos ‘people (under arms)’ with its own West Central designation *koryonos ‘leader (of the koryos)’. To what extent the realia of these institutions can be painted in with later ethnographic evidence of war-bands from Ireland to India is not entirely clear but it is difficult to deny the existence of such institutions. Moreover, the vocabulary of strife, as we have seen, is fairly extensive (at least twenty-seven verbs) and while a number may be dismissed as purely expressions of the general application of physical force, e.g. striking an object, others such as *ség’h- ‘hold fast, conquer’ certainly make better sense in a military context. For some time Indo-European homeland research has found itself all too often cast in the form of an insidious dichotomy: did the Indo-Europeans expand as peaceful farmers or warlike herdsmen? That farmers may also be aggressive and belligerent is well known to anyone who has encountered, for example, agricultural African societies; conversely, pastoralists need not be painted in
the same terms as the Golden Horde. In any event, there does seem to be sufficient retention of the vocabulary of strife and warfare in the reconstructed lexicon to suggest at least that those who wish to portray the Proto-Indo-Europeans as some form of New Age agrarian movement are strongly contradicted by the lexical evidence.

Our recovery of legal institutions, at least on the basis of the reconstructed lexicon, is meagre. There seems to be an acceptance of a concept of *h₂értus ‘what is fitting’, i.e. the cosmic order that must be maintained. This should be done by adhering to *dhéh₁mi-/men- ‘what is established, law’, here generally taken (on the basis of Greek and Indo-Iranian comparative studies) to be the law that has been established (*dhéh₁) by the gods for humans. The other term, *yew(e)s-, ‘law, ritual norm’, has been seen to express the notion of ritual prescriptions, the recitation of which led to the establishment (or re-establishment) of order. Punishment for violation of the law such as murder or failure to abide by an oath required some form of compensation seen in both *kʷoineh₂ and *serk- ‘make restitution’.

The range of vocabulary concerned with exchange and wealth is reasonably extensive and supports the hypothesis that the Proto-Indo-Europeans were involved in some degree of social ranking. If we read the nuances of the terms rightly, then both *mei- and *meit- ‘exchange’ are terms concerned with the concept of balanced reciprocity, i.e. an exchange relationship where neither side seeks an advantage. This is the type of exchange that one might expect to operate within families, clans, or perhaps at the tribal level. The exchange might have involved material goods (*wes-no-) but possibly also the payment of a bride-price (*kʷre(l)h₂). More distant exchange is suggested by *per- ‘exchange, barter’ which may have derived from the concept of ‘transport across’ and is employed so in Homeric Greek where it designates the sale of slaves overseas. Exchange outside one’s group might lead to negative reciprocity where each side seeks a more advantageous recovery from the transaction.

There are a series of terms for lack or poverty (*deu(s)- ‘be lacking’, *h₁eg- ‘be in need, lack’, *menk- ‘lack’, *das- ‘lack’), as well as words for wealth (e.g. *h₂ó/ép(e)n- ‘goods, wealth’, *rél₁is ‘possessions’, *wósu ‘goods’). These may have been acquired through a lifetime but also they may have been inherited (*lóikʷnes-). The context of use in both Greek and Indic derivatives of *h₁el güho/eh₁er- ‘payment, prize’ supports the notion that human chattels were a Proto-Indo-European commodity. The noun *soru ‘booty’ also suggests wealth in the forms of captured men or livestock and this is supported by expressions built on *h₁eg- ‘drive’, e.g. OIr tāin bō ‘cattle-raid’, Lat bōvēs agere ‘raid for cattle’, Av gam varatām az- ‘drive off cattle as booty’, and, the widespread practice of cattle-raiding attested in the earliest Indo-European literature from Ireland to
India. This manner of gaining wealth should probably be set outside the semantic ramifications of *(s)*teh-, *mus-, and *teubh-, all ‘steal’ in a presumably culturally unsanctioned manner.

**Further Reading**

18.1 Space

The semantic categories of space and time are so fundamental to any language that there is an impressive degree of retention of a range of words, particularly those relating to position. The general terms for space are listed in Table 18.1.

The concept of an ‘open space’ is found in *réu̱x-es- which indicates ‘open fields’ in Celtic (e.g. OIr róí ‘field, open land’) and Italic (e.g. Lat rūs ‘countryside, open fields’) and ‘space’ in Av ravaḥ-. The same root with a different extension gives us NE room. The underlying verb (*reuh-,-) is preserved only in Toch AB ru- ‘be open’. Semantically more opaque is *ṛghóh-ros which is a ‘free space, area between, land’ in Grk ḥóros but a ‘pit, hole’ in Tocharian (e.g. Toch B kāre); an e-grade gives a Greek word for ‘widow’ (kērā). The verbal concept of ‘have room’ is found in *telp- (e.g. OIr -tella ‘have room for something’, Lith telpū ‘find or have room enough; enter’, Skt tālpā- ‘bed’, Toch B tālp- ‘be emptied of, purge’). General words for a ‘place’ are built on the verbal root *steh₂- ‘stand’, hence we have *stēh₂-tis (e.g. Lat stātiō ‘position, station’, NE stead, Lith stāčias ‘standing’, Grk stásis ‘place, setting, standing, stature’, Av stāṭi- ‘station’, Skt sthiti- ‘position’) and *stēh₂-mōn (e.g. Lat stāmen ‘warp’, NE stem, Lith stōmuō ‘stature’, Grk stēmōn ‘warp’, Skt sṭhāman- ‘position’, Toch B sāṭ ‘tree’). As we can see, the first generally does indicate a ‘place’ or ‘station’ while the range of meanings of the second word is
much wider, e.g. ‘warp’ of a loom (Latin, Greek), ‘stem’ (Germanic), and ‘tree’ (Tocharian).

There are three words that indicate ‘border’. Hit *hr₂h₂-os- ‘line, boundary’ preserves PIE *h₂erh₂-os while derivatives may be found in Italic (Lat ōra ‘brim, edge, boundary, region’), Germanic (e.g. OE ōra ‘border, bank, shore’), and Baltic (e.g. Latv āra ‘border, boundary; country; limit’). Another word, *morg-, indicated a ‘border’ or ‘district’ from Celtic to Avestan (e.g. OIr mruig ‘district’, Lat margō ‘edge’ [> by borrowing NE margin], OE mearc ‘border, district’ [NE marches is from Old French, in turn from Germanic], Av marwa- ‘border country’). The root *te₂rmn- ‘cross over’ underlies the third word, *te₂rmn (e.g. Lat termen ‘border’, Grk tērma ‘border, goal, end point’, Arm t’arm ‘end’, Hit tarma- ‘stake’, Skt tārman- ‘point of sacrificial post’); both Hittite and Indic provide a concrete meaning here, i.e. ‘post, stake’, a device employed to mark the limit of something.

18.2 Position

Words indicating position, with respect to both space or time, include the adpreps, i.e. adverbs and prepositions, which are both basic and well preserved in the Indo-European languages. The rather extensive list is indicated in Table 18.2.

There are four words to indicate position ‘before’ or ‘in front’. The first, *h₂enti (e.g. Lat ante ‘in front of’, Lith aūt ‘on, upon; at’, Grk anti ‘instead of, for’, Arm and ‘for’, Hit anti ‘facing, frontally; opposite, against’, hanza ‘in front of’, Skt ānti ‘opposite’), is in fact a frozen case form of *h₂ent ‘face, forehead’ (cf. Lith aūtis ‘breast(s)’, Hit hant- ‘forehead, front’, Toch B ānte ‘brow’). The other three are all derived ultimately from the preposition *per ‘through’, here in the extended meanings ‘through, beyond, in front of’. These are *pr₂h₂-eh₁
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<td>*h_enti</td>
<td>‘in front’</td>
<td>Lat ante, Grk ἀντί, Skt ṁanti</td>
</tr>
<tr>
<td>*prh_ēh₁</td>
<td>‘in front of; before (of time)’</td>
<td>NE fore, Grk παρά, Skt purā</td>
</tr>
<tr>
<td>*prh_ēi</td>
<td>‘in front of; before (of time)’</td>
<td>Lat prae, Skt paré</td>
</tr>
<tr>
<td>*pro</td>
<td>‘forward, ahead, away’</td>
<td>Lat pro, Grk πρό, Skt prā-</td>
</tr>
<tr>
<td>*terh₂</td>
<td>‘across, through, above’</td>
<td>Lat trāns, NE through, Skt tirās</td>
</tr>
<tr>
<td>*proti</td>
<td>‘against, up to’</td>
<td>Grk proti, Skt prāti</td>
</tr>
<tr>
<td>*h_entēr</td>
<td>‘into, between’</td>
<td>Lat inter, Skt antār</td>
</tr>
<tr>
<td>*(s)me</td>
<td>‘middle, among’</td>
<td>Grk metā, Skt smat</td>
</tr>
<tr>
<td>*per</td>
<td>‘over, through, about’</td>
<td>Lat per</td>
</tr>
<tr>
<td>*h_en(i)</td>
<td>‘in, into’</td>
<td>Lat in, NE in, Grk en</td>
</tr>
<tr>
<td>*h_ēndo</td>
<td>‘into’</td>
<td>Lat endo, Grk ἐνδόν</td>
</tr>
<tr>
<td>*h_ēd</td>
<td>‘at, to’</td>
<td>Lat ad, NE at</td>
</tr>
<tr>
<td>*do ~ *de</td>
<td>‘to, toward’</td>
<td>Lat dō-nec, NE to, Grk -de</td>
</tr>
<tr>
<td>*ko(m)</td>
<td>‘with, side by side’</td>
<td>Lat cum, Skt kām</td>
</tr>
<tr>
<td>*sekʷ-o-</td>
<td>‘following’</td>
<td>Lat secus, Skt sācā</td>
</tr>
<tr>
<td>*som-</td>
<td>‘(together) with’</td>
<td>Skt sam-</td>
</tr>
<tr>
<td>*h_ēnh₂u</td>
<td>‘without’</td>
<td>NHG ohne, Grk ἀνευ</td>
</tr>
<tr>
<td>*b(h)egh</td>
<td>‘without’</td>
<td>Skt bāhi-</td>
</tr>
<tr>
<td>*sen-i-/u-</td>
<td>‘apart’</td>
<td>Lat sine, Skt sanītūr</td>
</tr>
<tr>
<td>*wi-</td>
<td>‘apart, in two, asunder’</td>
<td>Lat vitium, Skt vi-</td>
</tr>
<tr>
<td>*h_ēu</td>
<td>‘away (from)’</td>
<td>Lat au-ferō, Skt āva</td>
</tr>
<tr>
<td>*h_ēt</td>
<td>‘away, beyond’</td>
<td>Lat at, Grk atār, Skt ātas</td>
</tr>
<tr>
<td>*h_ēpo</td>
<td>‘back, behind’</td>
<td>Lat ab, Grk apō, Skt āpa</td>
</tr>
<tr>
<td>*h_ēp-ēr-</td>
<td>‘back, behind’</td>
<td>Skt āpara-</td>
</tr>
<tr>
<td>*posti</td>
<td>‘after’</td>
<td>Lat post(e)</td>
</tr>
<tr>
<td>*po-skʷ-o-</td>
<td>‘behind’</td>
<td>Skt pāscāt</td>
</tr>
<tr>
<td>*witeros</td>
<td>‘far’</td>
<td>NE withershins, Skt vitarām</td>
</tr>
<tr>
<td>*h_ēntbhi-</td>
<td>‘around, on both sides’</td>
<td>Lat ambi-, Grk amphi, Skt abhīta-</td>
</tr>
<tr>
<td>*h_ēpó</td>
<td>‘up (from underneath)’</td>
<td>NE up, Grk ἕπο, Skt ūpa</td>
</tr>
<tr>
<td>*ūd</td>
<td>‘upward, out (from under)’</td>
<td>NE out, Skt ud-</td>
</tr>
<tr>
<td>*h_ēn-h,e</td>
<td>‘up (onto), upwards, along’</td>
<td>NE on, Grk anā</td>
</tr>
<tr>
<td>*h_ēpo ~ *h_ōpi</td>
<td>‘near, on’</td>
<td>Lat ob, Grk epi, Skt āpi</td>
</tr>
<tr>
<td>*(s)-h_ūpēr(i)</td>
<td>‘over’</td>
<td>Lat s-upper, NE over, Grk hupēr, Skt upāri</td>
</tr>
<tr>
<td>*bhṛghús ~ *bhṛghént-</td>
<td>‘high’</td>
<td>Skt bhānt-</td>
</tr>
<tr>
<td>*h_ērdus</td>
<td>‘high, lofty’</td>
<td>Lat arduus</td>
</tr>
<tr>
<td>*worh₂-dhus</td>
<td>‘upright, high’</td>
<td>Grk (w)orthós, Skt ārdhivā-</td>
</tr>
<tr>
<td>*wers-</td>
<td>‘peak’</td>
<td>Lat verrūca, Grk hēma, Skt vārśman-</td>
</tr>
<tr>
<td>*ni</td>
<td>‘downwards’</td>
<td>NE nether, Skt nī</td>
</tr>
</tbody>
</table>

(Cont’d)
(e.g. NE fore, Grk paraτ ‘by, near, alongside of, beyond’, Arm ar ‘near, at’, Av para ‘before’, Skt pura ‘formerly’), *prähéi (e.g. Gaul are- ‘before, by; east’ ['east' is in front of anyone who orients him- or herself by the sun which appears to have been the Proto-Indo-European custom], Lat prae ‘before’, Lith prie~ ‘by, at, near; in the time of’, Grk paraıτ ‘before’, Skt pareτ ‘thereupon’) and *pro (e.g. Lat pro¯/C24 pro ‘before, in front of, before’, OHG W− ‘before’, OPrus pra ‘through’, Grk pro´ ‘in front of; before [of time]’, Hit para¯ ‘forward, further’, Av fra¯ ‘in front of’, Skt pra´ ‘before’). The equivalent of ‘across’ is seen in *terh2 which includes among its NE forms both through and thorough (cf. also OIr tar ‘across, above’, Lat trāns ‘across’, Av tarō ‘over, to’, Skt tirās ‘over, across, apart’). ‘Against’ is *proti which is formed from *pro + an adverbial suffix *ti (e.g. Latv pretī ‘against’, OCS protivu˘ ‘towards’, Grk protι´ ‘at, in front of, looking towards’, Skt pra´ti ‘against’). The word for ‘between’, *h1ente´r (e.g. OIr etér ‘into, between’, Lat inter ‘between’, OHG untar(i) ‘between’, OCS o˛trı˘ ‘inside’, Alb ndēr ‘between, among’, Av antarɔ ‘within, between’, Skt antår ‘between’), is derived from *h1en ‘in’. The word for ‘middle’ was *(s)me(−tho) (e.g. OE mid ‘with’, Alb me ‘with’, Grk metα ‘with, among’, Av mat (‘together with’, Skt smat ‘with’) but was extended in a series of widespread derivatives, e.g. *medhyos underlies both Lat medius and NE mid (cf. also MIr mide ‘middle’, OPrus median ‘forest’ [< ‘that which lies between (settlements)’], Rus mežá ‘border’, Alb mjesditē ‘noon’, Grk mēsos ‘middle’, Arm mēj ‘middle’, Av maiōya- ‘middle’, Skt mādhyā- ‘middle’).

The preposition ‘in’ is indicated by *h1en(i) and *h1en-do (e.g. OIr in ‘in(to), Lat in ‘in(to), NE in, Lith iˇiˇ ‘in’, Alb inj ‘up to’, Grk en ‘in’, Arm i ‘in’,Toch AB y(n)- ‘in, among’; and Lat endo ‘in’, Alb ndē ‘in’, Grk éndon ‘within’, Hit anda(n) ‘in’). The widespread *ḥẹd meant ‘to’ (e.g. Irish ad- ‘to’, Lat ad ‘to, at’, NE at, Phryg ad- ‘to’) as did *do or *de (e.g. OIr do, Lat dō-nec ‘up to’, NE to, Lith da ‘up to’, OCS do ‘up to’, Grk -de ‘towards’, Av -da ‘to’). The concept of accompaniment is indicated by three words meaning ‘with’. The first, *ko(m) (e.g. OIr com- ‘with’, Lat cum ‘with’, OCS kǔ ‘towards’, Skt kām ‘toward’), is widespread and old while *sek”o indicates the ‘following’ (e.g. OIr sech ‘past, beyond’, Lat secus ‘after, beside, otherwise’, Latv secen ‘by,
along’, Av hača ‘from, out of; in accordance with’, Skt sácä ‘together with’, sakäm ‘with’) and derives from the verbal root *sekʷ- ‘follow’. The third, *som- (e.g. OHG samm ‘together’, Lith sam- ‘with’; OCS so- ‘with’, Av ha(m)- ‘together’, Skt sam- ‘with’), is an o-grade derivative of *sem- ‘one’. There are two words to indicate ‘without’: *hjénh₂mu and *bh(h)egh (e.g. NHG ohne ‘without’, Grk ἀνευ ‘without’, Oss ana ‘without’; and Lith bè ‘without; but’, OCS bez ‘without’, Skt bahi- ‘outside’). Separation is also indicated by two words meaning ‘apart’, i.e. *sen-i-/u (e.g. OIr sain ‘especially’, Lat sine ‘without’, Hit sanizzis ‘excellent’, Av hanarə ‘except, without’, Skt sanitiś ‘apart from’, Toch B snai ‘without’; a derived form gives us NE sunder) and *wi- (e.g. Av vi- ‘apart, off’, Skt vi- ‘asunder’, and derivatives in Lat vitium ‘defect’ [> by borrowing NE vice], NHG wider).

Those words indicating distance or ‘back’ are relatively numerous. The word ‘away’ was conveyed by *h₄eu (e.g. OIr ɵ ‘from’, Lat au-ferō ‘carry away’, Lith au- ‘away’, OCS u- ‘away’, Hit awan ‘away’, u- ‘hither’, Av ava ‘down, off’, Skt áva ‘from’) and *h₄et (e.g. OIr aith- ‘back, out of’, Lat at ‘but’, Goth aþ-hän ‘however’, Lith a‰- ‘back, away’, OCS ot- ‘away, out’, Grk atār ‘however’, Skt átas ‘from there’, Toch B ate ‘away’). The terms ‘back’ and ‘behind’ have at least four reconstructable words. The first *h₄épo (e.g. Lat ab ‘from’, Goth af ‘from, since’, Grk apó ‘from’, Hit āppa ‘behind’, Av apa ‘away from’, Skt ápa ‘away, forth’) also has a shortened version *(h₄)pō which is used as a verbal prefix in Baltic (e.g. Lith pa-) and Slavic (e.g. OCS pa-), Av (pa-), and can also be seen in Lat po-situs ‘situated’, and perhaps Alb pa ‘without’. Another derived form is *h₄ ep-érr- (e.g. Goth afar ‘after’, Av apara- ‘behind, following, other’, Skt ápara- ‘later’) which, with a different extension, gives us NE after. The third word, *posti (e.g. Lat post(e) ‘after’, Arm ȯst ‘after’, Toch B post₉m ‘after’), is derived from *pos (e.g. Lat posterus ‘behind’, Lith pās ‘at, with’, pāstaras ‘last, furthest behind’, OCS po ‘after’, dialectal Grk pós ‘near, by’, and perhaps Alb pa ‘without’) which may itself derive (as the genitive form) from either *h₄ep- ‘near’ or *h₄ep- ‘back’. The final form (*po-sk w₀-), cf. Lith paskuę ‘behind; after that, later on’, Alb pa ‘after’, Av paskāt ~ pasća ‘behind’, Skt pāścāt ~ paścā ‘behind, westerly’ [because the west is to one’s back when oriented to the rising sun]) is a compound of *po ‘back’ and *sekʷ- ‘follow’. The original meaning of *witeros (e.g. NE withershins, Av vītara- ‘a further one’, Skt vitarām ‘far away’) is not entirely clear but may have been ‘far’ (as in Indo-Iranian, although it is ‘against’ in Germanic); it is a compound of *wi- ‘apart, in two’ and *tero-, the comparative suffix.

A derivative of *h₂ent- ‘face’ provides a word for ‘around, on both sides’; i.e. *h₂(e)nt-bh-i (e.g. OIr imm- ~ imb- ‘about, mutually’, Lat ambī- ‘on each side of, around, about’, OHG umbi ‘about’, Alb mbi ‘over’, Grk amphi ‘about, near’, Arm amb-ólj ‘complete’, Av aīwitō ‘on both sides’, Skt abhita- ‘on both sides’).
A number of words can be reconstructed to mean ‘up’. The oldest is perhaps \( *h₄u₄pō \) (e.g. OWels gwo- [preverb], OE ufe- ‘on’, and with doubled consonant, OE upp(e) ‘up’ [+ NE up], Grk ὑπό (e.g. OWels gwo- [preverb], OE ufe- ‘on’, and with doubled consonant, OE upp(e) ‘up’ [+ NE up], Grk ὑπό ‘(to) under, by, towards’, Av upa ‘towards’, Skt ṕa ‘upwards, towards’) which has an underlying verbal root \( *h₄u₄p- \) that means ‘go up, rise’ (e.g. Hit ṕupi ‘[the sun] rises’, Alb hypem ‘go up’).

A good example of how prepositions may alter their meaning in various languages is seen in the fact that the other two words for Proto-Indo-European ‘up’, \( *u₃d \) and \( *h₄a₄n-h₄a₄ \), yield the NE prepositions ‘out’ and ‘on’ respectively (cf. also dialectal Grk ὑπ’ ‘on’, Skt ṕa ‘out’; Grk ἀνά´ ‘up on, up along, over, through, among’, Av ana ‘onto’). The widespread (ten groups) \( *h₄eπi \) indicates a meaning of ‘near’ or ‘on’ (e.g. OIr iar ‘after’, Lat ob ‘towards’, Lith ap- ‘about’, OCS ob ‘on’, Grk eπi on, upon, on top of’, ὀπίσθεν ‘behind’, Arm ev ‘and, also’, also, Av aipi ‘also, also in addition’). Also widespread are descendants of \( *(s)-h₄u₄pér(i) \) ‘over’ (e.g. OIr for- ‘over’, Lat super ‘over’, NE over, Grk ὑπέρ ‘over; beyond’, Av upári ‘over’, Skt upári ‘over’). The adjective ‘high’ is indicated by \( *bhγhˈuṣ \) (Arm barj ‘high’, Anatolian, e.g. Hit parki- ‘high’), Toch B pārkare ‘long’ [with a change to a horizontal perspective from the original vertical one]) or \( *bhγhˈeπɛnt \) (Celtic, e.g. OIr Brigit [proper name], Germanic, e.g. ON Borgundarholmr ‘Bornholm’ [an island that rises high out of the sea], Indo-Iranian, e.g. Av ʰarpazant- ‘high’, Skt ʰṛhant- ‘high, great’). Among other derived forms is Lat for(c)is ‘strong’. A nominal form \( *bhr₄γhˈhgs \) gives both NE barrow and borough (as well as NHG Berg ‘mountain’ and Burg ‘fortress’ and Av barš ‘height’). Another adjective for ‘high’ is seen in \( *h₂erdu₃ \) (e.g. OIr ard ‘high’, Lat arduus ‘steep, lofty; difficult’, ON ʰrōgr ‘steep’, Hit harduppi- ‘high’). A PIE \( *wɔrh₄dhu₄s \) ‘upright, high’ is seen in Grk (w)thòs ‘upright, standing’, Indo-Iranian (e.g. Skt ārdhva- ‘upright; high’), and Toch A ʰrto ‘from above’. The word for ‘peak’ was \( *wər₄s-( \) e.g. OIr ferr ‘better’ [< ‘higher’], Lat verruca ‘varus, pimple’, OE wearr ‘sill’, Lith viršus ‘highest point’, Rus ʰerrh ‘peak’, Grk ʰérma ‘point, top’, Skt vārṣman- ‘height, peak’). The Greek word for ‘heaven’, ʰουράνως, may belong here as well if, as has been suggested, it comes from \( *wɔrᵢnˈnʊ₃ʊ₄. \)

In the opposite direction we have \( *ni \) (e.g. OIr ne ‘down’, NE nether, OCS nizû ‘down’, Arm ni- ‘down, back, into’, Skt ni ‘down’) and \( *k₄a₄t-h₄e \) (e.g. Grk káta ~ katá ‘down; through, among; according to’, Hit katta ‘down, by, with, under’, kathantiya- ‘kneel, go down’, Toch B kāt- ‘lower’), both ‘downwards’). The word for ‘deep’, \( *dheub- \), is attested in Celtic (possibly, e.g. NWels dűn ‘deep’), Germanic (e.g. NE deep), Baltic (e.g. Lith dubuš ‘deep’), Slavic (e.g. OCS dűno ‘ground, floor’ dűbrű ‘rivine, valley’), Alb det ‘sea’, and, with a radical shift in meaning to ‘high’, also Tocharian (e.g. Toch B tapre; for the semantic change we might compare NE ‘high seas’). It is a much discussed word since it offers evidence for the elusive (and very rare)
Proto-Indo-European *b-; otherwise, if the Tocharian and Albanian forms are not accepted, it has been seen as a north-west European substrate term, borrowed possibly from a non-Indo-European language. The word ‘under’ or ‘low’ is seen in *ndhês (e.g. ON und ‘under’, Arm ãnd ‘under’, Lyc ėti ‘down, below’, Skt adhás ‘under’, Toch B ëtte ‘downward, under’) or with the comparative suffix (i.e. ‘lower’) *ndhero- (e.g. Lat inférnus ‘lower’, NE under, Goth anderas ‘lower’. Lycian ět̄é ‘lower’, Av adv̄t̄ ‘the lower’, Skt ádhara- ‘lower’). The peculiar semantic development of *ner ‘under’ (e.g. NE north, Grk nérthen ‘from below’, Tocharian ñor ‘below, beneath, under’) to Germanic ‘north’ is explained by the Indo-European system of orientation which involves facing the sun so that straight ahead is east and the left or north is ‘low’ compared with the right or south where the sun will be high. The underlying verbal meaning is preserved in Lith neriú ‘plunge, dive into’. We have already seen how *hupo mént meant ‘up’ or, in its verbal form, ‘going up’; the activity suggests ‘rising from underneath’ and the meaning of the related form *s-hupo is exclusively ‘underneath’ (e.g. Lat sub ‘underneath’, animália suppa ‘animals [on all fours]’, Arm hop ‘near’, Hit sup-pala- ‘animal’, Toch B spe ‘near’).

Regional terms for position included from the North-West *hèlno ‘beyond, yonder’ (e.g. OIr òll ‘ample’, Lat uls ‘beyond’, NE all, OCS lami ‘last year’) which is based on the same root that gives Proto-Indo-European ‘other’; *dè ‘away (from)’ (e.g. OIr di ‘away’, Lat dè ‘away’). From the West Central region are *dis- ‘apart, asunder’ (Lat dis- ‘asunder’, Goth dis- ‘apart’, Alb sh- ‘apart’, Grk diá ‘through, on account of’) from the numeral ‘two’; *hèl ‘at, to’ which is found in the North-West and Phrygian (e.g. OIr ad- [preverb], Lat ad ‘to, at’, NE at, Phryg ad- ‘to’); *skun ‘with’ (Lith su ‘with’, Rus s(o) ‘with’, Grk ksún ~ sun ‘with’); *pos ‘immediately adjacent; behind, following’ (Lat posterus) which we have already seen in extended form in Proto-Indo-European; *ghō- ‘behind’ (Lith až(ū) ‘behind’, Rus za ‘by, to’, Arm z- ‘with regard to’); *hēghs ‘out (of)’ (e.g. OIr ess- ‘out’, Lat ex ‘out (of)’, Latv īz ‘out’, OCS īz ‘out’, Grk eks ‘from, out of’). A Greek-Indo-Iranian isogloss is seen in *dhíghmós ‘aslant’ (e.g. Grk dokhmós ‘slanting, oblique’, Skt jihmā- ‘athwart, oblique’) and an ‘easternism’, i.e. Indo-Iranian-Tocharian isogloss, is *hèn-u ‘up (onto), upwards, along’ (e.g. Av anu ‘after, corresponding to’, towards’, Skt án ‘after, along, over, near’, Toch B onîmêm ‘from above’).

### 18.3 Direction

There are a handful of terms in Proto-Indo-European concerned with ‘direction’, which, as we will see, plays a significant role in Indo-European conceptualization of their world. The words are listed in Table 18.3.
There is no word specifically for ‘direction’ that we can reconstruct although the concept would fit broadly into the meanings one might ascribe to *deik- which does mean ‘direction’ in Indic (e.g. Skt diś- ~ diśa-) but ‘justice’ in Grk dikē. An o-grade form gives meanings as varied as ‘plot of land’ (ON teigr) and ‘direction’ (e.g. OHG zeiga ‘directions’, Skt desā- ‘direction, region’) and the base meaning of the word has been explained as ‘norm’ or ‘fixed point’ which might then develop into meaning ‘direction’, a ‘fixed area’ such as a plot of land, etc.

There are two words for ‘right’: *dēksinos and related formations that are found in nine groups (e.g. OIr dess, Lat dexter, OHG zeso, Lith dēšinas, OCS desnū, Alb djathū, Grk dekisiōs, Av daśīna-, all ‘right’, Skt dākṣīna- ‘right, south’) and *h₂regītos which derives from *h₂reg- ‘stretch out’ (e.g. OIr recht ‘law, authority’, Lat rectus ‘right’, NE right, Grk orektós ‘stretched out’, Av raštā- ‘right, straight’), the same root that underlies the word for ‘king’ (cf. Section 17.1). There are also two Proto-Indo-European words (at least) for ‘left’: *laiwōs (Lat laevus, OCS lēvū, Grk laiós, all ‘left’, Toch B laiwo ‘lassitude’) and *seuyōs (OCS šuji, Av haoya-, Skt savyā-), neither of which has any certain root connection.

Only one cardinal direction can be reconstructed. The word for ‘east’, *h₂eust(e)ro-, (e.g. Lat auster ‘south wind; south country’, NE eastern, Latv āustrums ‘east’, OCS ustrū ‘summer’, Av uṣatara- ‘east’) is a transparent derivative from *h₂eus- ‘dawn’, i.e. the direction of the rising sun. However, the evidence is good that the corresponding cardinal direction, i.e. ‘west’, could also be denominated by reference to the sun, more particularly by reference to the evening (e.g. NE west) or the setting of the sun though no particular Proto-Indo-European word is reconstructable. A competing system of orientation in Proto-Indo-European was one that presumed the speaker was facing the rising sun. ‘East’ was then ‘forward’, ‘west’ was ‘behind’, etc. (cf. the discussions of *po-sekʰ-o-, *ner, and *dēksinos above). Nevertheless, while this system itself is reconstructable, the individual manifestations of the system are all creations of the individual stocks.

| *deik-     | ‘rule, canon, measure’   | Grk dikē, Skt diś- |
| *dēksinos | ‘right’                  | Lat dexter, Grk dekisiōs, Skt dākṣīna- |
| *h₂regītos | ‘right’                   | Lat rectus, NE right, Grk orektós |
| *laiwōs   | ‘left’                   | Lat laevus, Grk laiós |
| *seuyōs   | ‘left’                   | Skt savyā- |
| *h₂eust(e)ro- | ‘east’               | Lat auster, NE eastern |

Table 18.3. Direction
We can add a regional term from the West Central languages: *skaiwós ‘left’ (Lat scaevus, Grk skaiós), a rhyme word of *laiwós.

### 18.4 Placement (Verbs)

Among the more fundamental verbs in any language are those that indicate the positioning of an object and this is no less so with respect to Indo-European. The verbal expressions of putting, standing, lying, setting, etc. are indicated in Table 18.4.

The primary verb for putting something into place is *dheh₁- which forms a reduplicated present (in Greek, Hittite, Indo-Iranian, and Tocharian), i.e. Grk tithēmi ‘I set’, Hit tittiya- ‘establish’, Av dādāti ‘puts, brings’, Skt dādhāti ‘puts, places, lays’, Toch B tattaḥ ‘will put’, or new formations in other groups (e.g. Lat facere, NE do, Lith dėti ‘lay’, OCS děti ‘lay’, Arm dnem ‘put, place’, Hit dāī ‘puts, places’, tēzzi ‘says’, Toch AB tās- ~ tās- ‘put, lay’). To put into a standing position we have *stel- (e.g. NE stall, NHG stellen ‘put, place’, OPrus stallit ‘stand’, Alb shtjell ‘fling, toss, hurl’, Grk stēllo¯ ‘make ready; send’, Skt sthālam ‘eminence, tableland; dry land, earth’). To ‘set in place’ is indicated by *ta˘g- with meanings as varied as ‘get married’ (Baltic, e.g. Lith sutógti ‘get married;
ally oneself with’) and the actions of a military ‘commander’ (Thessalian Grk ῥαγός ‘military leader’, Iranian, i.e. Parth ῥάγνδρ ‘ ± commander’, Tocharian, e.g. Toch B ῦᾶς ‘commander’). Very wide semantic variation attends the root *yet- which might be taken to mean ‘put in the right place’ (e.g. NWels addiad ‘longing’, SC jatiti se ‘flock together’, Av yataiti ~ yatayeiti ‘puts oneself in the right or natural place’, Skt yātati ‘puts oneself in the right or natural place’, Toch AB yār- ‘adorn’, yār- ‘be capable of [intr.]; have power over; tame’).

Other verbs place an object or find an object in a particular position. There are, for example, two verbs for ‘lie’. The root *kei- (e.g. Grk κεῖmai ‘lie’, Hit kittari ‘lies’, Av saēte ‘lies, rests’, Skt sāye ‘lies’) is conjugated in the middle rather than the active voice and in poetic language the word is also used to indicate the position of the deceased (e.g. Homeric Grk κεῖμαι Πάτροκλος [here] lies Patroclus). The other root *legh- not only supplies NE lie but in derived forms also law, i.e. what is laid down, and low, i.e. lying down flat (cf. also MIr laigid ‘lies’, Lat lectus ‘bed’, OCS lězati ‘lie’, Grk lēkhetai ‘lies’, Hit lāki ‘lays aslant’, Toch B lyāk- ‘lie’). There are two verbs for ‘sit’. Greek, Anatolian, and Indo-Iranian attest *hēs- (e.g. Grk ἔσται ‘sit’, Hit ěṣa ‘sits’, āṣzi ‘stays, remains, is left’, Av āste ‘sits’, Skt āste ‘sits’) which appears to be an intensive of *hē- ‘be’ (one might note that Spanish employs both the original verbs ‘be’ and ‘sit’ in its paradigm for ‘be’). Nine groups attest *sed- ‘sit’ (e.g. OIr saidid ‘sits’, Lat sīdō ‘sit down’, sedeō ‘sit, be sitting’, NE sit, Lith sedu ‘sit down’, OCS sēsti ‘sit down’, Grk hίζδο ‘sit’, Arm nstim ‘sit’, Av hīśaiti ‘sits’, Skt ṣīḍati ‘sits’) and this also supplies a causative *sodye/o- ‘set’. The basic verb for ‘stand’ is seen in *(s)teh2- which indicates a reduplicated present (e.g. OIr -sissedar ‘stands’, Lat sīdō ‘sit down’, sedeō ‘sit, be sitting’, NE sit, Lith sēdu ‘sit down’, OCS sēsti ‘sit down’, Grk hίζδο ‘sit’, Arm nstim ‘sit’, Av hīśaiti ‘sits’, Skt ṣīḍati ‘sits’) and also supplies a causative *sodye/o- ‘set’. The same root also underlies *stembh- ‘make stand’ (e.g. Lith stēmbti ‘produce a stalk [of plants]’, Grk astemphēs ‘imperturbable, firm’, Av stambana- ‘support’, Skt stāmbhate ‘prop, support; hinder, restrain’, Toch AB stām- ‘stand’). The verb *klei- ‘lean’ (e.g. Lat clivus ‘slope’, NE lean, Lith šliēti ‘lean against’, Rus slaj ‘layer, level’, Grk klίνō ‘cause to lean’, Av sray- ‘lean’, Skt śrāyate ‘clings to, leans on’, Toch B klāsk- ‘set [of sun]’) has developed secondary meanings in Celtic and Italic for ‘left’ (e.g. OIr clé) and ‘inauspicious’ (e.g. Lat clivis) along the same lines as we have already seen for ‘bent’, i.e. ‘what is not straight’.

Placement in order is indicated by a series of words. PIE *rehr1- ‘put in order’ maintains a strongly verbal connotation in the West, e.g. OIr rād- ‘say’, Goth rōdjan ‘talk’, OCS raditi ‘take care of’; but it means ‘prepare’ in Indo-Iranian, e.g. Skt rādhnōti; there is a potential Latin cognate in reor ‘count, calculate’ that is not universally accepted. There is also a denominative *sem- ‘put in order/together’ from *sem- ‘one, unity’ with cognates in Germanic
(ON *semja ‘put together’), Indic (Skt *samayati ‘puts in order’), and Tocharian (Toch B *šuṃs- ‘count’). The more specific meaning of ‘line up’ is found in *ser- with OIr *sernaid ‘arranges’, Lat *sēro ‘line up, join, link’, Lith *sēris ‘thread’, Grk *eirō ‘line up’, Hit *sara- ‘break’, and Skt *sarat- ‘thread’ with more than a hint that this term derives from the world of textiles. An extended form of *rei- ‘scratch’ gives us *reik- ‘scratch, line’ with cognates in Celtic (NWels *rhwyg ‘break’), Germanic (e.g. NE *row), Baltic (Lith *rieke ‘slice [of bread]’), possibly Grk *ereikō ‘bend, bruise’, and Skt *rekhā- ‘thread’. There is also a *wörghs ‘chain, row, series’ based on Alb varg ‘chain, row, string, strand’, Grk ὠρχος ‘row of vines’, and Toch B *warke ‘chain, garland’.

There are two North-West isoglosses: possibly *dheig- ‘stick, set up’ (if one can live with comparing Lat *fīgō ‘fasten’ and if one accepts the possible Germanic cognates, NE *dike; cf. also Lith *dįgį ‘prick; plant, sow’); and *knei-g’h- ‘lean’ (Lat *cūnīveō ‘blink’ which is borrowed as NE *connive; cf. also Goth *hneiwan ‘bow’).

### 18.5 Shape

The words describing shapes or forms are indicated in Table 18.5.

Several words are associated with circularity. We have already seen (Section 17.4) *serk- which is associated with ‘restitution’ in the sense of ‘completing a circle’. There is also *h₃ērbhis ‘circle, disc’ in both Latin and Tocharian (e.g. Lat orbis ‘ring, circle, cycle; disc, world, orb’, Toch B *yerpe ‘disc, orb’). A meaning something like ‘crooked’ may be suggested for *(s)keng- that means ‘limp’ in a number of language groups (e.g. OIr *scingim ‘spring’, ON *skakkr ‘skewed, distorted’, OHG *hinke ‘go lame’, Grk *skαξō ‘limp, go lame’, Skt *khāṅjati ‘limps’). The concept ‘broad’ is reconstructed as *pl₃th₂us (e.g. Lith platus ‘broad’, Grk platús ‘broad’, Av *pərəθu- ‘broad, wide’, Skt *prthu- ‘broad, wide’) which is derived from *pleth₂- ‘spread’. Related is *pelh₃,k- ‘spread out flat’ (e.g. OE *flāh ‘flagstone’, Lith pląkanas ‘flat’, Grk pláks ‘flat surface’) whose Latin (placeō ‘please, be acceptable to’, plācō ‘soothe, calm’) and Tocharian (Toch AB *plāk- ‘be in agreement’) attestations tend to mean ‘please, be agreeable’, i.e. ‘be level, even’ (see Section 20.6). What might be otherwise a Graeco-Aryan isogloss, i.e. *wērh₃us ‘broad, wide’ (e.g. Grk eurús ‘broad, wide’, Av *vouru- ‘broad, wide’, Skt urā- ‘broad, wide’), may be extended by Toch B wartse ‘wide’ and indicate a word of PIE date.

‘Narrow’ is indicated by *h₄ēnghus (e.g. OIr *cum-ung ‘narrow, restricted’, Lat angi-portus ‘narrow street, cul de sac’, OE enge ‘narrow’, Lith ainkštas ‘narrow’, MPers *hnzwg- ‘narrow’, Skt amhū- ‘narrow’).
A ‘point’ or ‘pointed’ shape is indicated by several words. Both *hₐᵉʳdhis (e.g. OIr aird ‘point; direction’, ON erta ‘to goad’, Grk ārdis ‘arrowhead’, Skt ali- ‘bee’) and *bhṛṣṭis (e.g. OIr barr ‘point, tip’, Lat fastīgo¯ ‘make pointed, bring to a point’, NE bristle, Rus boršč ‘hogweed’, Skt bhṛṣṭi- ‘point’) mean a ‘point’ while ‘sharp’ or ‘pointed’ is attested by *hₐᵉkₐ (e.g. NWels hogi ‘to sharpen’, Lat ācer ‘sharp; pungent, sour’, acus ‘needle’, Lith ais(t)rūs ‘sharp’, OCS ostrūs ‘sharp’, Alb athēt ‘sour’, Grk akē ‘point’, Arm asehn ‘needle’, NPers ās ‘grinding stone’, Skt āṣrī- [sharp] edge’) and *kēnt- (e.g. Goth handugs ‘wise’, Latv sīts ‘hunting spear’, Grk kenteō ‘prick’). A verbal root *meₙ- ‘project’ is suggested by several cognates for jutting parts of the face or projections, e.g. NWels mant ‘mouth, lip’, Lat mentum ‘chin’, prō-mineō ‘project’, Hit mēni- ‘face, cheek’, Av fra-manyente ‘gain prominence’.

Both words for ‘thick’ are placed in the category of Proto-Indo-European because of Anatolian cognates (otherwise they are confined to the North-West). The root *dheb- has meanings such as ‘thick’ and ‘strong’ (e.g. OHG tapfar ‘weighty, strong’, OPrus debīkan ‘large’, Rus debēlyj ‘strong’) and it is

<table>
<thead>
<tr>
<th>Shape</th>
<th>Meanings</th>
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<tbody>
<tr>
<td>*serk-</td>
<td>‘make a circle, complete’</td>
</tr>
<tr>
<td>*hₐᵉʳdhis</td>
<td>‘circle, orb’</td>
</tr>
<tr>
<td>*(s)keng-</td>
<td>‘crooked’</td>
</tr>
<tr>
<td>*plth₂us</td>
<td>‘broad, wide’</td>
</tr>
<tr>
<td>*pelhₐ-k</td>
<td>‘spread out flat’</td>
</tr>
<tr>
<td>*wērhₐ-us</td>
<td>‘broad, wide’</td>
</tr>
<tr>
<td>*hₐ,enghū</td>
<td>‘narrow’</td>
</tr>
<tr>
<td>*hₐ,eₐrdhis</td>
<td>‘point’</td>
</tr>
<tr>
<td>*bhṛṣṭis</td>
<td>‘point’</td>
</tr>
<tr>
<td>*hₐ,eₐkₐ</td>
<td>‘sharp, pointed’</td>
</tr>
<tr>
<td>*kēnt-</td>
<td>‘sharp’</td>
</tr>
<tr>
<td>*meₙ-</td>
<td>‘project’</td>
</tr>
<tr>
<td>*dheb-</td>
<td>‘thick, packed’</td>
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<tr>
<td>*teₙus</td>
<td>‘thick, fat’</td>
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<tr>
<td>*teₙus</td>
<td>‘thin, long’</td>
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<tr>
<td>*kṛkōs</td>
<td>‘thin’</td>
</tr>
<tr>
<td>*makros</td>
<td>‘thin, long’</td>
</tr>
<tr>
<td>*duhₐ,ros ~ dwehₐ,ros</td>
<td>‘long (of time, space)’</td>
</tr>
<tr>
<td>*dlhₐ,ghōs</td>
<td>‘long’</td>
</tr>
<tr>
<td>*dlonghos</td>
<td>‘long’</td>
</tr>
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</table>
the latter which supplies the underlying semantics to the Hittite cognate *tabarna*- ‘ruler’ (cf. Luvian *tapar*-‘rule’). A Middle Dutch cognate supplies NE with *dapper*. The other root, *tegus*, is otherwise confined to Celtic (e.g. OIr *tiug* ‘thick’) and Germanic (e.g. NE *thick*) but Hit *tagu*- ‘fat, swollen’ is a plausible candidate as well. There are three words for ‘thin’. The verbal root *ten*- ‘extend, stretch’ provides the basis for *ténus* ‘thin’ (e.g. OIr *tiug* ‘thin’, Lat *teunis* ‘thin, fine’, NE *thin*, Lith *tývas* ‘thin, slim’, OCS *tínuků* ‘slender, thin’, Grk *tanaós* ‘long, elongated’, MPers *tanuk* ‘thin, weak’, Skt *tanu*– ‘thin, slender, small’), in this case, ‘that which is stretched’. The meaning ‘thin’ found in *kýcós* would appear to come originally from a verb ‘be thin, emaciated’ and may mean anything from a ‘shrivelled tree’ (Czech *krs*) to ‘lean cows’ (Indo-Iranian, e.g. Av *kaɾ̥ṣa-gu*, Skt *kṣa-gu*– ‘having lean cows’); one should compare also ON *horr* ‘thinness’, Czech *krsati* ‘lose weight, wane’, Lith *karsˇti* ‘be aged or decrepit’, Skt *kars´*– ‘grow/be thin or lean’. A third word for ‘thin’, *makrós* ‘thin, long’ (e.g. Lat *macer* ‘lean, meagre, thin’ [which via French is borrowed into English as meagre], ON *magnr* ‘thin’, Grk *makrós* ‘long, big, high; deep, long-lasting’) is found in this form only in the Centre and West of the Indo-European world, but related are Hit *maklant*– ‘thin’ and Av *mas*– ‘long’ in the East.

There are several words to express ‘length’. A PIE *duh₂ros* ~ *dweh₂ros* which could express both ‘a long time’ and physical length is attested in Lat *dūra¯re* ‘to last’, Grk *de¯ro´s* ‘long’, Arm *erkar* ‘long’, Av *du¯ire* ‘far’, and Skt *du¯ra´*– ‘far’, and with a different suffix we have Hit *tūwa*– ‘far, distant’. We also have *dl₁gh₁ghos* ‘long’ found in Lat *in-dulgeo¯* ‘long-suffering’, Goth *tulgus* ‘firm’, Lith *ilgas*, OCS *dlugu¯*, Alb *gjate¨*, Grk *dolikho´s*, Hit *daluki*–, Skt *ḍīrgha´*–, and *dlonghos* ‘long’ seen in Lat *longus*, NE *long*, and MPers *derang*, all ‘long’.

There are some regionally attested words. From the North-West comes *pandos* ‘curved’ (Lat *pandus* ‘curved, bent’, ON *fattr* ‘bent back’) and *gʷretsos* ‘thick’ (e.g. MIr *bres* ‘large, thick’, Lat *grosus* ‘thick’); *bharko*- ‘projection’ which appears to underlie several derived forms such as *bharko*– (MIr *bres* ‘spear shaft’, SC *brk* ‘point’) and the word for ‘barley’ (*bhár- > OIr *bairgen* ‘bread’, Lat *fär* ‘spelt, grain’, NE *barley*) and words for ‘beard’ (Section 10.1); and *sēh₂ros* ‘long’ (OIr *sîr* ‘long lasting’, Lat *sērus* ‘late’, OE *sîd* ‘long’. From the West Central region are: *(s)kel- ‘crooked’ (e.g. OE *scēolh* ‘crooked’, OPrus *culczi* ‘thigh’, Bulg *kulk* ‘thigh’, Alb *çalê* ‘lame’, Grk *skelo∫* ‘thigh’); *(s)kamb- ‘curve’ (e.g. OIr *camm* ‘curve’, Grk *skambós* ‘curve’); *(s)kan-t(h)-o- ‘corner, a bending’ (e.g. NWels *cant* ‘tyre’ [Lat *canthus* or *cantus* ‘wheel rim’ comes from Gaul], Rus *kut* ‘angle’, Grk *kanthós* ‘corner of the eye’); possibly a Germanic-Greek isogloss *sten- ‘narrow’ (e.g. ON *stimr* ‘stiff, hard’, Grk *stenós* ‘narrow’) but the semantic difference is great; *skidrós* ‘thin’ (OHG *sceter* ‘thin’, Latv *škidrs* ‘thin’, dialectal Grk *skidarös* ‘thin, slender’).
18.6 Time

The reconstructed vocabulary relating to time is listed in Table 18.6.

There is one word in Proto-Indo-European that can be reconstructed to indicate (some) ‘period of time’, i.e. *prest-; it means a ‘period of time’ in Germanic (e.g. ON frest ‘period of time, interval’, OHG frist ‘period of time, interval’) and a more general ‘time, occasion; season’ in Tocharian (e.g. Toch A prast). The word for ‘now’, *nu-, is a good example of one of those small words that is phonetically stable and, with either a short or long vowel, it is attested as nu in no less than nine Indo-European groups (e.g. Lat num, NE now, Lith nū, OCS nū, Grk νᾶ(n), Hit nu, Av nā, Skt nū, Toch B no, all ‘now’); it is related in some way to the adjective *néwos ‘new’ (see below). The word ‘soon’ was indicated by *mokš (e.g. OIr mo¯ ‘soon’, Lat mox ‘soon’, Av mosˇu ‘as soon as’, Skt maksu ‘soon’).

| *prest- | '(period of) time' |
| *nu- | 'now' |
| *mokš | 'soon' |
| *h₁,eyer- | 'early' |
| *prō- | 'early, morning' |
| *h₁,eusōs | 'dawn' |
| *h₁,us-śketi | 'it lights up, dawns' |
| *h₁,eghr | 'day' |
| *deino- | 'day' |
| *diye(u)- | 'day' |
| *(dh)gyhes | 'yesterday' |
| *nekʷt- | 'night' |
| *nkʷtus | 'end of the night' |
| *kʷsep- | 'night' |
| *wēx | 'spring' |
| *sem- | 'summer' |
| *h₁,es-en- | 'autumn' |
| *ḡheim | 'winter, snow' |
| *wet- | 'year' |
| *(h₁)yēro/eh₁- | 'year, new season' |
| *perut- | 'last year' |
| *h₁,ōk-us | 'fast' |
| *h₁,egilos | 'fast' |
| *néwos | 'new' |
| *sēnos | 'old' |

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<thead>
<tr>
<th>Lat</th>
<th>NE</th>
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<tr>
<td>num</td>
<td>now</td>
<td>νᾶ(n)</td>
<td>nū</td>
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<td>mox</td>
<td>Skt maksu</td>
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<td>Grk eērios</td>
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<td>prōi</td>
<td>Skt prätär</td>
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<td>Lat aurōra, NE Easter, Grk héōs, Skt uśā-</td>
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<td>Skt uccáti</td>
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<td>NE day?, Skt áhar-</td>
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<td>Lat mundinae, Skt dinam</td>
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<td>Lat diēs, Grk éndios, Skt divasā-</td>
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<td>Lat herē, NE yester, Grk khthēs, Skt hyā-</td>
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<td>Lat nox, NE night, Grk nūks, Skt nākt-</td>
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<td>Grk aktis, Skt aktū-</td>
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<td>Grk pséphas, Skt kṣáp-</td>
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<td>Lat vēr, Grk éar, Skt vasantā-</td>
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<td>NE summer, Skt sāmā</td>
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<td>Grk op-ōrē</td>
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<td>Lat hiems, Grk kheīma, Skt héman</td>
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<td>Lat vetus, NE wether, Grk étos, Skt vatsā-</td>
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<td>Lat hōrnus, NE year, Grk hōros</td>
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<td>Grk pērusi, Skt parāt</td>
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<td>Lat ōcıor, Grk ōkūs, Skt āśū-</td>
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<td>Lat agilis, Skt ajirá-</td>
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<tr>
<td>Lat novus, NE new, Grk néos, Skt náv(y)a-</td>
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<td>Lat senex, Grk hēnos, Skt sāna-</td>
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If we begin concretely with the beginning of the day, we can start with those expressions for ‘early’, *hₐeyr- and *prō-. The first means ‘early’ in Germanic (e.g. OHG ēr), ‘morning meal’ in Grk āriston, cf. also ērīos ‘of the morning, in the morning’ and ‘day’ in Av ayar. The second shows a similar variation in meanings from ‘early’ to ‘morning’ (e.g. OHG fruo ‘early’, Grk prōi ‘early, in the morning’, Skt prātār ‘early’) and appears to have been a lengthened grade of a form ultimately based on *per- ‘forward, through’. The word ‘dawn’ and its derived verbal form are *hₐeusōs (cf. above and e.g. OIr fāir ‘sunrise’, Lat aurōra ‘dawn’, OE ēaste ‘goddess of springtime’ [> NE Easter], Lith aušrą ‘dawn’, OCS ustrā ‘morning’, Grk hēōs ‘dawn’, Av uṣā- ‘dawn’, Skt uṣā- ‘dawn’) and *hₐ(s)eus-skēti (e.g. Lith auštā ‘it dawns’, Av usaiti ‘it dawns’, Skt ucchāti ‘it dawns’), formed from the verbal root *hₐewes- ‘shine’ (Section 18.3) which also underlies the word for ‘gold’ (see Section 15.2). As we have seen above, this word also provided the basis for ‘east’ in many Indo-European traditions (e.g. NE east) and in others it was the dawn which provided the orientation (cf. Lat oriēns ‘east’) to the cardinal directions; in both Celtic and Sanskrit the east is the ‘forward direction’ and the west ‘the behind direction’ (though in Iranian it is the south and north which are ‘forward’ and ‘behind’ which probably tells us something interesting about the history of Proto-Iranian or Proto-Iranians if we only knew what). The ‘dawn’ was also deified as a goddess in Proto-Indo-European culture (see Section 23.1).

There are three words reconstructable for ‘day’. The first of these, *hₐeḡhₐr, is problematic in that it is supported only by Germanic (e.g. NE day) and Indo-Iranian (e.g. Av azan- ‘day’, Skt āhar- ‘day’) and all the Germanic forms show the result of an initial *d- which has been variously explained (away) as having crossed with the Proto-Germanic *dāzwaz ‘warm time of the year’ ([< *dhōg’hо- ‘burning’] or from the false division of an expression such as *tod hₐeḡhₐr ‘that day’ into *to(d) hₐeḡhₐr. Neither explanation has inspired much confidence. The other two words, *deino- ~ *dino- (e.g. with the full-grade: Goth sintēns ‘daily’, Lith dienā ‘day’; and with the zero-grade: OIr trēdenus ‘three-day period’, Lat mundinae ‘the ninth [market] day’, OCS dīnī ‘day’, Skt dīnā ‘day’) and *dyē(u)- (e.g. OIr diā ‘day’, Lat diēs ‘day’, Grk ēndos ‘at mid-day’, Arm tiw ‘day’, Hit sīwatt- ‘day’, Skt divāsā- ‘day’), both derive from *dei- ‘shine’. The latter *dyēu- has also furnished derivatives meaning ‘sky’ (see Section 8.4), ‘heaven’, ‘god’ (see Section 23.1). The word for ‘yesterday’, reconstructed from seven groups, was *(dh)ghyses (e.g. OIr ēndē ‘yesterday’, Lat hért ‘yesterday’, NE yester-, Alb diē ‘yesterday’, Grk khthēs ‘yesterday’, Av zyō ‘yesterday’, Skt hyā- ‘yesterday’). So far as we can tell, for the Proto-Indo-Europeans there was no ‘tomorrow’.

For ‘night’ we have the root *nekʷt- which is found in ten groups and clearly means ‘night’ in all of them (e.g. OIr innochht ‘at night’, Lat nox ‘night’,
NE night, Lith naktis ‘night’, OCS noštī ‘night’, Alb natē ‘night’, Grk nīkis ‘night’, Hit nekuz ‘at night’, Skt nākt- ‘night’, Toch A nokte ‘at night’). Perhaps more interesting is *ŋkw tus, apparently a zero-grade of the former root, which means ‘early morning’ (Germanic, e.g. OE ãhte), ‘ray of sunlight’ (Grk aktis) and ‘night’ (Skt aktu-). Indic also retains a meaning ‘end of night’ and given the derivation and the semantics of the cognate forms in the daughter languages, this would appear to be the earliest meaning. Emphasis on ‘darkness’ is found in *k”sep- where both Greek and Avestan mean ‘darkness’ (Grk psephas, Av xšap-) while Hittite and Indic indicate the ‘night’ (Hit ispant-, Skt ksāp-).

The names of four seasons are reconstructable to Proto-Indo-European. The word for ‘spring’, *weśr, is a heteroclitic, e.g. Lith vásara but Skt vasantā- (cf. also OIr errach, Lat vēr, OCS vesna, Grk ēar, Arm garun, all ‘spring’, Av vangri ‘in spring’). We may be able to add Tocharian to the list of languages attesting *wes- ‘spring’ if, as has been suggested, the Tocharian word for ‘grain’ (e.g. Toch B ysāre) is from a derivative, *wes-eha-ro-, originally ‘spring wheat’. ‘Summer’ was *sem- (e.g. OIr sam ‘summer’, NE summer, Arm am ‘year’, Av ham- ‘summer’, Skt sāmā ‘season, year’, Toch A sme ‘summer’). A word for ‘autumn’ or ‘harvest time’, *hes-en- is attested in WVe groups, including Anatolian (e.g. Goth asans ‘summer, harvest time’, OPrus assanis ‘harvest’, OCS jesenı˘ ‘autumn’, Grk op-ôre- ‘end of summer harvest time’ (< *op-osar-ā), Hit zena(nt)- ‘autumn’) but it is the only season for which we do not find a reflex in Indo-Iranian. No such problem with *gheim- ‘winter’ which is certainly attested in ten groups and is probably to be seen in the eleventh, Germanic, as well (e.g. Gaul Giamonios [name of a winter month], Lat hiems ‘winter’, Lith žiemā ‘winter’, OCS zima ‘winter’, Alb dimēr ‘winter’, Grk kheíma ‘winter’, Arm ķiwn ‘snow’, Hit gīmmant- ‘winter’, Av zyām-‘winter’, Skt héman ‘in winter’; in Germanic we have ON gymb ‘ewe lamb one year old’ [whence by borrowing dialectal English gimmer ‘ewe between the first and second shearing’]). The word for the entire ‘year’ was *wet- (e.g., Grk étos ‘year’, Hit witt- ‘year’, Skt vatsā- ‘year’) which often takes on the derived meaning of ‘yearling’, e.g. Celtic ‘sow’ (OIr feis), Germanic (e.g. NE wether), and with the addition of *-u(so)- we have the meaning ‘old’ (e.g. Lat vetus, Lith vētušas, OCS větůchū, Sogdian wτşnyy, all ‘old’), presumably from the notion of ‘having [many] years’. The zero-grade of *wet- can be found in the compound *perut-, i.e. *per + *wet- ‘last year’ (e.g. ON fjórð ‘last year’, Grk pérusi ‘last year’, Arm heru ‘last year’, Skt parut ‘in past years’). Another word for ‘year’ was *(h1)yēro/eha- (e.g. Lat hōrnus ‘of this year’, NE year, OCS jara ‘spring’, Grk hòros ‘time, year’, Luvian aṛa/i- ‘time’, Av yarṣ ‘year’) which overlaps both the notion of ‘time’ in general and that of ‘new season’.
Finally, we have several adjectives. The concept of velocity is seen in *h₁oḱ-us ‘fast’ (e.g. OIr di-auc ‘not-fast’, Lat ōcior ‘faster’, Grk ὀκύς ‘fast’, Av āsu-‘fast’, Skt āśū- ‘fast’) which is apparently derived from *h₁eḵ- ‘sharp’. The Latin-Indic isogloss *h₂eḡilos ‘fast’ (Lat agilis ‘quick’, Skt ajirā- ‘quick, agile’) may be independent formations built on the verbal root *h₂eḡ- ‘drive’. The word for ‘new’, *néwos, is found across the Indo-European languages (e.g. Lat novus, OCS novu˘, Grk νέος, Hit nēvas, Av nav-, Skt nāva-, Toch B ŋuwe, all ‘new’); an extended form, *néwyos, gives us e.g. NE new, Lith naūjas, Ionic Grk νέωσ, Skt nāyva-, all ‘new’. Both *néwos and *néwyos are related to *nu ‘now’ (cf. above). Also widespread are the descendants of *sénos ‘old’ (e.g. OIr sen ‘old’, Lat senex ‘old’, Goth sinista ‘eldest’, Lith senas ‘old’, Grk ἑνός ‘last year’s’, Arm hín ‘old’, Av hana- ‘old’, Skt sānas ‘old’).

Regional words include (from the North-West): *yam/yau ‘now, already’ (e.g. Lat iam ‘now, already’, OHG ju ‘already’, Lith jaū ‘already’, OCS ju ‘already’); *h₁eu̯ṭos ‘year’ (e.g. Lat annum ‘year’, Goth āpna- ‘year’), from the verbal root *h₁eｔ- ‘go’ (i.e. ‘what’s gone’); *h₂e̯h₂tṛo̯- ‘quick, fast’ (e.g. OHG ātar ‘quick’, Lith ątrūs ‘lively’); from *h₂e̯h₂- ‘burn’); *k̥eigh- ‘fast’ (e.g. OE hiegn ‘hasten’ [> obsolete or archaic NE hie], Rus сиюти ‘spring’, with a possible but uncertain Indic cognate, i.e. Skt sīhṛā- ‘quick, fast’); and a problematic *bhris- ~ *bhers- ‘fast’ (e.g. NWels brys ‘haste, speed’, Lat festinō ‘hurry oneself’, Lith burzdūs ‘fast’, Rus борзой ‘fast’). From the West Central area we have *kēs(₃)eḥ₃- ‘time’ (a Slavic-Albanian isogloss), e.g. OCS čaṣu ‘time’, Alb kohē ‘time, period, epoch; weather’; *wēsperos ~ *wēkeros ‘evening’ (e.g. Lat vesper, Lith vākaras, OCS večeru, Grk héseros, Arm ġiser, all ‘evening’) whose root lies at the base of the Germanic words for ‘west’ (NE west), i.e. the direction of sunset (cf. the discussion of the cardinal directions above); *h₁eṇ- ‘year’ (e.g. Grk ἐνός ‘year’), and derivatives in Lith pėr-n-ai ‘in the last year’, dialectal Rus lo-ni ‘of last year’). A Greek-Armenian isogloss for ‘day’ is *h₂eḥ₂-mer-, a derivative of *h₂eḥ₂- ‘burn’ (i.e. Grk ἐμέρα, Arm avr), and both Greek and Indic extend the meaning of the colour term ‘white’ to also include ‘fast’, e.g. ‘flashing’ in *h₂g̣̣-ṛós which is used to describe fast dogs and horses (Grk ἀγρός, Skt ḫirā-).

18.7 Proto-Indo-European Space and Time

It has been commonly accepted that the concepts of space and ownership would have been altered by the shift from hunting-gathering to agriculture. Rigid definitions of territorial ownership were likely to be weak among seasonally mobile populations except for those who attempted to defend fixed year-round resources such as fishing rights to particular tracts of waterway or
coast. On the other hand, the transition to sedentary society would have seen not only the emergence of the concept of material wealth but also territorial possession. Moreover, the production of stable upstanding structures, it is argued, would have resulted in the creation of abstract geometric terms that would not have existed in what anthropologists might term a previously ‘uncarpentered’ world.

When we review the spatial terminology of Proto-Indo-European we find evidence enough for the concept of territorial boundaries or regional entities seen, for example, in words such as *h₂erh₂-, *morg-, and *términ, all ‘border’. The last suggests the use of physical markers such as posts to define a precinct or territory while *morg- displays a remarkably stable meaning of ‘district, region’ from one end of the Indo-European world to the other. With respect to the concept of ‘place’ the use of derivatives of *steh₂- ‘stand’ correlates well enough with the concept of the erection of structures.

The expression of position is accomplished through the use of adpreps, i.e. words that function as both an adverb and preposition. Although Indo-European could express position through its nominal case endings, clearly there was a need to employ individual words as well to indicate the precise nuances of location. Some of these words clearly reveal the specialized use of nominal case forms, e.g. *h₂ent- ‘face’ > *h₂enti ‘in front’. The adpreps were often employed with verbs and fused with them to form single words in many IE groups, e.g. NE understand, undertake, undercut, underline; Early Irish seems to have delighted in compounding prepositions before verbs, e.g. do-opir ‘takes away’ < *dí+uss+ber-, i.e. ‘from-away-carry’.

Geometric shapes have been the subject of taxonomic research where H. W. Burriss’s study of seventy-two languages has revealed an evolution of geometric terms. The simplest, stage 1, possess no geometric terms; at stage 2 there are terms for circle or curve; at stage 3 the concept of the square or angularity is added to the circle; stage 4 adds the triangle and stage 5 also reveals a word for rectangle. It has been claimed that Proto-Indo-European belonged with the nine languages of stage 1 in that it lacked any terms for geometric shapes. Nevertheless, there are two potential candidates: *serk- if we can presume that the original meaning was ‘make a circle’ and then its more common meaning ‘make restitution’ is merely a metaphorical extension of the geometric term, and *h₂érbhís ‘circle, orb’ on the basis of a Latin-Tocharian isogloss. We should not be surprised if a language that possessed the terminology of wheeled vehicles (and had at least three words for ‘wheel’) also possessed a term for ‘circle’, and if the evolutionary scale has any validity, then Proto-Indo-European should probably be placed at stage 2 rather than stage 1.
The Proto-Indo-Europeans appear to have employed two systems of establishing and naming directions. One was based on a literal ‘orientation’, i.e. facing east so that there would be a series of equations: east = front, west = back, north = left (unpropitious, female), south = right (propitious, male). Residues of this can be found in various IE languages, e.g. *déksinos yields OIr dess, Av daśina-, and Skt dáksina-, all both ‘right’ and ‘south’; OIr clē ‘left’ underlies OIr fochla ‘north’ while the words for north in Germanic (e.g. NE north) are cognate with Umbrian nertru ‘left’. The polar opposition is also seen to embody a sexual opposition and a contrast between the propitious right/south and the unpropitious left/south. For example, OIr clē not only means ‘left’ but also ‘inauspicious, bad’ while in Latin loanwords English still preserves the contrast between dexter ‘right’ (dexterous) and sinister ‘left, wrong, perverse’

The second system is keyed to sunrise so that east or south, for example, is associated with the dawn, e.g. PIE *hēusōs ‘dawn’ underlies Lat auster ‘south wind’ and OE ēaste ‘east’.

Time reckoning in Proto-Indo-European involves a number of areas that might involve folk taxonomies of which we might want to know far more. As any traveller who has grasped a phrase book of useful expression knows, different cultures have varying concepts as to what parts of the day are most appropriate for a ‘good afternoon’ or ‘good evening’ (consider the contextual meaning of ‘good night’ which may suggest either spending a ‘good night’ out or the finality of going to bed). The multiplicity of terms for the parts of the day suggest that PIE may have had more diverse nuances than our reconstructed meanings indicate. For example, did the day begin with *hēusōs ‘dawn’ when the sun began to shine (and hence deino- and *dye(u)-, both ‘day’ and derived from *dei- ‘shine’) or at *nk’tus ‘night, end of night’, the latter probably a zero-grade derivative of *nek’ʷt- ‘night’ but with meanings attested such as OE ūhte ‘early morning’, and Grk aktis ‘ray of sunlight’? What, if any, was the distinction between *nek’ʷt- and *kʷsep-, both ‘night’?

The seasons of the year are also an area of folk taxonomy. It has been suggested, for example, that Old English (and other Germanic languages) shows evidence of a two-seasonal system (sumer, winter) recently crossed with a four-seasonal (lenten ‘Lent’, hærfest ‘harvest’) system, and a two-season system has also been attributed by some to the Proto-Indo-Europeans. This seems to be contradicted by the lexical evidence that strongly attests (at least) a *wēşr ‘spring’, *sem- ‘summer’ and *gheim- ‘winter, snow’; if the set for *hēes-en- ‘autumn’ is secure with cognates in the North-West (Germanic, Baltic, Slavic), the Central region (Greek), and Anatolian, then it can hardly be denied to the Proto-Indo-Europeans. Moreover, the terms for spring, autumn, and
winter are all heteroclitics which is generally an additional argument for antiquity.

Further Reading

The concept of borders in IE is treated in Della Volpe (1992); PIE adpreps are discussed in Friedrich (1987); direction is treated in Hamp (1974d), Markey (1982), Meid (1987), Parvulescu (1985), Van Leeuwen-Turnovcová (1990), and Winter (1988); the ‘evolutionary’ pattern of shapes is provided in Burris 1979, the folk taxonomy of the Indo-European seasons is covered in Anderson (2003); for aspects of time see Puhvel (1987b), Szemerényi (1959), and for size, see Winter (1980).
19.0 Numerical Systems

The numerical system of Indo-European is one of its more stable elements, but even here there has been considerable remodelling of words although the roots have often been retained. Some of the remodelling is due to the fact that numbers are often recited in series which enhances the chances of a preceding number affecting a later number in the sequence or the latter affecting an earlier one by anticipation, e.g. the expected outcome of the numeral ‘nine’ in Latin (under one hypothesis) should have been **noven** but the ending was altered to novem on the analogy of the preceding ‘seven’, septem, and the following ‘ten’, decem. Another, more certain example is provided by Skt aṣṭamā- ‘eighth’ and possibly navamā- ‘ninth’ which owe their ordinal suffix -mā- (rather than the expected -vā- and possibly -nā- respectively) to the combined influence of saptamā- ‘seventh’ and daśamā- ‘tenth’. Also, since counting systems were evolutionary, i.e. began quite simple, often based on finger counting, linguists have often sought an underlying system of complexity through composition, i.e. joining previous numbers together to make larger ones, and hence there has been quite a lot of etymological speculation as to the underlying meaning or formation of many of the numerals. However, while it is almost certainly the case that the Proto-Indo-European system of numbers was built up over a long period of time, that period of building is likely to have been so long in the past that the constituent elements of the numbers are beyond etymological
recovery. Since all known cultures which herd animals have fully formed counting systems (one might assume from sheer economic necessity in keeping track of sheep, goats, etc.) and since the archaeological evidence is strong that Proto-Indo-Europeans, whoever they were exactly, had a long familiarity with domestic animals, it is almost certain that the system of numbers we can reconstruct for Proto-Indo-European had a long history in pre-Proto-Indo-European.

### 19.1 Basic Numerals

The basic cardinal and ordinal numbers plus some additional forms are provided in Table 19.1. Here the great variation in reconstructed forms has been simplified and many of the alternatives suggested by different language groups

<table>
<thead>
<tr>
<th>Cardinal</th>
<th>Lat</th>
<th>NE</th>
<th>Grk</th>
<th>Skt</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 *h₁oi-no-s *sem-s 'united as one, one together'</td>
<td>ūnus</td>
<td>one</td>
<td>oinē</td>
<td>heīs</td>
</tr>
<tr>
<td>2 *dwéh₃(u)</td>
<td>duo</td>
<td>two</td>
<td>dúō</td>
<td>dvā</td>
</tr>
<tr>
<td>3 *tréyes</td>
<td>treṣ</td>
<td>three</td>
<td>treīs</td>
<td>trāyas</td>
</tr>
<tr>
<td>4 *kʷetwōres</td>
<td>quattuor</td>
<td>four</td>
<td>téssares</td>
<td>catvāras</td>
</tr>
<tr>
<td>5 *pénkʷe</td>
<td>quīnque</td>
<td>five</td>
<td>pente</td>
<td>pāṇca</td>
</tr>
<tr>
<td>6 *kswekšs</td>
<td>sex</td>
<td>six</td>
<td>hèks</td>
<td>sāś</td>
</tr>
<tr>
<td>7 *septēś</td>
<td>septem</td>
<td>seven</td>
<td>heptā</td>
<td>saptā</td>
</tr>
<tr>
<td>8 *h₁octō(u)</td>
<td>octō</td>
<td>eight</td>
<td>oktō</td>
<td>astā</td>
</tr>
<tr>
<td>9 *h₁nēwh₁n (‘h₁nēwh₁n’)</td>
<td>novem</td>
<td>nine</td>
<td>ennēa</td>
<td>nāva</td>
</tr>
<tr>
<td>10 *dékŋ(t)</td>
<td>decem</td>
<td>ten</td>
<td>déka</td>
<td>dáśa</td>
</tr>
<tr>
<td>12 *dwō dékŋ(t)</td>
<td>duodecim</td>
<td>Grk dōdeka</td>
<td>Skt dvādasā</td>
<td></td>
</tr>
<tr>
<td>15 *penkʷe dékŋ(t)</td>
<td>quindecim</td>
<td>Skt pāncadasā</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 *wikiti₁</td>
<td>vīgintī</td>
<td>Grk eikosi</td>
<td>Skt viṃśati</td>
<td></td>
</tr>
<tr>
<td>30 *tr ś-komt(h₁)</td>
<td>trīṃintā</td>
<td>Grk trīkonta</td>
<td>Skt trīṃsāt</td>
<td></td>
</tr>
</tbody>
</table>

(Cont’d)
have been omitted. There follows a discussion of the various basic numbers, one by one, with attention paid to the etymological speculations that have been offered. And they are speculative indeed, in many cases more revealing of the ingenuity of etymologists than the actual history of Proto-Indo-European.

The basic numeral ‘one’ is \(*h₁₀iᵩ-\) followed by the suffix -no- in Celtic (e.g. OIr oṁ ‘only one, single’), Lat unus ‘one’, Germanic (e.g. NE one), Baltic (e.g. Lith vienas ‘one’), Slavic (e.g. OCS ino- ‘one-’ [as a prefix], jed-in- ‘one’), perhaps Alb

<table>
<thead>
<tr>
<th>50</th>
<th>*penkʷ-ē-komt(h₁₀)</th>
<th>Lat quinquagintā, Grk pentekonta, Skt pañcasiḥ</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>*ksweks-komt(h₁₀)</td>
<td>Lat sexagintā, Grk heksekonta</td>
</tr>
<tr>
<td>100</td>
<td>*kʰntōm</td>
<td>Lat centum, NE hundred, Grk hekaton, Skt šatā-</td>
</tr>
</tbody>
</table>

Ordinals

<table>
<thead>
<tr>
<th>1</th>
<th>*per(h₁₀) -</th>
<th>Lat primum, NE first, Grk prōtos, Skt pūrva-</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>*dvi-yos ~ *dvi-tos</td>
<td>Skt dvirīya-</td>
</tr>
<tr>
<td>3</td>
<td>*triy-os</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>*kʷtur-yós ~ *kʷetwōr-to-</td>
<td>Lat quārtus, NE fourth, Grk tērtatos, Skt turīya-</td>
</tr>
<tr>
<td>5</td>
<td>*pńkʷ-tós</td>
<td>Lat quintus, NE fifth, Grk pēmptos, Skt pakthā-</td>
</tr>
<tr>
<td>6</td>
<td>*kswekš-os</td>
<td>Lat sextus, NE sixth, Grk hēktos, Skt sāṣṭha-</td>
</tr>
<tr>
<td>7</td>
<td>*septm-mós</td>
<td>Lat septimus, NE seventh, Grk hēbdomos, Skt saptamā-</td>
</tr>
<tr>
<td>8</td>
<td>*h₂okto-wōs</td>
<td>Lat octāvus, NE eighth, Grk ōgdoos, Skt aṣṭamā-</td>
</tr>
<tr>
<td>9</td>
<td>*h₁newh₁yn-y-mos</td>
<td>Lat nōnus, NE ninth, Grk ēnatos, Skt navamā-</td>
</tr>
<tr>
<td>10</td>
<td>*dekŋ(t)-os</td>
<td>Lat decimus, NE tenth, Grk dékatos, Skt daśamā-</td>
</tr>
</tbody>
</table>

* *dwoi- ‘two, group of two’ * *dwi- ‘bi-’ * *dvis ‘twice’ * *dwoyos ‘double(d), twofold’ * *dv(e)i-plos ‘double, twofold’ * *bhōu ‘both’ * *tris ‘thrice’  

\(\text{Table 19.1. (Cont’d)}\)
njē ‘one’, Grk οἷς ‘ace on a die’, or -wo- (Grk οἶνος ‘single, alone’, Av aēva- ‘one’), or -ko- (Skt ēka- ‘one’). The root etymology is generally presumed to be the anaphoric pronoun, i.e. *h₁eiterate, cf. NE one in the sense ‘One does what one’s told’. Although there are a number of other theories, this etymology is one of the few thought up for any of the numbers that is at all likely to be correct. Because *h₁oion (etc.) is etymologically transparent it is probably a relatively recent addition to the number system. The variation in suffixes (*-no-, *-wo-, *-ko-) in the various stocks also suggests the form of this number was still somewhat plastic at the time that Proto-Indo-European unity was dissolving.

Another way of expressing ‘one’ is *sem-s (again with different suffixes and grades) which probably originally indicated ‘one united together’ (e.g. perhaps Alb njē ‘one’, certainly Grk ἕς [m.], mia [f.], ἥν [nt.] ‘one’, Arm mi ‘one’, Toch B sce [m.], sana [f.] ‘one’). The ordinal ‘first’ is derived in a variety of forms from the root *per(h₁)- or *pro-, e.g. Lat primus which is *pri-is- + the superlative suffix -mo-, Alb paré ‘first’, Av pauvra- ‘prior’, Skt pūrva- ‘first’, Toch B parwe ‘first’, all from *pphr₃-wo-, OE frum ‘primal, original, first’, Lith pirmas ‘first’, both from *pphr₂-mo-, NE first from *pphr₃-isto-..

The number ‘two’ was *dwoh₃(u) (neuter: *dwohi₃), which may have originally been *du but was progressively extended by suffixes to indicate ‘duality’, i.e. a dual ending, and markers to indicate gender distinctions as it was declined (e.g. OIr duá [m.], dí [f.], dà [nt.], Lat duo [m./nt.], duae [f.], NE two, Lith du [m.], dvi [f.], OCS dūva [m.], dāve [f./nt.], Alb dy, Grk duô, Arm erku, Av dva [m.], baē [f./nt.], Skt dvā [m.], dvē [f./nt.], Toch A wu [m.], we [f.] The ordinal shows both *dwi-to- and *dwi-t(ī)yo- (e.g. Alb dytē, Av daibitya- ~ bitya- [< pre-Av *dвитtya-], Skt dvitīya- [cf. also dvitā ‘doubly so’], Toch B wate). An even older form, *dwiy-o-, is probably reflected in Hit duyanalli- ‘± second officer’ (a particular functionary in the Hittite court). The same numerical root also supplies a series of other words associated with duality. *dwoi- indicated a ‘twosome’ (cf. OIr dīas ‘couple’, Hit tān ‘for the second time’), while *dwi- was employed as a prefix ‘bi’ (e.g. Lat bi-, NE twi-, Grk dī-, Av bi-, Skt dvi-). The multiplicative ‘twice’ was indicated with *dwis (e.g. OIr fo dī, Lat bis, NE twice, Grk ἵς, Av biš) while both *dwoyos (e.g. Grk doiōs ‘doubled’, Skt dvayā- ‘duplicity’) and *dw(e)i-plos (e.g. OIr diabol, Lat duplus, Grk diplōs) meant ‘twofold’. The root etymology has often been taken as a demonstrative pronoun indicating ‘that one further away’ that developed into a cardinal number; alternatively, it has been suggested that the reverse process makes better sense. Neither suggestion seems at all likely. A different root, *bhou, was employed, almost always with various intensifying prefixes, to indicate ‘both’ (e.g. Lat ambō ‘both’, OE beġen ‘both’ [NE both is an Old Norse loanword], Lith abū ‘both’, OCS oba ‘both’, Grk ἀμφό ‘both’, Av uba- ‘both’, Skt ubhāu ‘both’, Toch B antapi)
The number ‘three’, *tréyes* (neuter: *tréh₁a*), is also marked by different forms for the different genders and was declined as an i-stem plural (e.g. OIr *trē*, Lat trēs, NE *three*, Lith *tryš*; OCS *trije* [m.], *trį* [f./nt.], Alb *tre* [m.], *tri* [f.], Grk *trefiš*, Arm *erek’*, Hit *tēri-, Av *θrayō* [m./f.], *θri* [nt.], Skt *trāyas* [m./f.], *tri* [nt.], Toch B *trai* [m.], *tarya* [f.]). In some languages we have reflections of a very unusual feminine form, *t(r)is(o)res*, i.e. OIr *teōir*, Av *tiśrō*, Skt *tisrās*. The underlying derivation of *tréyes* is generally sought in either *ter* ‘further’, i.e. the number beyond ‘two’, or from a *ter* - ‘middle, top, protruding’, i.e. the middle finger, assuming one counted on one’s fingers in Proto-Indo-European. Again, the probability that either suggestion is correct is very low. The ordinal number is indicated by a variety of forms similar to *triţi-o* (e.g. Arm eri ‘third’, Hit *teriyan* ‘third’, *tariyanalli* ‘± third officer’), or *tri-to* - (e.g. Alb *tretē*, Grk *tritos*, Skt *tritē-, Toch B *trite*), or finally *t(e)r(e)tiyo* - (e.g. NWels *tryddyd*, Lat *tertius*, NE *third*, Lith *trėčias*, Rus *trétiij*, Av *θritiya-*, Skt *tṛtiya-*) which is presumably a conflation of sorts, in various ways, of the previous two while *tris* supplies the multiplicative (e.g. Lat *ter*, Grk *trís*, Av *θrīš*, Skt *trīś*; despite its apparent phonetic similarity, NE *thrice* is of a different origin).

‘Four’ is indicated by *kʷetwóres* (neuter: *kʷetwórh₁a*) and is found in all the major groups (e.g. OIr *cēthair* [m.], Lat *quattuor*, NE *four*, Lith *keturī*, OCS *ēetyre* [m.], *ētyri* [f./nt.], Alb *katēr*, Grk *téssares* [m./f.], *téssara* [nt.], Arm *c’ork’, Av *cēthwārō* [m.], Skt *cetvāras* [m./f.], *cetvāri* [nt.], Toch B *śwer* [m.], *śtwāra* [f.]) except for Anatolian which employs *mei-wos* (Hit *meyur-, Luv *māva*). Some languages reflect the presence, as with ‘three’, of a morphologically very unusual feminine form, *kʷetes(o)res*, i.e. OIr *cēthoir*, Av *cētawrō*, Skt *cātasras*. In Germanic, the influence of the following *pēnkʷe* explains the aberrant initial *f-*, e.g. OE *fēower* (NE *four*), OHG *fior*, rather than the expected *hw-. There has been a host of attempts to etymologize *kʷetwóres*, with two of the most popular (among many) being some sort of relationship to the concept of either little finger or span of four fingers (where *kʷet-wor* would be a derivative of *kʷet-* ‘stretch’ found otherwise only certainly in the Baltic languages, e.g. Lith *ket-*), or the word has been analysed as the enclitic *kʷe* ‘and’ + *tur-* (derived from *tur-* ‘three’), i.e. ‘after three’ = ‘four’ (though of course the attested forms of ‘three’ are unanimous in demanding a reconstruction *ter*- or *trei-*, not *tur-*). The Anatolian form has been derived from *mei- ‘be small’ and hence reference either to the ‘little finger’ or to a subtractive basis, i.e. ‘five minus one’ (as one does with the Roman numeral IV); alternatively, the opposite meaning ‘large’, associated with *meh₁- ‘large’, has also been suggested, hence ‘the large span’. And both of these have been combined into a single expression, alternatively, *meh₂- *kʷetwor* ‘big span’ or *meyu- *kʷetwor* ‘little finger’, with Anatolian preserving the first element and the rest of Proto-Indo-European the second. (Highly unlikely) suggestion
explains the universal morphological plural of the attested forms for ‘four’, nor
offers an explanation for the strange feminine form. The ordinal is *kʷetw(o)r-
to-s (e.g. Lat quârtus, NE fourth, Lith ketvištis, Rus četvërtyj, Alb kârtët, Grk
tétartos, Av čatbru-, Skt caturthâ-, Toch B štarte). Though geographically
restricted in its attestation, a zero-grade *kʷturyos (e.g. Hit kutruwa(n)-‘witness’ [i.e. ‘fourth party to a transaction’ (after the two originals and the
degree/arbiter/recorder)] from a pre-Hit *kʷtruous, itself by metathesis from
*kʷturyós, Av târya- ‘fourth’, Skt turīya- ‘fourth’), is probably older. (One can
at least imagine that the Hittite butchers’ term, kuduru’ ‘leg of beef, sheep, etc.’,
might have originally meant ‘quarter’ [as in the English butchers’ term] and
reflect an even older Proto-Indo-European form, *kʷturôm ‘fourth’.)

The numeral ‘five’, *pênkʷe (e.g. OIr cōic, Lat quīnque, NE five, Lith penki,
Grk pênte, Arm hing, Av pâanca, Skt pânca, Toch B piš), is, like all the other
higher numbers to ‘ten’, uninfluenced for number or gender. There is also
evidence of a derivative *pênkʷti- (e.g. OCS pêti ‘five’, Alb pêšë ‘five’, Skt
pânti- ‘group of five’). Celtic and Italic show the regular assimilation of
Proto-Indo-European *p...kʷ to *kʷ...kʷ, hence Lat quīnque rather than
the otherwise expected *pînque, while the Germanic forms show an irregular
assimilation of *p...kʷ to *p...p, giving a Proto-Germanic *fimfi. NWels
pimp looks as if it has undergone the assimilation we see in Germanic but
actually it is a regular descendant of Proto-Celtic *kʷenkʷe, since in the branch
of Celtic to which Welsh belongs all Proto-Celtic *kʷ become p. Thus the
apparent agreement of NWels pimp and Proto-Germanic *fimfi illustrates the
possibility of a single result being the product of very different processes and
histories. The ordinal was *pykʷtôs (e.g. Av puxđâ-, Skt pakthâ-). Most stocks
show a presumably later, and independently created full-grade, form, *pênkʷ-
tos (e.g. Lat quîntus, NE fifth, Lith pêktas, OCS pêtû, Alb pêšë, Grk pêmptos,
Toch B pînktê).

The number *penkʷe has plausibly been connected etymologically with
*pînkʷstî- ‘fist’ (e.g. NE fist, Lith kûmstê [< *punkstê ‘fist’, OCS pêstî ‘fist’).
Presumably the latter was originally then ‘group of five [fingers]’ or the like
though it has been suggested that the derivation went the other way and that
the basic word for ‘hand’ or ‘fist’ came to be the ordinary word for ‘five’ and
was replaced in its originally primary meaning of ‘hand’ by other words. The
Germanic words for ‘fingers’, e.g. NE finger, have also been made part of the
equation, assuming that they are to be derived from a Proto-Indo-European
*penkʷrôs ‘one of five’ or the like (one might compare Arm hînger-ord ‘fifth’).
However, the absence of any nominal inflection on the word for ‘five’ makes a
nominal origin ‘hand’ for it most unlikely, though there is no bar to seeing ‘fist’
and ‘finger’ as nominal derivatives of the numeral ‘five’ (Section 11.3). *penkʷe
has also been linked to Hit panku- ‘all, totality’, hence the numeral would have
originally meant something like ‘completing the count of all fingers of the hand’. The supposed semantic development is hardly compelling and, in any case, the Hittite word is more plausibly taken as representing *bhonghu- ‘thickness’ (see Section 19.2).

The only external comparison for *penkwe that has any plausibility is the comparison with Proto-Uralic ‘palm of the hand’ (cf. Finnish pivo ‘palm’) but here again both the phonological and semantic equations are pretty loose and not very convincing.

The word for ‘six’ shows a multiplicity of reconstructions. Phonologically most complex, and probably the oldest, is *ksweks which lies behind Av xšvaš. Other languages show some sort of simplification of the initial consonant cluster. From *ksékš we have Lith šeši, OCS šestī, dialectal Grk kséstriks kriθē̂ ‘six-rowed barley’, and Skt šás. From *(s)weks we have OIr se, NWels chwech, and possibly Grk héks (dialectal Grk wéks), Arm vec’, Toch B škas. From *sekš we have Lat sex, NE six, Alb gjashtē, and possibly Toch B škas. Finally, from *weks we have possibly Grk héks, Arm vec’. We lack evidence from Anatolian as in Hittite ‘six’ is always represented symbolically rather than being written out. The ordinal shows similar phonological diversity combined with the morphological divergence between those forms expanded by *-o- (only in Gaul suexos, and that has sometimes been taken as an engraver’s mistake for *suextos) and those expanded by *-to- (e.g. OIr seissed, Lat sextus, NE sixth, OPrus uesta ~ uschts, Lith šęstas, Bulg šéstî, Alb gjashtē, Grk héktos, Av xšva- (< *Proto-Iranian *xšušta-?), Skt sašṭhā-, Toch B škaste).

The most complex ‘home-grown’ etymological explanation would involve the reduction of a compound involving *gḥéṣ-r- ‘hand’ + *h琉eug- ‘increase, grow’ > *gḥs-weks > *ksweks, which would have meant ‘hand-overgrowing’, i.e. having to shift your finger count to the second hand. However, such an explanation can be charitably called strained from both the phonological and morphological point of view. The complex, and otherwise unexampled, initial consonant cluster *ksw- has suggested to several investigators that we may be looking at a word that was originally borrowed from some non-Indo-European source. Foreign parallels to the Proto-Indo-European forms have been noted since the time of Franz Bopp who compared the Proto-Indo-European form with Proto-Kartvelian (a language group of the Caucasus composed of Georgian and closely related languages) *eksˇw- ‘six’; other comparisons are Hurrian (an extinct language of eastern Anatolia) šeežē, Akkadian šišeššum (the form used to modify definite feminine nouns) ‘six’. These are variously explained as borrowing into or from (in the Kartvelian case) Proto-Indo-European. However, with the exception of the Kartvelian forms, the proposed models for the Proto-Indo-European word are only vaguely similar phonetically and there is no good reason why a
foreign š- or the like should generate a Proto-Indo-European *ksw-. One might also note that the attested Akkadian form is far too late to have been the model for Proto-Indo-European borrowing, no matter where the Proto-Indo-Europeans may have been located, and the earlier Proto-Semitic form of ‘six’, *šid(at), looks even less promising as a model for *ksweks.

The word for ‘seven’, *septn̥, is attested in almost all Indo-European groups and is firmly reconstructable to Proto-Indo-European (e.g. OIr secht, Lat septem, NE seven, Lith septyn̥, OCS sedmî, Alb shtatë, Grk heptá, Arm ewt’n, Av hapta, Skt saptá, Toch A špāt), as is its ordinal counterpart (e.g. OIr sechtam, Lat septimus, NE seventh, Lith sēkmās ~ [analogical] septīntas, OCS sedmā, Alb shtatē, Grk hēbdomos, Av haptaða-, Skt saptamā- ~ [analogical] saptātha-, Toch A šāptānt). How it arrived in Proto-Indo-European has been a subject of long discussion. Generally, the fact that many other language families in the surrounding region possess a similar word for ‘seven’ has argued for borrowing. Generally, the source is taken to be from pre-Akkadian *saba—to (the form used to modify masculine definite nouns) ‘seven’. However, as was the case with ‘six’, the pre-Akkadian form would be too late to serve as a model for the Proto-Indo-European word and the Proto-Semitic *šab'(at) looks considerably less helpful.

The reconstruction of the numeral ‘eight’, *h₂okto(u)(e.g. OIr ocht, Lat octō, NE eight, Lith aštuon̥i, OCS osmî, Alb tetē, Grk oktō, Arm ʿut’, Lycian ait-, Av ašta, Skt aṣṭā(u), Toch B ṧkt), is, in form, the dual of the o-stem. The ordinals are formed regularly (e.g. OIr ochtamad, Lat octāvus, NE eighth, Lith āšmas ~ aṣtuṁtas, OCS osmû, Alb tetē, Grk ʿogdos(w)os, Av aṣṭama-, Skt aṣṭamā-, Toch B ʿktante). The dual morphology suggests that ‘eight’ consists of two *h₂okto- which simple arithmetic would suggest meant ‘four’, yet we have already seen that the word for ‘four’ in Proto-Indo-European was not *h₂okto-. A way around this problem has been to see the basic root here as *h₂eć- ‘sharp, pointed’ and the semantic development to involve the fingers as the ‘pointed’ sticking-out parts of the hand. In this way the numeral ‘eight’ would be ultimately *h₂okto(u) ‘two sets of points (fingers) of a hand’. Though a *h₂okto- ‘foursome [of fingers]’ is otherwise unattested in Indo-European, such a Proto-Indo-European word may lurk in the form of a borrowing into Proto-Kartvelian in the form of *oṭx̺o- ‘four’ in that language. It has also been suggested that an i-stem version of *h₂okto- might be attested in the Av aṣṭi- ‘four-fingers’ breadth’ though the Avestan word has also plausibly been taken as an Iranian semantic development of a Proto-Indo-Iranian word meaning ‘reaching’ seen otherwise in Skt āṣṭi- ‘reaching’.

As with ‘six’, the reconstructed shape of ‘nine’ presents several problems which might be summed up in two questions: does the number begin with *h₁(e)n- or just *n- and does it end in *-m̥ or *-n̥? The forms are, e.g., OIr nōf,
Lat novem, NE nine, Lith devyni, OCS девяти (the Baltic and Slavic initial consonant influenced by that of ‘ten’), Alb нёдё, Grk ἐννέα (with difficult -mn- instead of -n-), Arm inn, Av nava, Skt нáва, Toch AB ŋu. The ordinal forms are similar: OIr nómad, Lat nónus, NE ninth, Lith devinía, OCS девяти, Alb нёдё, Grk ἐννέα, Av naoma-, Skt navamá-, Toch B ŋunte. The evidence for *h₁(e)n- is limited to Greek and Armenian, but if the actual initial was *h₁n-, those would be the only two Indo-European branches to show any trace of the laryngeal anyway. Lat nónus would be much simpler to explain if the Proto-Indo-European original ended in *-η, whereas OIr nómad, Skt navamá- are harder, and Toch B ŋmuk ‘90’ almost impossible, to explain unless we start from *-m. The evidence of Baltic and Germanic would seem to favour *-η except we know that all final m’s became n in the histories of those branches, so they really give no evidence one way or another.

Etymologically, the reconstructed form has been variously explained as derived from *néwos ‘new’ (see Section 18.6), hence the ‘new number’ (after ‘eight’), or from *h₁énh₁u ‘without’. The first explanation has only the phonological similarity of ‘nine’ and ‘new’ going for it. If the latter, it would be another example of a subtractive formation where the number ‘nine’ would then be explained as ‘ten without (= less) one’. Such an explanation is strengthened by undoubted examples in Indo-European of ‘eleven’ being ‘[ten] with one left over’. Thus the most likely reconstruction for Proto-Indo-European ‘nine’ is *h₁néwh₁η (an accusative to a consonant stem?), with *h₁néwh₁η (an old locative to an n-stem?) also a strong contender.

Proto-Indo-European was a decimal-based system (other systems cannot be entirely excluded) whose indeclinable “cornerstone” form was *déknų or *déknmt (e.g. OIr deich, Lat decem, NE ten, Lith dešmtis, OCS девяти, Alb dhjete, Grk déka, Arm tasn, Av dasa, Skt dáša, Toch B šak). The form with a final *-t appears most clearly in the formation of the decades and of the word for ‘hundred’. It is probably the original form from which the shorter variant was created by the loss of the final *-t in the otherwise very rare cluster *-nt. The oldest reconstructable formation of the ordinal numbers would appear to involve the addition of the inflectible suffix *-o- to the cardinal number (hence *triýos ‘third’, *kswekéos ‘sixth’, *septmóś, *h₁októwiós ‘eighth’, *h₁néwh₁ymós ‘ninth’, and *d(e)km táos ‘tenth’). The loss of the final *-t, if such it was, in the word for ‘ten’ created the basis of a morphological reanalysis in *déknmtos ‘tenth’ from *déknmt-os to *dékn-tos or the creation of a new ordinal *déknmtos. The new *-to- was extended as an ordinal-derived ending even in Proto-Indo-European times (witness *pŋk’ťós ‘fifth’) and continued its extension to other numbers in the individual stocks. In any case, both *déknmtos and *déknmtos are reflected in the cardinal forms found in the various branches (e.g. OIr dechmad, Lat decimus, NE tenth, Lith dešmítas,
OCS desetí, Alb dhjetê, Grk dékatos, Av dasma-, Skt daśamā-, Toch B škante). Among the numerous etymological speculations, three are particularly popular. Some analyse the word as *dē- ‘two’ + ṭọ́m- ‘hand’, i.e. the numeral ‘ten’ is the result of counting all the fingers on both hands. Among the more notable problems with this theory is that it is not all that clear why *dwèh(u) ‘two’ should give *dē, and the ‘hand’ word which forms the second half of the putative compound is limited to several groups at best. Moreover, we do not find the expected dual form as in ‘eight’ if the first element really was ‘two’. It has also been analysed as *de̱ḵ- ‘right’ + ṭọ́m- ‘hand’, i.e. presuming that one began with the left hand, the numeral ‘ten’ was what one completed with the right hand. Alternatively, the root has been interpreted as *de̱ḵ- ‘reach’, i.e. what has been reached, the end, the last number of the basic counting system. None of these proposals is at all persuasive.

The unit ‘ten’ is employed in forming the teens, e.g. *dwò deḵm̱ ‘twelve (two-ten)’ (e.g. NWels deuddeg, Lat duodecim, Grk dòdeka, Arm erkotasan, Av dvadasa, Skt d(u)vādaśā), *penḵ” e deḵm̱ ‘fifteen (five-ten)’ (e.g. Lat quīndecim, NE ŋeeten, Arm ēnkatanan, Av pāncādasa, Skt pāncādāśā). For the decades, we find that the word for ‘twenty’, *wīḵ̱tiẖ (e.g. OIr fiche, Lat vīginti, Alb njēzet [njē- ‘one’], Grk eıkosi, Arm k’san, Av visāiti, Skt viṃsāti, Toch B ikāṃ), is easily analysable as *dwí- ‘two’ + *ḵ̱tiẖ ‘tens’ while the other decades are formed on the full-grade, e.g. *trι̱-ḵ̱m̱t (h₉) ‘thirty’ (e.g. OIr trícho, Lat trīgintā, Grk triákonta, Arm eresun, Av θήρια(ν)τ-, Skt triśāt, Toch B tāryaka); *penḵ”e̱-ḵ̱m̱t (h₉) ‘fifty’ (e.g. OIr coíca, Lat quinquāgintā, Grk pentēkonta, Arm yisun, Av pāncāsatam, Skt pāncāśāt, Toch B pišāka), *(k)s(w)eḵ̱s-ḵ̱m̱t (h₉) ‘sixty’ (e.g. OIr sesca, Lat sexāgintā, Grk eksēkonta [both Latin and Greek with an analogical medial vowel], Arm vaṭ’sun, Toch B škaska). The length of the vowel in *wīḵ̱tiẖ, *trι̱-ḵ̱m̱t(h₉), etc., almost surely reflects the simplification of an earlier cluster *dḵ- with concomitant lengthening of the preceding vowel.

The word for ‘ten’ is obviously related to the word for ‘hundred’, *ḵ̱m̱tóm (e.g. OIr cēt, Lat centum, NE hundred, Lith šiūṯas, OCS sūṯo, Grk hekatón, Av satam, Skt satam, Toch B kante) and is generally explained as a shortened version of *dkm̱tóm, itself a shortening of *dḵ̱m̱t dkm̱tóm ‘ten tens’ or ‘tenth ten’.

To sum up the etymological discussion, it would seem that two of the basic numbers, one of the words for ‘one’ (*h₁oinos [etc.]) and the word for ‘hundred’, have excellent etymologies while two more, ‘eight’ and ‘nine’, have plausible ones. The rest remain mysterious.

Regional terms for numerals are few and both the reconstructed words for ‘thousand’ have limited distributions. The North-West yields *tuh₉-s-ḵ̱m̱tyōs (e.g. NE thousand, Lith tuktantas, OCS tyš̱ešṯi) which is literally a ‘swollen (or ‘strong’) hundred’, while a Greek-Indo-Iranian isogloss is seen in *g̱hẹśl(i)yōs (e.g. Grk khilioi [pl.], Av hazaṃra-, Skt sa-hāsram) where the initial element
*ghes- is probably related to the word for ‘hand’ (see Section 11.3) and the number is possibly an expression of a handful or two handfuls of grain.

### 19.2 Measure and Quantity

In addition to the numerical system we can also reconstruct a vocabulary associated with the measurement of articles and expressions of quantification. Those assigned to Proto-Indo-European are listed in Table 19.2.

The verbal root *meh₁- (e.g. Alb mat ‘measure’, Av mā- ‘measure’, Skt mīmāti ‘measures’) provides the basis for the noun *mēh₁tis ‘measure’ (e.g. Lat mētior

<table>
<thead>
<tr>
<th>Root</th>
<th>English</th>
<th>Latin</th>
<th>Greek</th>
<th>Sanskrit</th>
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</thead>
<tbody>
<tr>
<td>*mēh₁tis</td>
<td>‘measure’</td>
<td>mētior</td>
<td>méfis, mētis</td>
<td>māti</td>
</tr>
<tr>
<td>*med-</td>
<td>‘measure, weigh’</td>
<td>meditor</td>
<td>médomai</td>
<td></td>
</tr>
<tr>
<td>*wi-dh₁₁-</td>
<td>‘put asunder’</td>
<td>dividō</td>
<td>vidhā</td>
<td></td>
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<tr>
<td>*deh₁₁(i)-</td>
<td>‘cut up; divide’</td>
<td></td>
<td></td>
<td>dāti</td>
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<tr>
<td>*bhag-</td>
<td>‘divide, distribute’</td>
<td></td>
<td>phagein, bhājati</td>
<td></td>
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<tr>
<td>*kaiveloś</td>
<td>‘alone’</td>
<td>caelēs, kēvala-</td>
<td></td>
<td></td>
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<tr>
<td>*sem-go-(lo)s</td>
<td>‘single one’</td>
<td>singulī</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*sem-</td>
<td>‘at one time, once’</td>
<td>semper, semplex</td>
<td></td>
<td>alius, allos</td>
</tr>
<tr>
<td>*sosmos</td>
<td>‘same’</td>
<td>same, homōs, samā-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*sṃmōs</td>
<td>‘some, any’</td>
<td>some, hamōs, samā-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*sēnis</td>
<td>‘half’</td>
<td>sēmi, hēmi-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*h₁₁élyos</td>
<td>‘other’</td>
<td>alius, else, állos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*pelh₁₁</td>
<td>‘fill’</td>
<td>pleō, pimplēmi, piparti</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*pl₁₇h₁₁</td>
<td>‘full’</td>
<td>plēnus, full, pūrā-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*pelh₁₁us</td>
<td>‘much’</td>
<td>polus, pūrā-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*bhēṅghus</td>
<td>‘thick, abundant’</td>
<td>pinguis, pakhūs, bahū-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*g₁₁honōs</td>
<td>‘± thick, sufficient’</td>
<td>euthenēō, ghanā-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*sphyrōs</td>
<td>‘± fat, rich’</td>
<td>prosper, spare, spīrā-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*megh₁₁a-</td>
<td>‘large, great’</td>
<td>magnus, megas, máhi-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*h₁₁εt(h₁₁o)-</td>
<td>‘empty, wanting’</td>
<td>vānus, wan, wane, ēninis, ūnā-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*wak-</td>
<td>‘be empty’</td>
<td>vacō</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*tussk₁₁yos</td>
<td>‘empty’</td>
<td>tucchyā-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*mei-</td>
<td>‘less’</td>
<td>minus, mimōrios</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*mrghus</td>
<td>‘short’</td>
<td>brevis, merry, brakhūs, mūhu-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*menus/menwos</td>
<td>‘thin (in density)’</td>
<td>mānu, manāk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*tenk-</td>
<td>‘become firm, thicken; shrink’</td>
<td>tanākti</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*reukg-</td>
<td>‘shrink, wrinkle up’</td>
<td>rūga</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
‘measure’, OE mēþ ‘measure’, Alb mot ‘season; rainstorm’, Grk métis ‘plan, Skt māti- ‘measure’) and other derivatives, e.g. NE meal which in OE mēl meant ‘measure, mark, appointed time’, which then specialized to ‘meal time’, and Hit mēhur ‘time’. The root *med-also meant ‘measure’ (e.g. OIr midithir ‘judges’, Lat meditor ‘meditate’, OE metan ‘measure, mete out’ [> NE mete], Grk médomai ‘provide for, be mindful of’, médomai ‘intend; plot’, Arm mit ‘thought, reason’) and in Latin (medeor ‘cure’, medicus ‘doctor), Greek (Mèdos, god of medicine), and Avestan (vi-madaya ‘act as a healer’), it took on special medical connotations.

Another way of measuring out is through division for which there are several words in Proto-Indo-European. The meanings for *wi-dhh₁ are fairly wide-ranging, e.g. ‘divide’ (Lat dìvidō), ‘interior’ (Baltic, e.g. Latv vidus), ‘bring’ (Hit widā(i)-), and ‘distribute’ (Skt vi-dhā-), but the nominal derivative *widh₁-eweh₂a- ‘widow’ (see Section 12.2), helps secure the proto-meaning as ‘put asunder’. The verbal root *deh₁(i)- means ‘divide’ in most languages (e.g. Alb pèr-daj ‘distribute, divide, scatter’, Grk daìomai ‘divide; feast on’, Skt da¯́ti ‘cuts up, divides’) and in Latin (e.g. NE tide and time) and Arm ti ‘age, time’. The root *bhag- is similarly attested in verbal form as ‘divide, apportion’ (e.g. Grk phageίn ‘eat’, Av bag-‘distribute’, Skt bhájati ‘divides, distributes, enjoys’) and nominal, i.e. ‘portion’ (e.g. Rus bog ‘god’, Av baya- ‘god’, Skt bhága- ‘lord’, Toch B pāke ‘share, portion’), and underlies the name of a deity (see Section 17.1, 23.1).

Other than the numeral ‘one’, *h₁oinos, there are other singulatives (with the extension *-ko-, e.g. *h₁oinoko-, we have NE any). A Latin-Sanskrit (and possibly Baltic) isogloss gives us *kaiwelas (Lat caelebs ‘living alone, celibate’, Skt kévala- ‘alone’) while the much used *sem- appears in *sem-go-(lo)s ‘single one’ (Lat singulī ‘single, individual’). It also provides the basis for the multiplicative of ‘one’, i.e. ‘once’, *sem- (Lat sem-per ‘always’, sim-plex ‘single’, Grk haplōs ‘singly, in one way’) or *semlo-m (OIr samlith ‘like, as’, Lat simul ‘simultaneously, together, at the same time’, OE simbel(s) ‘always’). An o-grade nominal form *somos gives us the meaning ‘same’ (e.g. OIr -som ‘self; that one’, NE same, OCS samu ‘himself’, Grk homós ‘similar, same’, Arm ohm ‘some, certain, any’, Av hama- ‘same’, Skt samá- ‘equal, like, same’, Toch AB sam ‘like, even’) while a zero-grade *smmóś meant ‘some, any’ (e.g. NE some, Grk hamóς ‘anyone’, Arm ahm(ain) ‘all, each’, Av hama- ‘anyone’, Skt samá-‘anyone’). Less certain is the word for ‘half’, *sēmis (or *sēhmis?; e.g. Lat sēmi-‘half’, OHG sämi- ‘half’, Grk hēmi- ‘half’, Skt sāmi- ‘half’), which has been variously interpreted as a lengthened grade of *sem- ‘one’ or derived from the verbal root *seh₁ ‘separate’; certainly the latter makes more sense semantically. The Proto-Indo-European word for ‘other’ was *h₁élyos (e.g. OIr aile, Lat alius, NE else, Grk állos, Arm ayl, Toch B alyek).
The verb *pelh₁- ‘fill’ is conjugated as a reduplicated present in Grk 
*pimpêmi and Skt *pimplêmi and it is attested in other formations elsewhere (e.g. OIr *lmaid ‘fills’, Lat *pleō ‘fill’, Arm helum ‘pour’, Av *par- ‘fill’). It also provides the basis for the adjective *plh₁nos (e.g. OIr *lám, NE full, Lith piilas, OCS plânu, Av *parâna- ‘filled’, Skt pûrâ- ‘full’, Toch B pâlew ‘full [of the moon]’; Lat plenus is from the full-grade) and the word for ‘much’, *pelh₁us (e.g. OIr *lás, NE full, Lith pîlnas, OCS plu˘nu˘, Av *par˘na- ‘much’); the comparative form *pleh₁yos is the basis of Lat plu˘s ‘more’ and likewise OIr *lía ‘more’, Av frāyah- ‘more’, and Skt prāyā- ‘mostly, commonly’. Other expressions of ‘abundance’ were *bhe´ngʰhus (e.g. Lat pinguis ‘fat’ [with mysterious initial p-], OHG bungo ‘bump’, Latv bîezs ‘thick’, Grk pakhu´s ‘thick, compact’, probably Hit panku- ‘total, entire, general’ [see also above], Skt bahu´- ‘much, many; numerous, compact; abounding in’) which has a basic meaning of ‘thick’ and derives from the verbal root (attested only in Skt bûhate ‘increases’) *bhengʰ- ‘grow, increase’. The concepts of ‘thickness’ and ‘fullness’ also lie behind *gwhonoš (e.g. Lith ganaˇ ‘enough’, OCS goneˇti ‘suˇce’, perhaps Grk euthene´ō ‘Xourish’, Arm y-ogn ‘much’, certainly again OPers āganiš ‘full’, Skt ghanâ- ‘thick’). The verbal root *spelh₁(i)- ‘flourish’ yielded *spelh₁rós ‘fat, rich’ (e.g. Lat prosper ‘lucky’, NE spare, OCS sporû ‘rich’, Skt sphirâ- ‘fat’). Finally, the adjective ‘large, great’, *megʰy₁, is well attested in ten groups (e.g. OIr maige ‘great, large’, Lat magnus ‘large’, OE micel ‘large’, Alb madh ‘large’, Grk mégas ‘large’, Arm mec ‘large’, Hit mēkkis ‘much, many, numerous’, Av maz- ‘large’, Skt māhi- ‘large’, Toch B māka ‘many’); only much (with unexpected loss, dating to Middle English, of the final -l) and the dialectal mickle (corresponding in form to Grk megállos) survive as direct descendants in English, although the Greek-derived prefix meGa- is quite productive in modern English.

There are also words to indicate ‘emptiness’ or ‘lack’. Widespread is *h₁eu(h₁a)- with consistent meanings across six groups (e.g. Grk eînis ‘deprived’, Arm unayn ‘empty’, Lat vânu ‘empty’, NE wan, wane, Av ānà- ‘wanting’, Skt ānâ- ‘lacking’). A Latin-Hittite isogloss attests *wak- (Lat vacô ‘am empty’, Hit wakk- ‘fail, be lacking’) while the verbal root *teus- ‘to empty’ (Av tašayêiti ‘lets fall, lets go’) supplies *tusskïyoš which is attested in Balto-Slavic (e.g. Lith tušcas ‘empty, poor’, Rus tósčyj ‘empty’) and Indo-Iranian (e.g. NPers tuhî ‘empty’, Skt tucchyá- ‘empty’). A root *mei- ‘less’ supplies both the adjective *minus (Lat minus ‘small’, Goth minnists ‘smallest’, Grk minûdîos ‘short-lived’) and a verb *mínêu ti (e.g. Corn minow ‘lesser’, Lat minû ‘lesser’, Grk minûthô ‘lessen, decrease’, Skt minôti ‘lessens’). The meaning ‘short’, with respect to both time and space, is indicated by *mg˘hus (e.g. Lat brevis ‘short’, NE merry, Grk brakhîs ‘short [of time or space]’, Av môrazû- ‘short’, Skt mûhu- ‘short’) where the Lat brevis and Grk brakhîs are presumed to involve a change of *mr- > br-. Another expression of smallness is seen in *menus/menwos ‘thin,
sparse, fine’ (e.g. OIr *menb ‘small, tiny’, Grk mánu ‘small, fine’, Skt manāk a little, slightly’). A root *tenk- covers a semantic bundle that includes ‘shrink’ and ‘make thick/compact’ which suggests that the original referent concerned the behaviour of congealing dairy products. It is found in Celtic (OIr *tēcht ‘coagulated’), Germanic (ON þēl ‘buttermilk’), Baltic (Lith tānkus ‘thick, copious’), Indo-Iranian (Skt tanākti ‘pulls together’, takrām ‘buttermilk’), and Tocharian (e.g. Toch B tānki ‘very, fully, full’). A Latin-Baltic-Tocharian isogloss secures *reuk/g- ‘shrink, wrinkle up’ (Lat ru¯ga ‘wrinkle’, Lith runku` ‘shrivel up’, Toch B ruk- ‘grow lean (with hunger)’.

From the North-West we have *h₁onteros ‘other’ (e.g. NE other, Lith an˜tras ‘other, second’, OCS vu˘toru˘ ‘second’); *w(e)h₁ostos ‘empty’ (e.g. OIr fās ‘empty’, Lat vastus ‘empty, unoccupied’, NE waste) which may be an enlargement of the PIE *h₁eu(h₁)- ‘empty’; *(s)keup- ‘bundle’ (e.g. NE sheaf, Rus čup ‘tuft, head of hair, crest’); *menegh- ‘abundant’ (e.g. OIr meinic(c) ‘abundant’, NE many, OCS mūnogu˘ ‘abundant’), possibly Proto-Indo-European if one accepts Skt magha´ ‘gift, reward, wealth’ as cognate; and *kerdheh- ‘herd, series’ (e.g. NE herd, Lith (s)kerˇdˇiˇzˇius ‘herdsman’, OCS čreˇda ‘herd, series’). From the West Central region we have *meh₁ro- ~ *moh₁ro- ‘large’ (e.g. OIr mār ‘large’, ON mœrr ‘known, famous, great’, OCS Vladi-meˇru˘ [personal name], Grk egkhesı´-mo¯ros ‘mighty with a spear’) from *meh₁- ‘grow’; *pau- ‘little, few’ (e.g. Lat pauper ‘poor’, paucus ‘few’, parvus ‘small’, NE few, Grk pau¯ros ‘little’); *smθteros ‘one or the other of two’ (e.g. NWels hammer ‘half’, Grk hēteros ‘one or the other of two’); possibly *méuh,kō(n) ‘heap’ (e.g. NE hay-mow, dialectal Grk mūkōn ‘heap’); *h₁,rei(h₁)- ‘number, count (out)’ (e.g. OIr āram ‘number’, rūm ‘number, computation’, NE rhyme [with unetymological, Greek-influenced spelling], Grk arithmós ‘number’) and with extensions we have Lat ratiō ‘calculation, reckoning’ and the element -red in NE hundred; *del- ‘aim, compute’ (e.g. NE tell, Grk dōlos ‘guile, bait’, Arm tol ‘row’). A Greek-Armenian isogloss is seen in *kenós ‘empty’ (Grk kenós ‘empty’, Arm ūn ‘empty’) and a Greek-Indic isogloss is *h₁,er(h₁)- ‘separate’ (i.e. Grk erēmos ‘desolate, lonely, solitary’, Skt ṛtē ‘except, without’ [it is interesting that there is apparently no relationship between *h₁,rei(h₁)- ‘count out’ and *h₁,er(h₁)- ‘separate’]).

Further Reading

There have been recent surveys of the IE numerical system. The most extensive is Gvozdanivic (1992); see also Blažek (1999a), Schmidt (1992), Schmid (1989), Justus (1988), and Szemerényi (1960); the root for ‘measure’ is discussed in Haudry (1992), ‘size’ in Winter (1980), and ‘weight’ in Peeters (1974).
20.1 Knowledge and Thought

There is a rich reconstructable vocabulary in Indo-European pertaining to the mental and sensory processes. Those words specifically concerned with knowing and thinking are indicated in Table 20.1.

There are two widely attested verbs for ‘know’ in Proto-Indo-European. The first, *gênh₃-, with its many derivatives, denotes becoming acquainted with, i.e. knowing (a person), recognizing. The present may either be *gênh₃-neh₃- (e.g. OIr ad-gnin ‘recognizes’, OE cunnan ‘know, be able to’, Lith žinótis ‘known’, Av zânâti ‘knows’, Skt jânâti ‘knows, recognizes’, Toch A knânâ- ‘know’), or formed with the suffix *-sê/o- (e.g. Lat (g)nôscô ‘know’, Alb njoh ‘know’, Grk gignôskô ‘know’). The same root also provides a series of deverbatives, e.g. *gênh₃tis ‘knowledge’ (e.g. Lat nôtiô ‘a becoming acquainted, investigation; conception’, Rus znâti ‘[circle of] acquaintances’, Grk gnôsis ‘knowledge’, Skt pra-jânti- ‘knowledge’), *gênh₃hôtêr ‘knower’ (e.g. Lat nôtor, Grk gnôstêr (with analogical –s-), Av žnâtar-, Skt jâtâr-, all ‘knower’), and *gênh₃ tôs ‘known’ (e.g. OIr gnâth ‘used to, known’, Lat nôtus ‘known’, Grk gnôtôs ‘known’, Skt jñâtâ- ‘known’). The second root, *weid-, indicates ‘seeing’ or ‘knowing as a
fact’ rather than recognizing a person. It was essentially a perfect, *woиде ‘have seen’, that was reinterpreted as a present ‘know’ (e.g. OIr ro-fetar ‘knows’, Lat video¯ ‘see’, OE witan ‘know’ [cf. NE wit], Lith veızdi¯ ‘see’, OCS veˇdeˇ ‘know’, Grk oıu da ‘know’, Arm gitem ‘know’, Av vaêôa ‘know[s], see[s]’, Skt véda ‘know[s]’). It too supplies a number of other words, e.g. *widme´n - ‘knowledge’ (e.g. Grk ı´dmo¯n ‘skilled’, Skt vidma´n - ‘wisdom’, Toch B ime ‘consciousness, awareness, thought’), *weides - ‘what is seen’ (e.g. MIr fiad ‘face to face’, NE -wise as in ‘lengthwise’, Lith véidas ‘face’, OCS vidu˘ ‘appearance’, Grk eįdos ‘appearance’, Skt védas- ‘knowledge’).

The verb to ‘think’ is also evidenced by two verbs. The most productive is *men- which also took a perfect *memo´nh ‘think, remember’ (e.g. Lat meminì, Grk mémona, Skt manné) and two different presents, i.e. *mn8ye´tor seen in Celtic (OIr do-moinethar ‘believes’), Baltic (Lith minių ‘remember’), Slavic (OCS mǐnjo ‘think’), Grk mainomai ‘rage, be mad’,

**Table 20.1. Knowledge and thought**

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>gneh3</em></td>
<td>‘know, be acquainted with’</td>
<td>Lat gnōscō, NE can, Grk gignόsko, Skt jānāti;</td>
</tr>
<tr>
<td><em>weid-</em></td>
<td>‘see, know (as a fact)’</td>
<td>Lat videō, NE wit, Grk oǐda, Skt vēda</td>
</tr>
<tr>
<td><em>men-</em></td>
<td>‘think, consider’</td>
<td>Lat meminī, Grk mémona, Skt mannē</td>
</tr>
<tr>
<td>*mēnmṇ</td>
<td>‘thought’</td>
<td>Skt mānman-</td>
</tr>
<tr>
<td><em>mēntis</em></td>
<td>‘thought’</td>
<td>Lat mēns, NE mind, Skt mati-</td>
</tr>
<tr>
<td>*méino-</td>
<td>‘opinion’</td>
<td>NE mean, bemoan</td>
</tr>
<tr>
<td>*teng-</td>
<td>‘think, feel’</td>
<td>Lat tongeō, NE think, thank</td>
</tr>
<tr>
<td><em>men(s)dh(e)h1-</em></td>
<td>‘learn’</td>
<td>Grk manthānō, Skt medhā</td>
</tr>
<tr>
<td><em>(s)mer-</em></td>
<td>‘remember, be concerned about’</td>
<td>NE mourn, Grk mērimna, mártus, Skt smārati</td>
</tr>
<tr>
<td>*mers-</td>
<td>‘forget’</td>
<td>NE mar, Skt měsyate</td>
</tr>
<tr>
<td><em>kred-dheh1-</em></td>
<td>‘believe’</td>
<td>Lat crēdō, Skt śrād-dhāti</td>
</tr>
<tr>
<td><em>h2/3eh1-</em></td>
<td>‘trust in, believe’</td>
<td>Lat ōmen</td>
</tr>
<tr>
<td><em>h1ger-</em></td>
<td>‘awake’</td>
<td>Grk egrégora, Skt jāgárti</td>
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<tr>
<td><em>der-</em></td>
<td>‘sleep’</td>
<td>Lat dormīt, Grk ēdrasthon, Skt drātī</td>
</tr>
<tr>
<td><em>ses-</em></td>
<td>‘rest, sleep, keep quiet’</td>
<td>Skt sāsti</td>
</tr>
<tr>
<td><em>swep-</em></td>
<td>‘sleep, dream’ (vb)</td>
<td>Lat sōpiō, Skt svāpiti</td>
</tr>
<tr>
<td><em>swāpnos</em></td>
<td>‘sleep, dream’ (noun)</td>
<td>Lat somnus</td>
</tr>
<tr>
<td><em>swāpniyom</em></td>
<td>‘dream’</td>
<td>Lat somnium, Grk enüpnion, Skt svāpniyam</td>
</tr>
</tbody>
</table>
Indo-Iranian (Av mainyeite ‘thinks’, Skt mányate ‘thinks’) and *mnēh₂ti (Grk mnēma ‘remembrance’, Luv m(a)nā- ‘see, look upon’). From this root we also have *mēnmy (e.g. OIr menma ‘spirit, sense’, Skt māman- ‘mind, perception’) and *mēntis (e.g. Lat mēns ‘thought’, NE mind, Lith mintis ‘thought’, OCS pa-
mgę́t ‘thought’, Av -maɪ́t- ‘thought’, Skt maɪ- ‘thought’), both centring on the notion ‘thought’. Semantically different is *meino- ‘opinion’ (e.g. OIr mı¯an ‘wish, desire’, NE mean, bemoan, OCS meˇnjo ˛ ‘mention’, Toch B onmim ’remorse’). The verb ‘learn’ is formed with a compound of the root, i.e. *men(s)-
dh(e)h₁- ‘mind-place/put’ (e.g. NWels mymu ‘wish’, OHG mendōn ‘rejoice’, munter ‘lively’, Lith mañ̄dras ‘lively, awake’, OCS moɗro ‘wise’, Alb mound ‘be able’, Grk manthánō ‘learn’, Av maz-dā- ‘stamp in the memory’, mazdā ‘wisdom’, Skt medhā ‘wisdom’). The sense of ‘think’ as ‘to be of the opinion, feel’ seems to have been indicated by *teng- where the concept of ‘feel’ is seen in Germanic (e.g. NE ‘thank’ as well as ‘think’) and Tocharian (Toch B taikw ‘love’ as well as cānk- ‘please’) while Albanian clearly took a negative emotional turn to yield têngê ‘resentment, grudge’; more purely cognitive in meaning is Lat tongē ‘know’.

The verb to ‘remember’ was *smer- (e.g. NE mourn, Lith merėṭi ‘worry about’, Grk mērīma ‘thought, care, anxiety’, mártus ‘witness’ [> by borrowing NE martyr], Av maraiti ‘observes’, Skt smārati ‘remembers, longs for’) which also appears in reduplicated form, e.g. Lat.memorîa ‘remembrance’, OE mimor-
ian ‘remember’, Arm mormok ‘care’. It is interesting that the two antonymous verbs ‘remember’ and ‘forget’ should resemble each other so closely in form. PIE *mers- indicates ‘forget’ in Baltic (e.g. Lith mirštû ‘forget, overlook’), Arm móránam ‘forget’, Skt mtˇṣyate ‘forgets, neglects’, and Toch AB mûrˇs- ‘forget’ but shows a different set of meanings in Germanic (e.g. OE mierran ‘disturb, confuse, hinder’ [> NE mar]) which has led to some doubt that the Germanic set belongs here.

Belief was indicated by a compound *kred-dheh₁ (e.g. OIr creitid ‘believes’, Lat crēdō ‘believe’, Av zrazdā- ‘believing’, Skt śrād-dhāti ‘believes, has trust in’, śrad-dhā- ‘faith’). Although there are problematic forms involved in Iranian, this compound is traditionally explained as ‘heart-put/place’ and it is surely old in Indo-European as it occurs as an uncompounded expression in Hit, i.e. k(a)ratan dai- ‘place the heart’. There is a possible Irish-Parthian (an Iranian language) isogloss (OIr iress ‘belief’, Parth paras ‘ardor’) indicating *peri-
steh₂ ‘stand before’ > ‘belief’ although it is just as likely that these are independent creations in the two languages. Another root is supplied by *h₂/3eḥ₂ (e.g. Lat ōmen ‘sign, omen’, Hit hā(i)- ‘believe, take as truth’) with which some would also include the Celtic (e.g. OIr oeth) and Germanic words for ‘oath’ (including NE oath)(see Section 17.4).
We have at least one root indicating ‘awake’, *higer-, found in Alb *nger ‘awake, raise up, lift’, Grk egrégora ‘was awake’, and Indo-Iranian (Av jagāra ‘was awake’, Skt jagārī ‘is awake, awakes’) but also perhaps in Lat expergō ‘I waken’ (if from *ex-per-gr-). There are more words associated with ‘sleep’.

A series of enlargements of a root *der- gives us verbs to ‘sleep’ in Italic (Lat dormiō ‘sleep’), Slavic (OCS dremljо ‘doze’), Grk édrasthon ‘slept’, and Skt drāti ‘sleeps’ but there is no clear survival of the original unenlarged verbal form. An Anatolian-Indo-Iranian isogloss gives us *ses- ‘sleep’ (e.g. Hit sess- ‘sleep’, sessnu- ‘put to bed’, Av hah- ‘sleep’, Skt sāstí ‘sleeps’) which may be onomato-poetic if Proto-Indo-Europeans counted s’s rather than z’s when they snored.

The verbal root *swep- supplied two presents: *swepti ‘sleeps, dreams’ (e.g. OE swefan, OCS su产妇i, Hit supra- ‘sleep’, and a causative *swopéyeti ~ *swōpéyeti ‘puts to sleep’ (Lat sopiō ‘lull to sleep’, OE swebban ‘lull to sleep, kill’, Skt svapāyati ~ svāpāyati ‘lulls to sleep’). In addition there is the derived noun *swōpns ~ *swépns ‘sleep, dream’ (e.g. Lat somnus ‘sleep’, Lith sāpna ‘dream’, OE swefn ‘sleep’, Grk húpons ‘sleep’, Av hafna- ‘sleep’, Skt svāpna- ‘sleep’, Toch B spane ‘sleep, dream’). Similar is the *supnós that lies behind OCS sūnë ‘sleep’, Alb gjumë ‘sleep’, and Arm k’un ‘sleep’. When we add to this mix Lat sopor ‘overpowering sleep’, Grk hupar ‘true dream, vision; walking reverie’, Hit suppariya- ‘dream’, it would appear that early Proto-Indo-European had a noun *swāpν ~ *swępν (genitive *supnós) that was morphologically rebuilt in various ways to give all of these various reflexes. The two concepts of ‘sleep’ and ‘dream’ regularly fall together in many Indo-European languages and there does not seem to be a set of different roots to distinguish the two activities in Proto-Indo-European. The closest we can come to a Proto-Indo-European ‘dream’ is *swōpniyom seen in Lat somnium ‘dream’, Baltic (Lith sapnys ‘sleep, dream’), perhaps Grk enύpνion ‘dream’, Skt svām{n}am ‘vision in a dream’; similar is the *supn(iy)om of Slavic (OCS sūnijë ‘dream’), Tocharian (Toch B sāmmetse ‘in a trance’), and perhaps Grk enύpνion ‘dream’ but the different groups may have independently created these words from *swep-.

From the North-West we have *sent- ‘perceive, think’ (e.g. Lat sentiō ‘feels’, sēnsus ‘feeling, meaning’, NHG Sinn ‘meaning’, Lith sentiši ‘think’, OCS seštī ‘wise’). From the West Central region there is *ghou- ‘perceive, pay heed to’ (e.g. Lat faveō ‘favour’, ON gá ‘pay attention to’, OCS govėjo ‘honour’, Arm govem ‘praise’); *ghren- ‘think’ (a Germanic-Greek isogloss): on the Germanic side we have ON grunr ‘suspicion’ and grundr ‘meditation’ while the Greek cognates include both phronēō ‘think’ and phrēn ‘midriff; spirit’, suggesting that the Greeks or their ancestors once placed the organ of knowledge in the chest and not the head; an Albanian-Greek-Armenian isogloss gives *h3ény ‘dream’ (Alb ēndërr, Grk ὄναρ, Arm anur). There are several Graeco-Aryan isoglosses:
from the root *men- ‘think’ comes *ménés- ‘thought’ (i.e. Grk ménos, Av manah-, Skt mánas-), and several shared formations are built on *dens- ‘teach, inculcate a skill’ (e.g. Grk didáskō ‘teach’, Av didaiȝhē ‘am instructed’).

### 20.2 Sight

In terms of the five senses, sight provides far more reconstructable items of vocabulary than any of the other senses. The basic Proto-Indo-European vocabulary associated with vision is indicated in Table 20.2.

There are several terms for ‘appear’. We can supply ‘appear’ as the tentative meaning to *

| *kʷ*ek/ɡ- | ‘appear’ | Grk tékmar, Skt cáste |
| *weik- | ‘appear’ | Grk eikōn, Skt viśati |
| *derk- | ‘glance at’ | Grk dērkomai, Skt dēṣṭi- |
| *leuk- | ‘see’ | Grk leússō, Skr lókate |
| *(s)pek- | ‘observe’ | Lat speciō, Grk sképtomai, Skt pāsyati |
| *sekʷ- | ‘see’ | NE see |
| *wel- | ‘see’ | Lat voltus |
| *leg- | ‘see’ | Lat légō, NE look |
| *bheudh- | ‘pay attention, be observant’ | Grk peúthomai, Skt bódhati |
| *bhoudhéye/o- | ‘waken, point out’ | Skt bodhāyati |
| *swerh*K- | ‘watch over, be concerned about’ | NE sorrow |
| *wer- | ‘perceive, give attention to’ | Lat vereor, NE ware, wary, Grk orāō |
| *wet- | ‘see (truly)’ | Lat vātēs, Skt vatati |
| *wer-b(h)- | ‘oversee, protect’ | Lat audiō, Grk aisthānomai, Skt uvē |
| *h₁zεu- | ‘perceive’ | Grk atizō, Skt cikēti |
| *kʷscienti- | ‘perceive’ | Lat caveō, Grk koēō |
| *(s)keuh₁- | ‘perceive’ | Lat sāgiō, NE seek, Grk hēgéomai |
| *h₁zëwis | ‘obvious’ | Lat micō |
| *meigh- ~ *meik- | ‘close the eyes’ | Lat micō |

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**Table 20.2. Sight**
appears’, kāsadē ‘appears, is brilliant, shines’). Another root, *weik-, is sometimes associated with the concept of ‘appear, come into sight’ (e.g. Lith vēkti ‘come, go’, Grk eikē ‘it appeared good’, Av visātī ‘presents itself’, Skt viśatī ‘enters’) but also has nominal forms indicating ‘image’ in both Germanic and Greek (e.g. OE wēh ~ wēoh ‘image, idol’, Grk eikōn ‘image, likeness’ (our NE icon is a loanword from Greek). There are a series of words meaning ‘see’; some of these are independent roots and others involve ancient semantic shifts from other verbs. To the former belong *derk- (e.g. OIr ad-con-darc ‘have seen’, Goth da-garhjan ‘distinguish, note’, Alb dritē ‘light’, Grk dērkomai ‘see’, Skt dēṣṭi- ‘sight’) with its textbook reduplicated perfects in Grk dēdorka, A vdaṅga, and Skt dadaṛsa. This verb may have been the expression par excellence of the baleful look of the dragon or monster of Proto-Indo-European mythology. Both Greek (drākon whence, via Latin, NE dragon) and OIr (muirdris ‘sea-dragon’) have derivatives of this root as the word for ‘dragon’ (though the formations are different and independent: *drkōnt- and *drksi- respectively). The root *(s)pek- is similarly widespread (e.g. Lat specio ‘see’, OHG spehōn ‘spy’, Grk skēptomai ‘look at’, Av spasyeiti ‘spies’, Skt pāsyati ‘sees’, Toch AB pāk- ‘intend’) while *wel- is limited to Celtic (e.g. NWels gweled ‘see’) and Tocharian (Toch B yel- ‘examine, investigate’) but there are derived forms in Italic (Lat voltus ‘facial expression, appearance, form’) and Germanic (e.g. OE wuldor ‘fame’). Those verbs where there has been semantic specialization include *leuk- which generally means ‘see’ in most groups (e.g. NWels amlwg ‘evident’, OPrus laukāti ‘seek’, OCS luciti ‘meet someone’, Grk leūssō ‘see’, Skt lōkate ‘perceives’) but can hardly be separated from *leuk- in the sense of ‘shine’ (see Section 20.3). The verb ‘follow’, *sek-, also yields ‘see’ in many languages in the sense of ‘follow with the eyes’ (e.g. NE see, Lith sekū ‘follow, keep an eye on’, Alb shoḥ ‘see’); it is an ancient metaphoric shift and is found in Anatolian where Hittite attests sākuwa ‘eye’ and Lydian saw- ‘see’. Finally, the verb ‘gather’, *leg-, gives us ‘see’ in Italic (e.g. Lat legō ‘gather; read’), Germanic (e.g. NE look), and Tocharian (AB lāk- ‘see’).

To these verbs for ‘see’ we can add a series of words that hover around ‘perception’, sometimes visible. For example, *bheudh- carries the meaning ‘observe’ in Slavic, Greek, and Indo-Iranian (e.g. Rus bljudū ‘observe, pay attention to’, Grk peithomai ‘examine, experience’, Av baosātī ‘notices, observes’, Skt bōdhati ‘is awake, wakes up; observes, understands’; a buddha is someone who is ‘awake’, i.e. understands how the world works); in Germanic it has shifted to ‘ask, offer’ (e.g. OE bēodon, NE bid). The root supplies a causative *bhoudhēye/o- ‘waken, point out’ (e.g. Lith baudžiu ‘waken’, OCS buditi ‘waken’, Av baodāyēiti ‘indicates’, Skt bodhāyati ‘wakens’). To ‘watch over’ or ‘be concerned about’ underlies *(s)werh, K- where it generally denotes
something closer to ‘guarding’ than actually employing a visual sense (e.g. OE sorgian ‘grieve, be sorry for, be anxious about’, Lith séršti ‘keeps watch over’, Skt súrkṣati ‘takes care of’). The English ‘wary’ or ‘beware’ probably provides a reasonable approximation of the underlying meaning of *wer- (e.g. Lat vereor ‘honour, fear’, NE ware and wary, Latv vērt ‘look, gaze, notice’, Grk οὐρος ‘guard’, orάο ‘see’, Hit werite- ‘put one’s attention’, Toch AB wār- ‘smell’). The extended form *wer-b(h)- involves a Baltic-Tocharian isogloss, again with meanings ‘guard’ as well as ‘observe’ (OPrus warbo ‘protects’, Toch AB wa¨r- ‘smell’). A specialized, possibly sacred vision is to be found in *wet- ‘see (truly)’ with cognates in Celtic (OIr fethid ‘sees, pays attention to’), Lat vātēs ‘seer, prophet’, and Skt āpi vatañi ‘is familiar with, is aware of’; derived forms include *wōto- ‘(true) knowledge, shamanic wisdom’ (OIr fāth ‘prophetic wisdom’, OE wōp ‘song, poetry’, *wōtō- ‘having (true) knowledge’ > OE wōd ‘furious, frenzied’ (> archaic NE wood ‘mad’) and *wōtonō ‘who incarnates’ *wōto- seen in the Germanic divine names of OE Woden, ON Óðinn (see Section 23.2). The root *h₂jeu- does mean ‘see’ in Anatolian (Hit ᵻḥhi ‘see’) and Indic (Skt uvé ‘I see’) but the extended form *h₂jevis- gives ‘hear’ in Italic (Lat audīō) and ‘perceive’ in Grk aisthάnomai; the derived causative means ‘show, reveal’ (i.e. ‘make see’) in OCS (aviti). An extended form *h₂jevis gives us a Slavic-Iranian isogloss that means ‘obvious’ in both groups (OCS (j)avē, Av āvīš). Enlarged forms of *kʷei- ‘perceive’ yield the meaning ‘see’ in Celtic and ‘read’ in Baltic-Slavic (e.g. OIr ad-ci ‘sees’, Lith skaitau~ ‘count, read’, OCS čı́tó ‘count, reckon, read’); the unextended root is found in Grk a-tίzō ‘pay no attention’ and Skt cinóti ~ cıkéti ‘perceives’. Another root rendering two different senses is *kəhu₁- whose outcomes include ‘see’, ‘seer’ (Lyd kawes´ ‘priest’, Av kava¯ ‘seer’, Skt kavi- ‘wise, seer’) but also (in extended form) NE hear, Grk akouō ‘hear’, Lat custōs ‘watchman’, and, with s-mobile, NE show and Arm c’uć’anem ‘show’ (cf. also Lat caveō ‘take heed’, OE hāwian ‘look at’, OCS čujō ‘note’, Grk koεó ‘note’). A PIE *sεh₂g- ‘perceive acutely, seek out’ is attested in Celtic (e.g. OIr saigid ‘seeks out’, Italic (Lat saïgidi ‘perceive acutely’, saïga ‘fortune-teller’), Germanic (e.g. NE seek), Grk hēgāomai ‘direct, lead’, and Anatolian (Hit sākiya- ‘make known’).

A root *meikh- or *meik- (the evidence is ambivalent about the ending) is reconstructed to mean ‘close the eyes’ (Toch B mik-) either as ‘fall sleep’ (Baltic, e.g. Lith (už-)migeti) or merely as ‘blinks’ (Slavic, e.g. Rus mžatÌ; and metaphorically in Italic, e.g. Lat micō ‘move quickly, flash’.

The West Central area gives *prep- ‘appear’ (e.g. OIr richt ‘form’, Grk prépō ‘appear’, Arm erewim ‘am evident, appear’) and a nominal derivative of *gğnēh₃- ‘know’, i.e. *gğnēh₃mŋ (Lat cognōmen ‘surname’, Rus znamja ‘sign, mark’, Grk gnôma ‘distinctive mark’); in both Grk ὅποпа ‘have seen’, ὀππεύο ‘stare at’, and Indic (Skt Ḗksate ‘sees’) one could literally ‘eye’ something, i.e. ‘see’ (*h₂ekʷ-), a
unique verbal use of the word for ‘eye’. Again in Greek and Indic, either inherited or independently created, we find from \*derk\*- ‘see’ an adjective (from the participle) \*derk\*etos ‘visible’ (Grk -dérketos, Skt dasr\*atá-).

20.3 Bright and Dark

There is an extensive reconstructed vocabulary relating to brightness, so much so that a perusal of some etymological dictionaries gives one the impression that the central concepts of the Indo-Europeans might be reduced to ‘bright’ and ‘swell’. Darkness has a much more limited vocabulary associated with it. The relevant forms are indicated in Table 20.3.

The verbal root \*leuk\*- ‘shine’ was highly productive in Indo-European (e.g. Lat lúceō ‘shine’, Hit lukke- ‘shine’, Skt rócate ‘shines’, Toch AB luk- ‘shine’; Lat lúceō ‘kindle’, Hit lukke- ‘kindle’, Av raočayeiti ‘makes shine’, Skt rocáyati ‘makes shine’) and underlies the noun \*lóuk\*(es)- ‘light’ (e.g. Lat lúx, Arm loys, Av raočah-, Skt rocí-, Toch B lyuke, all ‘light’) and the o-stem adjective \*leuko\*s.

<table>
<thead>
<tr>
<th>Form</th>
<th>Meaning</th>
<th>Influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>*leuk-</td>
<td>‘shine’</td>
<td>Lat lúceō</td>
</tr>
<tr>
<td>*lóuk(es)-</td>
<td>‘light’</td>
<td>Lat lúx, Skt rocí-</td>
</tr>
<tr>
<td>*leukós</td>
<td>‘light, bright, clear’</td>
<td>Grk leukós, Skt rocá-</td>
</tr>
<tr>
<td>*dei-</td>
<td>‘shine, be bright’</td>
<td>Grk déato, Skt dideti</td>
</tr>
<tr>
<td>*lap-</td>
<td>‘shine’</td>
<td>Grk lámpō</td>
</tr>
<tr>
<td>*bheh₂-</td>
<td>‘shine’</td>
<td>Grk phainō, Skt bháti</td>
</tr>
<tr>
<td>*bhleg-</td>
<td>‘burn, shine’</td>
<td>Lat fulgō, NE black, Grk phlégo, Skt bhrájąate</td>
</tr>
<tr>
<td>*bherh₂g-</td>
<td>‘shine, gleam’</td>
<td>NE bright</td>
</tr>
<tr>
<td>*(s)kand-</td>
<td>‘shine, glitter’</td>
<td>Lat candeō, Grk kándaros, Skt cândati</td>
</tr>
<tr>
<td>*sweid-</td>
<td>‘shine’</td>
<td>Lat stáds</td>
</tr>
<tr>
<td>*mer-</td>
<td>‘shine, shimmer’</td>
<td>Lat merus, Grk marmairō, Skt márcti-</td>
</tr>
<tr>
<td>*keuk-</td>
<td>‘shine, burn’</td>
<td>Grk kúknos, Skt sócate</td>
</tr>
<tr>
<td>*(s)plend-</td>
<td>‘shine’</td>
<td>Lat splendeō</td>
</tr>
<tr>
<td>*(s)koitóros-</td>
<td>‘bright, clear’</td>
<td>Skt citrá-</td>
</tr>
<tr>
<td>*dh(o)ngu-</td>
<td>‘dark’</td>
<td></td>
</tr>
<tr>
<td>*tómhses-</td>
<td>‘dark’</td>
<td></td>
</tr>
<tr>
<td>*h₁reg”es-</td>
<td>(place of) darkness</td>
<td></td>
</tr>
<tr>
<td>*swer-</td>
<td>‘darken’</td>
<td>Lat sordēs</td>
</tr>
<tr>
<td>*skóyha-</td>
<td>‘shade’</td>
<td>Grk skiā, Skt chāyā-</td>
</tr>
</tbody>
</table>

Table 20.3. Bright and dark
‘bright’ (e.g. OIr lōch ‘glowing white’, Lith laūkas ‘blazed, with a white spot on the forehead [of animals]’, Grk leukós ‘light, bright, clear’, Skt rocá- ‘shining, radiant’). Another root *dei- (e.g. ON teitr ‘glad’, Grk dēato ‘is seen’, Skt dideti ‘shines is bright’) may have been primarily concerned with the brightness of the sky as it provides the basis of the name of the Indo-European sky deity (*d(i)yēus ‘sky god’, *deiwós ‘god’, see Section 23.1). A third root *lap- also means ‘shine’ (cf. NWels llachar ‘shining’, Grk lámpō ‘give light, shine’) but its connections with fire, e.g. ‘flames’ (OIr lasaid), ‘torch’ (Baltic, e.g. Lith lōpė), and ‘glows’ (Hit lāpzí), suggest that it may have been specifically related to the brightness of fire. The root *bheh₂- also means ‘shine’ and it is difficult to discern any more specific semantic connotation (e.g. OIr bān ‘white’, OE bōnian ‘ornament, polish’, Alb bej ‘do’ [< *bring to light’], Grk phainō ‘bring to light’, Luv piha- ‘splendour’, Av bā- ‘shine’, Skt bhāti ‘shines, bhās- ‘light, splendour’). A fifth root *bhleg- yields meanings associated with burning in Lat flamma ‘flame’, fulmen ‘lightning’, NE black, i.e. ‘burned’, and Greek and elsewhere (e.g. Grk phlégō ‘burn’, Av brāzaiti ‘gleams, shines’, Skt bhṛjate ‘gleams, shines, glitters’, Toch AB pālk- ‘shine’), which may suggest again an association with the brightness of fire. The root *bherh₂- means ‘shine’ (e.g. NWels berth ‘shiny’, NE bright, Lith brēkšta ‘dawns’, Pol brzask ‘dawn’, Alb bardhé ‘white’) and underlies the Proto-Indo-European word for the ‘birch’ because of its shiny white or silver bark (see Section 10.1). A seventh root *(s)ked- ‘shine’ (e.g. NWels cann ‘white, bright’, Lat candēs ‘glitter, shine’, Skt cāndati ‘shines, is bright’) has reflexes in Albanian and Indic that indicate the ‘moon’ (Alb hënë, Skt candrā- ‘shining; moon’); in dialectal Greek the reflex means ‘coal’ (kándaros [< presumably from *glowing’]). Among the Latin cognates are candidātus ‘candidate for office’ because of the white toga which was worn. The root *(s)weid- ‘shine’ (e.g. OE switol ‘distinct, clear’, Lith svidū ‘shine, am glossy’, Av x’āēna- ‘glowing’) not only gives us a Latin word for ‘star’ (sīdus) but also considerō ‘consider’ which literally meant ‘consult the stars’. Another Proto-Indo-European word for ‘shine’ is *mer- (e.g. Lat merus ‘pure, bare’, OE āmerian ‘test, examine; purify’, Rus mar ‘blaze of the sun’, Grk marmaĩro ‘shimmer’, Skt márći- ‘shining beam’) and a tenth root is *këuk-, which also carries meanings related to burning in Indo-Iranian and Tocharian (e.g. Av suč- ‘burn, flame’, Skt sócate ‘shines, glows, burns’, Toch B ūkye ‘shining’) but kūkños ‘swan’ in Greek. Another possible root is *(s)plend- ‘shine’ (e.g. OIr lēs ‘light’, Lat splendeō ‘shine, glitter’, Lith splėndžiu ‘light’); its Asian attestation depends on the acceptance of Tocharian plānda- ‘rejoice, be glad’ as cognate, i.e. ‘be shining’ (cf. such an English sentence as, ‘She was positively glowing’). An adjective ‘bright’ *(s)koitrōs is attested on the one hand by a Germanic-Baltic isogloss (e.g. OE hādor ‘clear’, Lith skaidrūs ‘bright, clear [of weather], limpid [of
water’) and a related Indo-Iranian (Av čīdra- ‘clear’, Skt citrā- ‘excellent, bright’) that may all derive from an otherwise unattested noun *(s)kóit-.

There are four roots assignable to Proto-Indo-European that convey ‘darkness’. A Hit dankuis ‘dark’ secures the antiquity of *dh(o)nugu- (otherwise limited to Celtic, e.g. NWels dew ‘mist, smoke’, and Germanic, NHG dunkel ‘dark’). The root *tómh-es- (e.g. Lith tamsą, Av tómah-, Skt tāmas-, all ‘darkness’) would appear to be a deverbative (the underlying verb being preserved in Lith tėmti ‘become dark’); the Latin cognate temere ‘by chance’ derives its meaning from being ‘in the dark’. A ‘place of darkness’ is suggested by *h₁regw-es- (Goth riqis ‘darkness’, Toch B ṭorkamo ‘dark’) which means ‘evening’ (Arm erek), ‘night’ (Skt rājas-) but also supplies the word for the Greek underworld ἔrebos. The darkening of a surface was indicated with *swer- or an extended form such as *swerd-, e.g. Lat sordēs ‘dirt, soil, uncleanliness’, NE swart (the underlying verb is preserved only in Iranian, e.g. Oss xuarun ‘to colour’). Finally, the word for ‘shade’ or ‘shadow’ was *skóỳh₃ (e.g. Latv seja ‘shadow; ghost’, Rus sen ‘shade, shadow’, Alb hie ‘shade, shadow; ghost, spectre’, Grk skia ‘shade, shadow; reflection, image; ghost, spectre’, Av asaya- who throws no shadow, Skt chāyā- ‘shade, shadow’, Toch B skiyo ‘shadow’).

There are a considerable number of regionally restricted words for light and dark. From the North-west region we have *gʰer- ‘shine, glow’ (e.g. NE grey, Lith žeriu ‘shine’, OCS zı́rjo ‘glance, see’); *leip- ‘light, cause to shine’ (e.g. ON leiptr ‘lightning’, Lith liepsna ‘flame, blaze’); *bhlendh- ‘be/make cloudy’ (e.g. NE blind, blunder, Lith blandūs ‘unclean’, Rus blud ‘unchastity, lewdness’); and *merk- ‘+ darken’ (e.g. OIr mrecht- ‘variegated’, NE morn, Lith mėrkiau ‘close one’s eyes, wink’, OCS mraku ‘dark’). From the West Central region: *gʰhaïdrōs ‘bright, shining’ (e.g. Lith gaidruš ‘Wane, clear [of weather], bright, limpid [of water]’, Grk phaidrós ‘beaming [with joy], cheerful’); *(h₁)merh₃- ‘dark’ (e.g. ON myrkr ‘darkness’ [which was borrowed as NE murky], Lith mąrgas ‘variegated’, Alb murg ‘black’, Grk amorbós ‘dark’); *(h₁)mauros ‘dark’ (Rus (s)muryj ‘dark grey’, Grk amaurós ‘dim, faint’); and *skótos ‘shadow, shade’ (e.g. OIr scáth ‘shadow, reflection; ghost, spectre’, NE shadow, Grk skótos ‘darkness, gloom; shadow’). The Central (Albanian-Greek) region offers *(h₂)εurg- ‘shine, become bright’ (Alb agon ‘dawns’, Grk augê ‘beam of light’). Graeco-Aryan isoglosses include *kal- ‘beautiful’ (e.g. Grk kalós ‘beautiful’, Skt kalya- ‘healthy, prepared for, clever’, kalyāṇa- ‘beautiful’); from *(h₁)bheh₂- ‘shine’ both *(h₁)bheh₂(e)s- ‘light’ (e.g. Grk phós, Skt bhās- ‘light’) and *(h₁)bheh₂tis ‘light’ (e.g. Grk phásis ‘star rise’, Skt bhāti- ‘splendour’); and *(h₁)dhwenth₂- ‘cover over, darken’ (e.g. Skt dhvánta- ‘covered, veiled, dark; darkness, night’; the Grk cognates have shifted to ‘die’ [θnēskó], ‘mortal’ [θnētós], and ‘death’ [θnātatos]).
20.4 Colour

Words pertaining to colours reconstructable to Proto-Indo-European are indicated in Table 20.4.

A widely attested *peik- provides a word for ‘paint, colour’ in Indo-European (e.g. Lat pingō ‘paint, colour’, OE fāh ‘coloured’, Lith piėšti ‘draw, write’, OCS pisati ‘write’, Grk poikilos ‘coloured’, Av paēsa ‘colour’, Skt piṃśāti ‘colours, paints’, Toch AB pik- ‘write, paint’).

There are two words reconstructable to Proto-Indo-European for ‘black’. The one with the greatest distribution is *mel-n- (e.g. Latv melns ‘black’, Grk méla¯s ‘black’, Skt maliná- ‘dirty, black’) which, in addition to ‘black’, yields ‘yellow’ (NWels melyn), ‘reddish’ (Lat mulleus), and ‘blue’ (OPrus melne ‘blue spot’, Lith mėlas ‘dark blue’, mélynas ‘blue’ but ‘black’ in Latvian). The range

| *peik-     | ‘paint, mark’          | Lat pingō, Grk poikilos, Skt piṃśāti |
| *mel-n-   | ‘dull or brownish black’ | Lat mulleus, Grk méla¯s, Skt maliná- |
| *kʷ̣i̞snós | ‘black’                | Skt kṛṣṇā-                                    |
| *h₂g̣(u)  | ‘white’                | Lat argentum, Grk árguros, Skt ārjuṇā-      |
| *h₄elbhós | ‘white’                | Lat albus, Grk alphós                        |
| *bhelh₁r- | ‘white’                | NE ball                                      |
| *kweitos | ‘white’                | NE white, Skt švetá-                         |
| *bhelh₁r- | ‘white’                | Lat flàvus, Skt bhālam                       |
| *bhrodnómós | ‘± pale’              | Skt bradhnā-                                  |
| *h₁reudh- | ‘(bright) red’         | Lat rūfas, NE red, Grk eruthrós, Skt rudhirā- |
| *h₁elu-   | ‘dull red’             | Skt arušá-                                   |
| *kóunos   | ‘red’                  | Skt śoṇā-                                     |
| *kyeh₁r- | ‘deep intense shade, ± green’ | NE hue, Skt šyāvá-                         |
| *ḳer- ~ *ḳ-wos | ‘greyish blue, greyish green’ | Skt šārā-                                    |
| *modheros | ‘blue/green’           | NE madder                                    |
| *ghel- ~ *ghel- | ‘yellow’              | Lat helvus, NE yellow, Skt hāri-           |
| *bher-    | ‘brown’                | NE brown, Grk phrínos, Skt bahhrú-          |
| *kas-     | ‘grey’                 | Lat cânus, NE hare, Skt šaśá-               |
| *pl₁h₂-   | ‘grey, pale’           | Lat pallidus, NE fallow, Grk poliús, Skt palitá- |
| *perk-    | ‘speckled’             | Lat pulcher, Grk perknós, Skt prṣṇī-       |
has suggested a ‘dull or brownish black’. Still, while ‘(dark) blue’ and ‘black’ seem a natural enough combination, the words for ‘yellow’ and ‘reddish’ are semantically rather difficult. A Baltic-Slavic-Indic isogloss yields *kʰwäsnoś (e.g. OPrus kirsman ‘black’, OCS črůnů ‘black’, Skt kṣṇā- ‘black’) with a derived form in Alb sorré meaning ‘crow’. This may be a somewhat later word and indicate a ‘shiny black’ (cf. also Lith kėršas ‘black and white, piebald’).

As with roots indicating ‘shine, bright’, there are also a number of words for ‘white’. The most widespread and productive root is *h₂rə-g(u)- (e.g. Hit harkis ‘white’; and a u-stem in Grk ἀγρυος ‘silver’, Skt āruṇa- ‘light, white’, Toch B ārkwi ‘white’) which also gives a full-grade *h₂rəg-ŋt-om ‘silver’ (e.g. OIr argat, Lat argentum, Arm arcat’, Av ārəzətəm, Toch B ŋkante [with assimilation at some point of *r...n to *n...n]) and an s-stem adjective *h₂rəg-əs- ‘white’ (i.e. Grk argēs). A whitish colour is also denoted by *h₁elbhős which yields ‘swan’ in OHG albiz and OCS lebedī and ‘cloud’ in Hit alpa¯-; otherwise it means ‘white’ (e.g. Lat albus ‘white’, Grk alpho­s ‘white leprosy’). Baltic, Slavic, and Indo-Iranian all attest *kʰwoitoś/C24*kwitroś ‘white’ (e.g. Lith sˇvitrus ‘bright’, OCS svıtái ‘light’, Av ārəsətəm- ‘white’, Skt svitā- ‘white, bright’, svitrā- ‘whitish, white’). The Germanic family represented by NE white must also belong here, though it seems to presuppose a related *kweidos (cf. also the Germanic family represented by NE wheat, from *kwoidis, i.e. ‘the white/light [grain]’). Another widespread word is *bhelh₁- ‘white’ (e.g. NWels bal ‘white’, Lith ba¯las ‘white’, Grk phalo­s ‘white’, OCS beˇlu˘- ‘white’) with a host of derived forms including Lat Xa¯vus ‘blond’, NE ball (¼ horse with white blaze), Skt bhalaṃ ‘gleam, forehead’. The underlying verb appears in Lith bálti ‘grow white, pale’. More ambiguous is *bhrodhnoś which may fall between ‘white’ in Slavic (e.g. OCS bronu˘ ‘white, variegated [of horses]’) and ‘pale red’ in Indic (i.e. Skt bradhna¯- ‘pale red, yellowish, bay [of horses]’, Kashmiri bodur ‘tawny bull’). It is noteworthy that the two traditions that reflect this word largely restrict it to animals.

There are three words for ‘red’. The most secure is *h₁reudh- which is generally represented in most languages as an o-grade adjective, i.e. *h₁rəudhós (e.g. OIr rüad ‘red’, Lat rufus ‘red’, NE red, Lith raūdas, Rus rūdyj ‘blood-red, red-haired’, Av raoidita- ‘red’, Skt rōhita- ‘red’, lohā- ‘reddish’). A second widely found form is *h₁rudhrós (e.g. Lat ruber ‘red’, Grk eruthrós ‘red’, Skt rudhirā- ‘red’, Toch B ratre ‘red’). The second root, *h₁elu-, shows considerable semantic deviation, e.g. ‘yellow’ (Germanic, e.g. OHG elo), ‘white’ (Av auruśa-), but ‘reddish’ (Indic, i.e. Skt aruśa- and aruṇa¯- ‘reddish, golden’). It has often been supposed that the *h₁el- of *h₁elu- is the base of the designation of the red deer (cf. Chapter 9.1). Perhaps the difference between *h₁reudh- and *h₁elu- is between ‘high-intensity red’ and ‘low-intensity red’, a kind of distinction that is not unknown in other languages. A Slavic-Indic isogloss secures
*kouns ‘red’ (e.g. Rus sunica ‘wild strawberry’, Skt sōṇa- ‘red’) and may be extended to Celtic if we accept ‘lovely’ as an acceptable semantic shift (seen in MIr cīáenna and NWels cum).

The perceptual variation between ‘blue’ and ‘green’ is often ambiguous between different languages and this ambiguity is strikingly obvious in the reconstructed Proto-Indo-European lexicon. We have, for example, *kyeh₁-, from which we have OE hǣwen ‘blue, purple, green, azure, grey’ (and OE hīw ‘colour’, giving NE hue) and the range of meanings across the other Indo-European cognates is similarly impressive, e.g. ‘(light/dark) grey’ (Lith šyvas ‘light grey’, OPrus sywan ‘grey’, OCS sīvā ‘dark grey’, Alb thinji ‘grey’, Lith šēmas ‘blue-grey’), ‘sea green’ (Serbo-Croatian sinji, ‘(dark) brown, black green’ (Skt sīmā- ‘dark brown, dark green’, šyavā- ‘brown’), ‘black, dark grey’ (Sogdian šw ‘dark-coloured’, Toch B kwele ‘black, dark grey’). The root *ker- yields meanings suggesting a ‘greyish blue/green’ (e.g. Lith šīr̥̄s̥̄mas ‘blue-grey’ [cf. širvās ‘hare’], Alb thjerme ‘(blue-)grey’, surme ‘dark grey, black’, Skt šāra- ‘coloured’). Somewhat tighter in terms of semantics are the Germanic, Slavic, Anatolian, and Tocharian reflecting PIE *m(ə)dhró-, (e.g. NE madder, SC modar ‘blue’ [the Germanic and Slavic reflect Proto-Indo-European *modhrós], Hit āntara- ‘blue’ [< *n̥dhró-, Toch B motartse ‘green’ [< *modr̥-tyo-]). This word would be the best candidate for a Proto-Indo-European word for ‘blue’ or at least ‘blue/green’. The association of the Germanic words for ‘red’ arises from the use of the madder root as a red dye. The current use of madder and its cognates in Germanic to designate the plant Rubia tinctorum is itself a secondary transfer, on the basis of the root’s use in dyeing, from an earlier reference to the bedstraws, some of whose species also have roots used to produce red dye. The bedstraws, however, may have been called *modhrós because of their characteristic yellow-green flowers.

There is one root reconstructed for ‘yellow’, *ghel- ~*ghel-. Meanings generally fall around ‘yellow’ or ‘gold’ (e.g. OIr gel ‘white’, NWels fell ‘yellow’, Lat helvus ‘honey yellow’, NE yellow, Lith geltas ‘yellow’, želvas ‘golden’, Av zairi- ‘yellow’, and Skt hāri- combines both ‘yellow’ and ‘green’) but as we see we also find that this root provided a base for ‘green’ in Slavic and Greek, e.g. OCS zeleni ‘green’, Grk khlorós ‘green’, and Skt hāri- ‘yellow, green’. That its original meaning was indeed ‘yellow’ is indicated by the number of words for ‘gold’ (i.e. ‘the yellow [metal]’) built on this root (e.g. NE gold, Latv zēlts, OCS złoto, Av zaranyam, Skt hiranayam).

A root *bher- meant ‘brown’ and was quite productive in that it underlies the Proto-Indo-European word for ‘beaver’ (Section 9.1) and the Germanic words for ‘bear’ (Section 9.1); it also renders ‘toad’ in Greek and is a horse colour in Mitanni. The colour words from this root come in many different formal shapes. We have *bhrur̥̄nos in NE brown and Grk phrūnos ‘toad’ [<‘the
brown one’], *bhebhru- in Mitanni papru- ‘brown [of horses]’, Skt babhrú- ‘reddish brown’ (and in the Proto-Indo-European word for ‘beaver’), and *bhëro- in Lith bëras ‘bay [of horses]’.

There are also two roots for ‘grey’ in addition to the ‘blue/grey’ above. The first is *kás-, and although it can mean ‘grey’ in Lat cãmus and ON hós (or ‘old’ in Osc casnar), it generally means ‘hare’ (e.g. NWels seinach, NE hare, OPrus sazins, Khot saša-, Skt sáša-) and shows that this animal was originally ‘the grey one’ (Section 9.1). The second is *plh₃s-; it means ‘grey’ in Celtic (e.g. MIr liath), Baltic (Lith pilkas), Grk pelinós, poliós, Indo-Iranian (Av puruša-, Skt palitá-), ‘pale’ in Lat pallidus, ‘fallow’ in Germanic, e.g. NE fallow, ‘old man’ in Alb plak, but ‘white’ in Arm alik’; this root is probably the basis for *pél(h₃)us ‘mouse’ which would be then another ‘grey one’ (Section 9.1).

Finally, *perkʰ- renders ‘speckled’ across most languages in which it is preserved (MIr erc, Grk perk nóś, Skt ṣrṣñi-); Latin has shifted in meaning to ‘beautiful’ (pulcher, and with dissimilation of *r ... r to l ... r) and in Germanic, e.g. NHG Farbe, to ‘colour’ in general.

There are a few regionally attested colour terms. From the North-West we have *slh₄x-u- ‘plum-coloured’ (e.g. OIr lt ‘colour’, Lat ltvor ‘bluish colour’, NE sloe, Rus sliva ‘plum’); and *rei- ‘striped, spotted’ (e.g. OIr ríabhac ‘streaked, striped’, Latv rāibs ‘spotted’, Rus rîbyj ‘variegated’ and perhaps NE roe); and a Celtic-Italic isogloss *badyos ‘(yellow) brown’ (OIr buide ‘yellow’, Lat badius ‘bay (of a horse)’; from the West Central region is *kēir- ‘dull or brownish black’ (e.g. OIr ciár ‘dark brown’, NE hoar, OCS sér ‘grey’, Alb thirr ‘soot’, Grk kiraphos ‘fox’, kîrroś ‘orangy’). A Greek-Indic isogloss is seen in the expression *plh₃s-poik/kos ‘many-coloured, variegated’ (Grk polypoikilos, Skt puru-pësha-); a possible Gothic cognate filu-faihs ‘very diverse’ is somewhat doubtful as it may have been created purely to resemble the Greek cognate which it was translating (although it would provide a nearly irresistible though egregiously false etymology for NE filofax).

20.5 Hearing, Smell, Touch, and Taste

Words directly describing the other four senses are far more sparsely reconstructed than sight (see Table 20.5). This observation is not meant to suggest any particular insight into the Proto-Indo-European mind as the vocabulary associated with ‘what is audible’, i.e. speech, is enormous and is handled elsewhere in Chapter 21. And if we extend the general meaning of ‘touch’ to all those activities involving the manipulation of objects, we will see that the associated vocabulary, here reviewed in Chapter 22, is also very extensive.
Table 20.5. Hearing, smell, touch, and taste

<table>
<thead>
<tr>
<th>Root</th>
<th>Meaning</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>*klei-</td>
<td>'hear'</td>
<td>Lat clueō, Grk klēō, Skt śrōti</td>
</tr>
<tr>
<td>*kleus-</td>
<td>'hear'</td>
<td>NE listen, Skt śrōṣati</td>
</tr>
<tr>
<td>*pū- (*puh,-?)</td>
<td>'stink'</td>
<td>Lat pūteō, Grk pūthō, Skt pāyati</td>
</tr>
<tr>
<td>*deg-</td>
<td>'touch'</td>
<td></td>
</tr>
<tr>
<td>*mlk-</td>
<td>'touch lightly'</td>
<td>Lat mulceō, Skt mṛṣāti</td>
</tr>
<tr>
<td>*klep-</td>
<td>'touch'</td>
<td>NE helm, halter, Grk klēptō</td>
</tr>
<tr>
<td>*sweh,dūs</td>
<td>'sweet'</td>
<td>Lat suādus, NE sweet, Grk hēdūs, Skt svādhī-</td>
</tr>
<tr>
<td>*h₂em-ro-s</td>
<td>'bitter, sour'</td>
<td>Lat amārus, Skt amlā-</td>
</tr>
</tbody>
</table>

There is only one root for 'hear', *klei- (e.g. OIr ro-cluinethar 'hears', Lat clueō 'am called', Goth hliuma 'hearing', OCS sluti 'be called', Alb quaj 'call, name; consider', Grk klēō 'tell of, make famous', Arm Isem 'hear', Av surunaōiti 'hears', Skt śrōti 'hears', Toch B klautso 'ear'), which also appears extended as *kleus- (e.g. OIr cluēas 'ear', NE listen, Lith klausaū 'I hear', OCS slyšati 'hear', Messapic klaohi 'hear!', Skt śrōṣati 'hears', Toch B klyaus- 'hear'). The root is ubiquitous and also appears in a number of derived forms, e.g. *kletōs 'what is heard', i.e. 'fame', a central concept of the Indo-European poetic heritage (e.g. OIr cloth 'fame', Lat inclutus 'famous', Grk klēpto 'famous', Arm lu 'known', Skt śrūtā- 'famous'; see Section 21.5); a lengthened grade e.g. *kletōs in Germanic gives us NE loud.

There is no word reconstructable to Proto-Indo-European for 'to smell', i.e. perceive the odour of something, as opposed to smell = stink. The latter concept can be expressed with *pū- (*puh,-?) which is recovered from Italic (Lat pūteō 'stink'), Baltic (e.g. Lith pūdaū 'rot'), Grk pūthō 'become rotten', and Indo-Iranian (Av puyeti 'rots', Skt pāyati 'stinks') and which is believed to be the equivalent of NE interjection pew! and hence of onomatopoetic origin.

There are at least three words that broadly indicate 'touch'. A Germanic-Tocharian isogloss (ON taka 'touch': Toch B tāk- 'touch') indicates a root *deg- 'touch'. A Latin-Indic isogloss of *mlk- 'touch lightly' is based on meanings of 'stroke' in both languages (Lat mulceō 'stroke, touch lightly, fondle', Skt mṛṣāti 'strokes, touches'). A more general (or sinister) 'lay hand to' would seem to be the meaning of *klep- (e.g. NE helm, halter, OPrus anklıpts 'concealed', Toch AB kālp- 'find, get, achieve, obtain', Toch B klep- 'touch with the hands, investigate, test'). Verbal forms in Gothic, Greek, and Tocharian means 'steal' (Goth hlifan, Grk klēptō, Toch B kālp-).

Finally, taste is expressed in a well-attested *sweh,dūs 'pleasing to the senses, tasty' where a specific meaning of 'sweet' is suggested in Germanic (e.g. NE
sweet), Skt svādhū- ‘sweet’, and Toch B swāre ‘sweet’, while a zero-grade gives us Lith sūdyti ‘to salt’; Lat suavis ‘pleasing to the senses’, and Grk ἕδας ‘what is pleasing to the senses’ carries a more general meaning while the Celtic examples are retained only in Gaulish personal names, e.g. Suadu-rīx. Other examples relating to taste may be found in Chapter 16. Finally, a word for ‘bitter’ *h2em-ros, from a root *h2em- ‘raw, bitter’, is also widely attested (e.g. Lat amārus ‘bitter’, OE ampere ‘sorrel, dock’, Skt amlā- ‘bitter’) though not without curious semantic inversions, e.g. Arm amok’ ‘sweet’, Alb ömbēl ‘sweet’.

To these we may add a few regional terms from the West Central area: *h3ed- ‘give off a smell’ (e.g. Lat oleō ‘smell, stink’, Lith uodžiu ‘smell’, OCzech jadati ‘sniff out, investigate’, Grk ὀζό ‘smell’, Arm hotim ‘smell’); *tag- ‘touch’ (e.g. Lat tangō ‘touch’ OE þaccian ‘touch lightly, stroke’, Grk tetagon ‘seizing’); and *ghrei- ‘touch lightly’ (e.g. Lith gr(i)ejū ‘skim [cream]’, Grk khrió ‘touch the surface of a body lightly, graze; [hence] rub or anoint with oil, coat with colour’ [the past participle of this verb, krístós, was used to translate the Hebrew Messiah, whence, by borrowing, NE Christ]).

20.6 The Good, Bad, and the Ugly

Here we have grouped together what are largely adjectives and some verbs indicating major positive and negative qualities (Table 20.6a).

| *wesu-* | ‘excellent, noble’ | Lat Vesuna, Skt vāsu- |
| *h1(e)su-* | ‘good’ | Grk eis |
| *(h1)su-* | ‘good’ | Grk eu-, Skt su- |
| *h1sōnt- | ‘real, true’ | Lat sōns, NE sooth, Skt satyā- |
| *mel- | ‘good’ | Lat melior |
| *h5eu- | ‘favour’ | Lat aveō, Skt ávati |
| *h1erh5s- | ‘be well disposed to someone’ | Grk éramai |
| *teu- | ‘look on with favour’ | Lat tueor |
| *teus- | ‘be happy’ | Skt tiyati |
| *h5ens- | ‘be gracious to, show favour’ | Grk prosēnēs |
| *pleh,k- | ‘please’ | Lat placēo |
| *geh,a- | ‘rejoice’ | Lat gāudeō, Grk gānumai |
| *geh,a dh- | ‘rejoice’ | Grk gēthēō |
| *meud- | ‘be merry’ | Skt mödate |
There are four words or roots indicating ‘good’ attributable to Proto-Indo-European. The root *wesu- (e.g. OIr feib ‘in excellence’, Luv wāsu ‘good’, Av vohu- ‘good’, Skt vāsu- ‘good’) not only means ‘good’ but frequently appears in personal or tribal names among different Indo-European groups, e.g. Gaul Vesu-avus, Lat Vesuna (name of a goddess), the Germanic tribal name Wisi (e.g. the Visigoths). The rhyming *h₁esu- yields ‘good’ in Greek and Anatolian (e.g. Grk eûs ‘good, useful’, Hit āssu- ‘good’) and may also be seen in Lat erus ‘master’ and the Celtic divine name Esus, though both the Latin and Celtic have other possible etymologies. As a prefix *(h₁)su- is even more widespread (e.g. OIr so- ‘good’, OCS su˘-dravu˘ ‘healthy’, Grk hu-giês ‘healthy’, eu- ‘good’, Av hu- ‘good’, Skt su- ‘good’, Toch B saswe ‘lord’ [< *h₁su-suh, ā- ‘well-born’]). This entire complex is usually derived from *h₁es- ‘to be’. The same verb provides the basis for a word for ‘true’, *h₁sont-, the participial of *h₁es- ‘be’, with certain legal connotations in Lat sōns ‘guilty’, Germanic (e.g. OE so¯ðian ‘bear witness, prove true’ > NE soothe and also NE soothsayer), and also Hit asānt- ‘being, existing’ but also asān-at iyamun-at “it (is) true, I did it”. It also indicates ‘true’ in Indo-Iranian (e.g. Skt satya´-). An Italic-Baltic-Anatolian isogloss gives us *mel- ‘good’ (e.g. Lat melior ‘better’, Lith malonūs ‘pleasant’, Hit malā́(i)- ‘approve, be favourable’).

Words indicating something akin to ‘favour’ include *h₁eu- (e.g. OIr con-ōi ‘guards’, Lat aver ‘desire strongly’, Runic auja ‘good fortune’, Doric Grk aítas ‘friend’, Av avaiti ‘cares for, helps’, Skt ávati ‘is pleased, promotes’). If Alb ha ‘eat’ belongs here (< * ‘enjoy [food]’), then the PIE root is *h₁eu-. A second ‘favour’ word is manifested in the Greek-Tocharian isogloss *h₁erh₄s- (e.g. Grk éramaí ‘love’, Toch AB yārs- ‘be deferential, respectful’). Another root for ‘look on with favour’ is *teu- (e.g. OIr tūath ‘north’, Lat tueor ‘observe, protect’, OE þeaw ‘custom’) which requires acceptance of a potential Luvian cognate tāwā/-‘eye’ to broaden the distribution of cognates beyond the North-West. The underlying logic here is ‘look on with favour’ > ‘look/observe’ > ‘eye’. The Old Irish cognate is the direction word tūath ‘north, left’ which is normally the unfavourable direction in Indo-European, hence it is presumed that here ‘favour’ is being used euphemistically. A fourth possible root is *h₁/₄ens- which involves a Germanic-Greek-Hittite isogloss (e.g. OHG anst ‘favour’, Grk pro-sēnēs ‘gentle, kind, soft’, Hit ass- ~ assiya- ‘be favoured, be dear, be good’). A Latin-Tocharian isogloss gives us *pleh₃k- ‘please’, a verb derived from the adjective *pleh₃- ‘flat’, i.e. ‘make level, smooth’ as in Lat placcō ‘smooth, calm’, the source of NE placate and placeō ‘please’ (through Old French) please, and Toch AB plāk- ‘be in agreement’ (see Section 18.5). A Proto-Indo-European *teus- ‘be happy’ (arguably an extended form of *teu- ‘favour’) is indicated by a Hittite-Indic isogloss (Hit duski- ‘be happy’, Skt tūsyati ‘is delighted with’). A Greek-Tocharian isogloss yields *geh₁dh- rejoice’ (e.g. Grk gēthēō ‘am
happy, rejoice’, Toch AB kātk- ‘rejoice’); another form derived from the same (unattested) root (*geh₃-) is *geh₃µ- ‘rejoice, swell with joy’ (e.g. OIr guaire ‘noble’, Lat gaudeō ‘am happy, rejoice’, Lith džiauguos (<*gaudžiuos) ‘am happy’, Grk gámumai ‘rejoice’, gairos ‘proud’) which is restricted to the West Central region. The root *meud- ‘be merry’ is found in Indo-Iranian (Av maošan-kara- ‘lust-inducing’, Skt módate ‘is cheerful’, mudrá- ‘merry, cheerful’) and in derived form also in Baltic (e.g. Lith mudris ‘cheerful, lively’).

The other regional terms are (from the North-West): *meh₄(t)- ‘good’ (e.g. OIr maith ‘good’, Lat mānis ‘good’); *weh₁ros (or *wēros) ‘true’ in Celtic (OIr fír), Lat vērus, Germanic (OHG wār), all ‘true’ and possibly OCS vēru ‘belief’ if it is not a borrowing from Germanic; the West Central area: *ghleu- ‘revel’ (e.g. NE glees, Lith gláudoti ‘joke’, Rus glum ‘joke’, Grk khleuē ‘joke’); *loid- ‘play, jest’ (e.g. Lat lūdō ‘play’, Grk lizei ‘plays’); Greek and Indic preserve or have independently created the compound *h₁su-menes-ye/o- ‘be well disposed to’, i.e. ‘good’ + ‘thought’ + verbal suffix (Grk eumenéō ‘am gracious’, Skt sumanasyāte ‘is favourable’).

A possible word *h₂/₃wop- from a root *h₂/₃egh-lo- ‘unpleasant’ may be attested between the North-Western languages and Indo-Iranian (e.g. MIr ālad

Table 20.6b. Negative qualities

<table>
<thead>
<tr>
<th>Root</th>
<th>NE</th>
<th>Skt</th>
<th>Grk</th>
</tr>
</thead>
<tbody>
<tr>
<td>h₁/₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁¹</td>
<td>unpleasant’</td>
<td>aghalá-</td>
<td></td>
</tr>
<tr>
<td>d₁⁻</td>
<td>‘bad’ (as prefix)</td>
<td>dús-</td>
<td>dús-</td>
</tr>
<tr>
<td>ḡ₃h₁/₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁₁¹</td>
<td>evil, unpleasant, unhealthy’</td>
<td>NE gall</td>
<td></td>
</tr>
<tr>
<td>h₂=wop-</td>
<td>‘treat badly’</td>
<td>NE evil</td>
<td></td>
</tr>
<tr>
<td>r₁bh₁</td>
<td>wx</td>
<td>‘± ferocity’</td>
<td>Lat rabiēs, Skt rābhas-</td>
</tr>
<tr>
<td>b₁h₁bh₁o₁h₁,e</td>
<td>‘is afraid’</td>
<td>NHG beben, Skt bībhāya</td>
<td></td>
</tr>
<tr>
<td>d₁we₁</td>
<td>‘fear’</td>
<td>Grk deidō, Skt dvēṣṭi</td>
<td></td>
</tr>
<tr>
<td>n₁eh₁</td>
<td>‘be timid’</td>
<td>Grk tìο, Skt cāyati</td>
<td></td>
</tr>
<tr>
<td>k₁w₁e₁h₁(t)-</td>
<td>‘fear, revere’</td>
<td>Grk dús-, Skt dūṣ-</td>
<td></td>
</tr>
<tr>
<td>p₁erk-</td>
<td>‘fear’</td>
<td>NE fright</td>
<td></td>
</tr>
<tr>
<td>t₁res-</td>
<td>‘tremble, fear’</td>
<td>Lat terreō, Grk trēō, Skt trásati</td>
<td></td>
</tr>
<tr>
<td>ᵍ₁h₁e₁iṣ</td>
<td>‘frighten’</td>
<td>NE ghost, Skt hēḍa-</td>
<td></td>
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<tr>
<td>t₁erg₁</td>
<td>‘scare’</td>
<td>Lat torvus, Grk tarbéō, Skt tāṛjati</td>
<td></td>
</tr>
<tr>
<td>g₁h₁re₁</td>
<td>‘± threaten, torment’</td>
<td></td>
<td></td>
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<tr>
<td>s₁ker₄</td>
<td>‘± threaten’</td>
<td></td>
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<tr>
<td>d₁hr₁e₁ugh</td>
<td>‘deceive’</td>
<td>Skt drūhyati</td>
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<tr>
<td>(s)₁we₁g₁</td>
<td>‘deceive’</td>
<td></td>
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<tr>
<td>(s)₁mel-</td>
<td>‘deceive’</td>
<td></td>
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<tr>
<td>meh₃</td>
<td>‘wave/trick (with the hand)’</td>
<td>Skt māyā</td>
<td></td>
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<tr>
<td>m₁eng₁</td>
<td>‘± charm, deceive’</td>
<td>Grk màgganοn</td>
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</table>
The semantic field of ‘fear’ is well represented in the reconstructed lexicon. Germanic (e.g. OE beowian ‘tremble’, NHG beben ‘tremble’) and Indic (Skt bhīhāya ‘is afraid’) attest an old perfect (rebuilt in Germanic with present endings) *bhībhōh₂ ye ‘is afraid’. The verb *dweī- is variously recovered meaning ‘fear’ and ‘frighten’ (e.g. Grk deidō ‘fear’, Arm erknēˈimt ‘frighten’, perhaps Luv kuвая ‘fear’, Av dvaēs- ‘be hostile, provoke’, Skt dvěstit ‘hates, is hostile’, Toch A wi- ‘be frightened’); it appears to derive from the numeral *dwi- ‘two’ and its etymology may have been something like ‘be of two minds’ or, in the hindsight of modern psychological theory, express the natural decision-making process between ‘fight and flight’ when confronted with a danger. A MIr nār ‘modest’: Hit nāh- ‘be afraid’ isogloss furnishes *neh₂ ‘be timid’. The concept of devotional ‘fear’ or ‘reverence’ is found in *kʰeh₁(i)- (e.g. OCS ćajo ‘(a)wait, hope’, Grk τίό ‘honour, revere’, perhaps Luv kuвая ‘fear’, Skt cāyaiti ‘reveres, pays attention to’). The root *perk- ‘fear’ is based on a Germanic-Tocharian isogloss (e.g. NE fright, Toch AB pársk- ‘be afraid’). The physical manifestation of fear is found in *tres- ‘tremble, fear’ (e.g. MIr tarrach ‘fearful’, Lat terror ‘terror’, Lith trišū ‘tremble’, Grk trēō ‘tremble, flee’, Av tərəṣaiti ‘fears’, Skt trāṣati ‘trembles, is afraid’; see also Section 22.4). To ‘frighten’ or ‘scare’ is also indicated by various words. The verbal root *gʰeis- ‘frighten’ also occurs as an o-grade in Germanic to give us NE ghost (cf. also ON geiska-fullr ‘full of fear’, Av zaēša- ‘horrible’, Skt hēḍa- ‘anger’). Something on the order of ‘scare’ or ‘threaten’ lies behind *terg- (e.g. NWels tarfu ‘hunt’, Lat torvus ‘piercing wild [of the eyes]’, OE þracian ‘fear, feel dread, shudder’, Grk tarbō ‘scare’, Skt tārjati ‘threatens, scolds’). Two isoglosses involving Tocharian provide us with two roots for ‘threaten’: *ghres- (Toch AB krās- ‘vex, torment’ with Baltic, e.g. ‘wound’, OE egle ‘disagreeable, loathsome’, Av ayō- ‘bad’, Skt aghā- ‘bad’, aghanā- ‘terrible’); alternatively, the *-lo- suffix may have been added independently in the two regions. The prefix *dus- ‘bad’ or, in English terms, ‘un-’ or ‘ill-’, is well attested across the Indo-European world (e.g. OIr do- ‘bad, mis-’, OE tor- ‘un-’, NHG zer- [verbal prefix], Grk dus- ‘bad, mis-’, Av duṣ- ‘bad, mis-’, Skt duṣ- ‘bad, mis-’); Lat dif- may be cognate here. It occurs residually in Slavic, e.g. in Rus dozdī ‘rain, bad weather’, originally ‘bad-sky’. An OIr galar ‘sickness, distress’: Hit kallara- ‘something unpleasant’ isogloss is the basis for the reconstruction of *gʰalh₂ros ‘evil, unpleasant’ although there are related forms in some other groups (e.g. NE gall [on the skin], Lith žalā ‘damage, loss; injury; wrong’, Ukrainian zolok ‘painful place of a wound’). A verbal root *h₂/₃wop- ‘treat badly’ is recovered from Celtic (OIr fel ‘bad’), Germanic (e.g. NE evil), and Anatolian (huwappi ~ huwapzi ‘ill-treats, despoils’). A possible root *rabh-underlies an Italic-Indic isogloss (Lat rabiēs ‘violence’, Skt raḥhas- ‘ferocity’) to mean something like ‘ferocity’.

The semantic field of ‘fear’ is well represented in the reconstructed lexicon. Germanic (e.g. OE beowian ‘tremble’, NHG beben ‘tremble’) and Indic (Skt bhīhāya ‘is afraid’) attest an old perfect (rebuilt in Germanic with present endings) *bhībhōh₂ ye ‘is afraid’. The verb *dweī- is variously recovered meaning ‘fear’ and ‘frighten’ (e.g. Grk deidō ‘fear’, Arm erknēˈimt ‘frighten’, perhaps Luv kuвая ‘fear’, Av dvaēs- ‘be hostile, provoke’, Skt dvěstit ‘hates, is hostile’, Toch A wi- ‘be frightened’); it appears to derive from the numeral *dwi- ‘two’ and its etymology may have been something like ‘be of two minds’ or, in the hindsight of modern psychological theory, express the natural decision-making process between ‘fight and flight’ when confronted with a danger. A MIr nār ‘modest’: Hit nāh- ‘be afraid’ isogloss furnishes *neh₂ ‘be timid’. The concept of devotional ‘fear’ or ‘reverence’ is found in *kʰeh₁(i)- (e.g. OCS ćajo ‘(a)wait, hope’, Grk τίό ‘honour, revere’, perhaps Luv kuвая ‘fear’, Skt cāyaiti ‘reveres, pays attention to’). The root *perk- ‘fear’ is based on a Germanic-Tocharian isogloss (e.g. NE fright, Toch AB pársk- ‘be afraid’). The physical manifestation of fear is found in *tres- ‘tremble, fear’ (e.g. MIr tarrach ‘fearful’, Lat terror ‘terror’, Lith trišū ‘tremble’, Grk trēō ‘tremble, flee’, Av tərəṣaiti ‘fears’, Skt trāṣati ‘trembles, is afraid’; see also Section 22.4). To ‘frighten’ or ‘scare’ is also indicated by various words. The verbal root *gʰeis- ‘frighten’ also occurs as an o-grade in Germanic to give us NE ghost (cf. also ON geiska-fullr ‘full of fear’, Av zaēša- ‘horrible’, Skt hēḍa- ‘anger’). Something on the order of ‘scare’ or ‘threaten’ lies behind *terg- (e.g. NWels tarfu ‘hunt’, Lat torvus ‘piercing wild [of the eyes]’, OE þracian ‘fear, feel dread, shudder’, Grk tarbō ‘scare’, Skt tārjati ‘threatens, scolds’). Two isoglosses involving Tocharian provide us with two roots for ‘threaten’: *ghres- (Toch AB krās- ‘vex, torment’ with Baltic, e.g.
Lith *gresiū* ‘threaten, menace’) and *sker*- (Toch B *skār*- ‘speak hostilely, threaten; reproach’ with Germanic, e.g. MLG *scheren* ‘ridicule’).

The Proto-Indo-Europeans had a vocabulary of deception. The root *dhreugh*- ‘deceive’ is attested in both verbal forms, e.g. OHG *triogan* ‘deceives’, Skt *druhyati* ‘harms, is hostile to’, and also provides nominal forms indicating spectres in the West (e.g. MIr *aur-fraich* ‘ghost’, ON *draugr* ‘ghost’ and abstracts in Indo-Iranian (e.g. Av *draoga*- ‘lie’); it also underlies the Germanic words for dream (as a false vision), e.g. ON *draumr* ‘dream’. A Germanic (e.g. OE *swīcan* ‘betray’) -Tocharian (Toch A *wek*- ‘to lie’) isogloss secures the root *(s)weig*- ‘deceive’. A PIE *(s)mel- ‘deceive’ is based on cognates in Baltic (e.g. Lith *mėlas* ‘lie’), Arm *mel* ‘sin’, Iranian (Av *mairya*- ‘deceitful’), and Tocharian (Toch A *smale* ‘lie’). A physical dimension to deception is suggested by PIE *mehu*- ‘wave/trick (with the hand)’ where the Baltic cognates suggest a simple motion, e.g. Lith *móju* ‘wave, signal with the hand’, but the other cognate groups indicate an element of deception, e.g. Rus *ob-manuṭi* ‘trick, deceive’, Skt *māyā* ‘trick, illusion’, Toch A *māsk*- ‘switch, juggle’. Finally, there is the somewhat questionable equation of MIr *meng* ‘deceit, guile’, Grk *magganon* ‘charm, philtre’, Oss *mæng* ‘deceit’ to propose a PIE *meng*- ‘charm, deceive’.

From the North-West we have *leud*- ‘act hypocritically, badly’ (e.g. OE *lot* ‘deception’, OPrus *laustinti* ‘humble, abase’, OCS *ludā* ‘foolish’); *saiwos* ‘hard, sharp, rude’ (e.g. Lat *saevus* ‘hot-headed, raging, furious’, Latv *sievš* ‘hard, curt’); and *meug*- ‘cheat, deceive’ (e.g. OIr *formūchtha* ‘smothered, concealed’, Lat *muger* ‘dice cheat’, and NE *meecher*). From the West Central region *bhorg* ‘angry, violent’ (e.g. OIr *borb* ‘stupid, violent’, Latv *bairgs* ‘hard, unfriendly’, Arm *bark* ‘angry, violent’); *h₁oistro/eh₁e*- ‘anger, any strong feeling’ (e.g. Lith *aistrā* ‘passion’, Grk *oïstros* ‘gadfly, sting, anger’; from *h₁eis*- ‘set in motion’; *oïstros* is borrowed, via Latin, in NE *estrus*); *h₁egh*- ‘be afraid, be downcast’ (e.g. OIr *ad-āgathar* ‘fears’, ON *agi* ‘terror’, Grk *ākhos* ‘mental pain or distress’); *garģos* ‘frightening, threatening’ (e.g. OIr *garģ* ‘rough’, OCS *groza* ‘shudder, horror’, Arm *karcr* ‘hard’, Grk *gorgós* ‘terrible, frightful, savage’); and *kel- ‘deceive’ (Lat *calvor* ~ *calvō* ‘deceive’, OE *hōl* ‘slander’, Grk *kēlēō* ‘bewitch, deceive’). A possible Greek-Indic isogloss is seen in *kēt*- ‘be angry’ (Grk *kötos* ‘spite, anger’, Skt *śātru*- ‘enemy’).

### 20.7 Desire

Expressing a wish or desire in Indo-European could be accomplished both by the optative mood of the verb and by a relatively extensive vocabulary associated with the concept of ‘desire’.
The verbal root *wenh*- yields a variety of meanings ranging from the relatively tame, e.g. ON vinr ‘friend’ or Av vantā ‘wife’, across ‘lust’ (Lat venus, Skt vānas-) and possibly as far as Hit wen- ‘copulate’ if it is not from *wen- ‘strike’ (cf. also Toch B wīna ‘pleasure’). An *-sk- suffixed form gives NE wish and Skt vañchati ‘wishes, desires’. ‘Desire’ is also the meaning of the widely attested *gʰor(ye/o)- where some groups retain the emphasis on striving and yearning, e.g. Italic and Germanic (e.g. Lat horior ‘exhort, incite’, NE yearn, Skt īhate), while others emphasize completion of desire, e.g. Grk ἱκχαρ ‘rejoice’, Skt īhate ‘strives for, wants’, Toch B ykāsse ‘concupiscence’). Baltic-Slavic and Tocharian provide evidence for *moud- ‘desire strongly’ (e.g. Lith maudžiū ‘be greedy, lascivious’ Lat lascivus, NE lust, Grk lilaion, Skt lasati), while possibly a stronger yearning is to be found in *h₂i₂h₂g₁h₁- (e/o)- (e.g. Grk ἱγχάρ ‘violent desire’, Av īzā- ‘desire’, Skt īhate ‘strives for, wants’, Toch B ykāsse ‘concupiscence’). There are several verbs that seem to express ‘wish’. Hittite and Indo-Iranian all attest *wek- (e.g. Hit wēkmi ‘I wish’, Av vasāmi ‘I wish’, Skt vāsāmi ‘I wish’) while the Greek cognate, hekōn, means ‘willingly’. There is no clear semantic distinction between this and *wel(h₁)- ‘wish’ (e.g. MWels gwell ‘better’, Lat volō ‘want’, NE will, Lith pa-vēlmi ‘wish’, OCS velj ‘wish’, Arm gel ‘beauty’, Av var- ‘choose, wish’, Skt vṛnītē ‘chooses’). On the other hand there is a strong sense of ‘seek out’ to be found in *h₁eis- where this is the meaning exhibited in Baltic (e.g. Lith ieškau ‘seek’) and Indo-Iranian (Av ĭsaiti ‘seeks, wishes’, Skt ėsati ‘seeks’, icchāti ‘wishes, seeks’); Lat aeruscō and Germanic (e.g. NE ask)

<table>
<thead>
<tr>
<th>Verb</th>
<th>Meaning</th>
<th>Language(s)</th>
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<tbody>
<tr>
<td><em>wenh</em>-</td>
<td>‘desire, strive to obtain’</td>
<td>Lat venus, Skt vānas-</td>
</tr>
<tr>
<td>*gʰor(ye/o)-</td>
<td>‘desire’</td>
<td>Lat horior, NE yearn, Skt īhate</td>
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<tr>
<td>*gheldh-</td>
<td>‘desire’</td>
<td>Skt īhade</td>
</tr>
<tr>
<td>*h₂i₂h₂g₁h₁-</td>
<td>‘desire (strongly)’</td>
<td>Grk ἱκχαρ, Skt īhate</td>
</tr>
<tr>
<td>*moud-</td>
<td>‘desire strongly’</td>
<td>Grk īhate, Skt īhate</td>
</tr>
<tr>
<td>*wek-</td>
<td>‘wish, want’</td>
<td>Grk īkχαρ, Skt īhate</td>
</tr>
<tr>
<td>*wel-</td>
<td>‘wish, want’</td>
<td>Lat volō, NE will, Skt vṛnītē</td>
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<tr>
<td>*h₁eis-</td>
<td>‘wish for, seek out’</td>
<td>Lat aeruscēre, NE ask, Skt īchāti</td>
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<tr>
<td>*las-</td>
<td>‘be greedy, lascivious’</td>
<td>Lat lascivus, NE lust, Grk lilaion, Skt lasati</td>
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<tr>
<td>*seh₂(i)-</td>
<td>‘satisfy, fill up’</td>
<td>Grk āmenai, Skt asinvā-</td>
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<tr>
<td>*terp-</td>
<td>‘take (to oneself), satisfy oneself’</td>
<td>Grk tērpomai, Skt tīpyati</td>
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<tr>
<td>*speh₁-</td>
<td>‘be satisfied, be filled, thrive’</td>
<td>Lat speś, Skt sphāyate</td>
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tend to mean ‘ask’. Finally, desire is also expressed in the widely found outcomes of *las- ‘be greedy’ (e.g. OIr laim ‘eager, greedy’, Lat lascivus ‘lascivious’, NE lust, Lith lokšnis ‘loving, amorous, tender’, OCS laskati ‘flatter’, Grk lilaiomai ‘desire’, dialectal Grk lástē ‘courtesan’, Skt lasati ‘strives, plays, is delighted’).

There were several different ways to indicate ‘satisfy’. A verbal root *seh₂(i)- ‘satisfy’ (e.g. Grk ámenai ‘satisfy oneself’, Arm hacˇ ‘contented’, Hit sāh- ‘stuff full, clog up’, Skt asinvā- ‘unsatisfied’, TochA si- ‘be satisfied’) provides a noun *seh₂tis ‘satisfaction’ (e.g. OIr saith ‘satisfaction’, Lat satis ‘enough’, Lith sótis ‘satiety’). An adjective *sh₂tōs ‘satisfied’ (e.g. OHG sat ‘satisfied’ Grk áatos ‘insatiable’) underwent an interesting semantic development in English: OE sæd ‘satisfied’ came to mean ‘heavy’ (as if one were full) which ultimately yields NE sad. The semantic range of *terp- is rather wide in that Germanic indicates ‘need’ (e.g. OE þurfan ‘need, lack’), Av ‘steal’ (tarap- , presumably the meaning developed from a euphemistic extension of ‘satisfy oneself’; cf. also Skt paśuptap- ‘cattle stealing’), while Greek and Indic indicate the basic meaning ‘satisfy’ (e.g. Grk térpomai ‘satisfy myself’, Skt tīpyati ‘be sated’; cf. also Lith tarpstū ‘flourish’, OCS trūpeˇti ‘suffer, endure’, Toch A tsārwā- ‘be confident, rejoice’); it also exists in a widespread derived form *tērptis (gen. *tērptēs) ‘satisfaction’ found in Germanic (ON purft ‘need’), Grk tērpsis ‘satisfaction’, Skt tīpti- ‘satisfaction’. While the Latin reflex of *speh₁- (e.g. OE spōwan ‘thrive, succeed’, Lith spėju ‘have free time’, OCS spēti ‘be successful, prosper’, Toch B spāw- ‘spread out’), i.e. spēs, only means ‘hope’, the Indic indicates completion of the desire in the meaning ‘grows fat’ (Skt sphāyte) and the root is the basis for one of the words for ‘fat’, *sph₁rōs (see Section 17.3).

The few regionally restricted words are (from the West Central region) *h₁op- ‘desire’ (e.g. Lat optō ‘wish’, OCS za-(j)apū ‘presumption, suspicion’, Grk epiópsomai ‘choose’), perhaps from *h₁ep- ‘grasp’; *g₃hel- ‘wish, want’ (e.g. OCS Želēti ‘wish’, Grk thēlō ‘wish’); an Avestan-Tocharian isogloss yields *k₃lep- ‘desire’ (Av xrap- ‘desire’, Toch AB kulyp- ‘desire’).

20.8 Love and Hate

Frequently, roots for ‘desire’ or ‘want’ also yield meanings ‘love’ but there are a series of words that are more specifically associated with the vocabulary of ‘love’ and ‘hate’.

The verbal root *keh₁er- is only found as such in Indo-Iranian (e.g. Av kā- ‘long for’, Skt kāyaṃṇa- ‘liking’) but in derived form *keh₁er-ro- we find it
providing words for endearment in Celtic (e.g. OIr cara ‘friend’, caraid ‘loves’) and Italic (Lat cārus ‘dear’) while it shifted to ‘adulterer’ and ‘whore’ in Germanic (e.g. NE whore). Probably related to this root are two others beginning with the same velar, *kem- (e.g. Lith kamaros [pl.] ‘lasciviousness’, Skt kāmáyati ‘longs for, is in love with, copulates with’, Toch B ka¯n˜m- ‘play’) and *ken- (e.g. MIr cin ‘love, tendency’, Av cˇanah- ‘demand, request’, Skt ca´nas- ‘pleasure’), both of which can be given a proto-meaning of ‘love’. The root *prih-xeha- supplies words for ‘dear’ in Slavic (e.g. Rus la´dyj ‘dear’) and Tocharian (e.g. Toch B la¯re- ‘dear’), ‘love, caress’ in Arm alalem and ‘desires’ in Skt lādayate (-d- < *-dr-) while in Lycian it yields lada- ‘wife’ (cf. also Rus lāda- ‘wife’). A verbal root *kus- ‘kiss’ is reconstructed on the basis of Grk kunéō ‘kiss’, Hit kuwaszi ‘kisses’, and possibly Germanic; doubt exists for the Germanic words, e.g.

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<thead>
<tr>
<th>Table 20.8. Love and hate</th>
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<tbody>
<tr>
<td>*kehₐ-</td>
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<tr>
<td>*kem-</td>
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<td>*ken-</td>
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<tr>
<td>*prih-xehₐ-</td>
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<tr>
<td>*leubh-</td>
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<td>*hₐlehₐd-</td>
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<td>*kus-</td>
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<td>*hₐed-</td>
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<tr>
<td>*kehₐdes-</td>
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<tr>
<td>*peik/k-</td>
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<tr>
<td>*(hₐ)neid-</td>
</tr>
<tr>
<td>*pihₐ(y)-</td>
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ON kyssa, OHG kussen, NE kiss, because Proto-Indo-European *k should give Germanic *h and not *k unless the k was employed for some sound-symbolic reason, i.e. somehow a hard k-sound was thought to be appropriate for a kissing noise among the speakers of Proto-Germanic.

There are several words for ‘hate’. The root *h₃ed- tends to mean either ‘hate’ or ‘fearsome’ (e.g. Lat 畎 ‘hate’ [verb], odium ‘hate’ [noun], OE atol ‘atrocious’, Grk odíasasthai ‘be angry at, hate’, Arm ateam ‘hate’, Hit hatukzi ‘is terrible’) and underlies the name of the Greek hero Odysseus. There seems to be a semantic divergence in the meaning of *k₆₃des- which indicates ‘hate’ in the West (Celtic, e.g. MIr cait ‘hate’, and Germanic, e.g. NE hate) but ‘care for’ in Grk kédos ‘care, concern, sorrow’ and Indo-Iranian (Av sādra- ‘grief’ and perhaps Skt ri-sādas- if the latter means ‘caring for a stranger’). Hostility of some sort is more uniform across the cognates derived from *peik/k₃- which indicates ‘hate’ in the West (Celtic, e.g. MIr cais ‘hate’, and Germanic, e.g. MIr cait ‘hate’, Arm hék ‘unfortunate, suffering’, Skt pśšma- ‘backbiting, wicked’). One can actively implement one’s hostility through two verbs for ‘insult’ or ‘revile’. Six groups evidence *(h₃)neid- ‘insult, despise, curse’ (e.g. Goth ga-naitjan ‘treat shamefully’, Lith niedėti ‘despise’, Grk oneidızō ‘revile’, Arm anēc ‘curse’, Av naēd- ‘insult’, Skt nīndati ‘insults’) while a verbal *pih₃(y)- ‘revile’ (e.g. OE fēon ‘hate’, NE fiend, Skt pīyati ‘insults’) would appear to derive from *peh₃- ‘misfortune’ (e.g. Grk pēma ‘suffering, misfortune’).

To these we can add the regional (West Central) form *h₃leit- ‘÷ do something hateful or abhorrent’ (e.g. OIr lius ‘abhorrence’, NE loath, Grk alitimō ‘trespass, sin’) and *kaunos ‘humble, lowly’, despised’ seen in Germanic (OE hēan ‘lowly, despised’), Baltic (Latv kāuns ‘shame, disgrace’), and Grk kaunós ‘bad, evil’.

20.9 Hot, Cold, and other Qualities

In Table 20.9 we gather together a series of words that describe basic perceptions such as hot, cold, wet, dry, heavy, light, etc.

The root *g₃her- ‘warm’ reveals several derived forms such as *g₃hermos ‘warm’ which is almost ubiquitous (nine groups: e.g. Lat formus ‘warm’, NE warm, OPrus gorme ‘heat’, Thrac germo- ‘warm’, Alb zarm ‘fire’, Grk thermós ‘warm’, Arm jerm ‘warm’, Av garma- ‘hot’, Skt gharmā- ‘heat, glow’) and the more limited Celtic-Indic isogloss *g₃hrensos ‘warm’ (e.g. OIr grīs ‘heat, fire’, Skt ghramśa- ‘heat of the sun’). The semantic temperature of *tep- may have been hotter than the two previous words, while it is ‘lukewarm’ in Lat tepeō ‘be lukewarm’, it is ‘hot’ otherwise (e.g. OIr te ‘hot’, Umb tefru ‘burnt sacrifice’, OE ȝefian ‘gasp, pant’, Rus topiti ‘heat’, Grk téphrā ‘ashes’, Hit tapissa- ‘fever, heat’,
Av tāpati ‘be warm’, Skt tápati ‘warms, burns’. That derivatives tend to be hotter than just warm suggests that the underlying meaning was ‘hot’. The Albanian cognate is ftoh ‘make cold’, which seems surprising semantically but is understandable once one realizes that the initial f- reflects a PIE *h2eps- ‘from’ and thus ftoh is originally ‘make from-heat’ or the like. That temperatures may have been experienced among the Indo-Europeans according to intensity rather than degrees is seen in *kέlto- ‘cold’ whose Latin and Welsh cognates are calidus ‘warm, hot’ and clyd ‘sheltered, warm, snug’ respectively (but ‘cold’ in Baltic, e.g. Lith šāltas, Iranian, e.g. Av sarəta-, and in some of its derived forms such as Skt šiśira- ‘cold season’). Really ‘freezing cold’ is indicated by a Greek-Tocharian isogloss that gives *k˝rustēn (e.g. Grk krustainomai) ‘am congealed with cold,
freeze’, krūmos ‘icy cold, frost’, Toch B krošce ‘cold’); Grk cognates include krustállos ‘ice; crystal’. Derived forms also include Lat crusta ‘crust’, OHG hroso ‘ice, crust’, and Latv kruvesis ‘frozen mud’.

There are at least four Proto-Indo-European words for ‘dry’, some verbal and some adjectival. The root *h₂es- means ‘be(come) dry’ (e.g. Lat aèreo¯ ‘be dry’, āridus ‘dry’, Czech ozditi ‘dry malt’, Grk āzomai ‘become dry’, Toch AB ās- ‘become dry’). Sometimes connected here are words for ash and hearth (e.g. NE ash, Lat āra ‘hearth’) but they are probably better connected with *h₂eh₂- ‘burn’. The adjectival *sus-/~sausos is widespread (e.g. Lat su¯dus ‘dry, without rain’, Alb thaj ‘dry up’, Av haosˇ- ‘wither away’, Skt s´s- ‘become dry’; OE sèar [> NE sere], Lith saūsas, OCS suchu˘, Grk au7osos, all ‘dry’). Another word *ters- ‘dry’ (e.g. Lat torreo¯ ‘dry’, ON þerra ‘dry’, Alb ter ‘dry off’, Grk térsomai ‘become dry’, Arm tʿarʿamin ‘wilt, fade’, Skt ṭṣyati ‘(thirsts)’ also yields an extended form *tṛṣus/*tṛṣtos ‘dry’ (e.g. Lat torrus ‘dried out’, ON þurr ‘parched’, Av tarṣu¯- ‘dry’, Skt ṭṣu¯ ‘greedy, desirous, vehement’) which is semantically consistent except for Skt ṭṣu¯- ‘greedy, vehement’. Another term for ‘dry up’, *se(n)k-~s, seems to have specifically referred to the drying up, i.e. the ceasing to flow, of streams or the like (e.g. NE singe, Lith senkū ‘ebb, drain away, dry up [of water]’, OCS i-šekno¬ti ‘dry up [of water]’, Skt āskra¯ ‘not drying up’) and it yields a reduplicated form *siskus ‘dry’ (e.g. NWels hysb, Lat siccus, Av hišku-, all ‘dry’); in Old Irish this word (sesc) has shifted semantically to ‘sterile’ (of livestock).

There are numerous regional terms for ‘wet’ but a few may be assigned to Proto-Indo-European. A root *h₁res- or *h₁ers- means ‘dew’ in Lat rōs, Baltic (e.g. Lith rasū), and Slavic (e.g. OCS rosa) but it tends to mean something moister in the other languages (in Avestan it supplies the name of the river Volga, Raþha, while in Sanskrit it provides rāsa- ‘liquid, moisture’, and in Albanian it gives resh ‘rains’). More semantically divergent are the outcomes of *mad- which seem to include ‘become wet’ but also ‘become fat’ (e.g. OIr maidid ‘breaks, bursts forth, gushes’, Lat madeo¯ ‘am moist, drip’, Alb maj ‘feed, fatten [of animals]’, Grk maddo¯ ‘am damaged by wetness or humidity, drip’); in Indo-Iranian it yields ‘alcoholic drink’ (i.e. Av maṣṭa-, Skt máda-) but in Germanic ‘meal’ (NE meat is an even more specific use of OE ðeot ‘food’).

There are two words for ‘heavy’. The basic sense of weight was conveyed by *gwreh₂-u- which gives us Grk barús (see the loan in NE barometer; cf. also MIr bair ‘+ heavy’, Lat gravis ‘heavy’, Latv grūts ‘heavy’, Toch B krāmār ‘weight, heaviness’); the Sanskrit cognate gurī- ‘heavy’ also gives us the name of an Indian sage. Heavy in the sense of ‘difficult’ seems to have been conveyed by *tengh- (e.g. ON þungr ‘heavy, difficult, unfriendly’, Lith tingus ‘idle, lazy, sluggish’, OCS o-težati ‘become heavy, loaded’, Toch B tânk- ‘hinder, obstruct’). There is one word for ‘light of weight’, *h₁le(n)g₃h₂- (e.g. OIr laigiu

The concept of ‘rough’ was indicated by *kreup-, an isogloss of Germanic (e.g. NE rough), Baltic (Lith kraupu¬s ‘dreadful, rough; timid’), and Tocharian (e.g. Toch B kärpiye ‘common, raw, rough’). A word *pastos ‘firm’ may be considered Proto-Indo-European if one accepts Skt pastya¬m ‘habitation’ as cognate with the Germanic (e.g. NE fast [as in ‘stand fast’]) and Arm hast words for ‘firm’. There are four words to convey ‘stiV’. The root *g¬HER¬- (e.g. NE gorse, Lat horreo¬ ‘bristle’, Av zarsˇayamna¬- ‘feathers upright’, Skt ha¬r¬ati ‘bristles, becomes erect or rigid; becomes sexually excited’) is certainly to be associated with *g¬HER¬- ‘hedgehog’ (see Section 9.2) and possibly *ghor¬- ‘young pig’ (see Section 9.2; perhaps from the bristles of the pig). A *st¬HER¬- is well attested in the North-West (e.g. NE stare, Lith starinu¬ ‘tighten, stretch, make stiV’, OCS strada¬ ‘hard work’) but also has Greek and Tocharian cognates (e.g. Grk stereōs ‘firm, stiff’, Toch B ścire ‘hard, rough’). The basic verbal root *steh¬2¬ ‘stand’ provides the basis for two other words: *sth¬EI¬- ‘become fixed, erect’ (e.g. Lat stōria¬ ‘icicle’, Frisian stı¬r¬ ‘stiV’, Lith sto¬ras¬ ‘stiV’, Skt stya¬¬yate¬ ‘becomes stiV, coagulated, hardens’, Toch B stina¬sk¬- ‘be silent’) and *st¬H¬EUG¬- ‘stiV’ (e.g. Lith stūkti ‘stand tall’, Rus stūgmuti ‘freeze’, Toch B staukk¬- ‘swell, bloat’).

The root *mel¬H¬1¬- ‘soft’ is found in a number of derived forms, e.g. *ml¬DUS¬ (e.g. Lat mollis¬ ‘soft’, OPrus maldai¬ ‘young’, OCS mladu¬ ‘young, soft’, Grk bladu¬s ‘slack’, Arm melk¬ ‘soft, limp’, Skt mdy¬- ‘soft, tender, mild’), that secure its assignment to Proto-Indo-European. ‘Slimy’ was indicated by *(s)lei¬-, often found in extended form *leip¬- (e.g. OIr as-lena¬ ‘pollute’, Lat linō¬ ‘anoint’, OCS slina¬ ‘spit’, Grk alinō¬ ‘anoint’; OIr slemion¬ ‘slippery, slick, polished’, Lat limus¬ ‘mud’, lımax¬ ‘slug’, NE slime, Rus slímak¬ ‘slug’, Grk leímak¬ ‘slug, snail’; NHG bleiben¬ ‘remain, stay’, Lith lipti¬ ‘stick, be sticky’, OCS pri¬-līpjо¬ ‘stick on/to’, Skt limpáti¬ ‘smears’, Toch A lip¬- ‘remain’) (see Section 22.5).

There are numerous regionally attested words to be added here. From the North-West come *keh¬须¬- ‘hot’ (e.g. NE hot, Lith kaisti¬ ‘heat, become hot’); *gel¬- ‘cold, to freeze’ (e.g. Lat gelē¬ ‘cold, frost’, NE cold); *leh¬2¬- ‘wet, moist’ (e.g. MIr latbach¬ ‘mud’, OHG letto¬ ‘clay’, Grk látaks¬ ‘drops’, and various Baltic river names); *welk¬- or *welg¬- ‘wet’ (e.g. OIr folc¬ ‘heavy rain’, OHG welk¬ ‘wet, moist, mild’, Lith vilgau¬ ‘moisten’, OCS vlaga¬ ‘moisture juice of plants’); *h¬IWE¬S¬- ‘moist, especially of the ground or plants’ (e.g. Umb vestikatu¬ ‘offer a libation’, OE wōs¬ ‘juice, broth’, Latv vasa¬ ‘forest with wet ground and blue clay’); *senh¬,dhr¬- ‘congealed moisture, slag’ (e.g. NE cinder, RusCS sjadry
‘clotted blood’); *ghleh, dh-(ro) ‘smooth’ (Lat glaber ‘smooth’, NE glad, Lith glodūs ‘smooth(ed)’, OCS gladiti ‘to smooth’) from the root *ghel- ‘shine’; *(e)nто- ‘soft’ (NWels lathr ‘smooth’, Lat lentus ‘soft, tender’, NE lith, Lith le̞ntas ‘quiet, calm’); and *suh, ros ‘sour, acid’ (NE sour, Lith sūras ‘salty’, OCS syrū ‘wet’). From the West Central region: *wel- ‘warm, heat’ (e.g. NE well as ‘well up’ [from *boil’], Alb vãlê ‘heat, boiling’, Arm gol ‘heat’); *h’eug- ‘cold’ (e.g. OIr ùacht ‘cold’, Lith au̞žti ‘become cold’, Arm oyc ‘cold’); *srīges- (or *srih, ges-) ‘cold, frost’ (Lat frīgus ‘cold, frost’, Grk rhίgos ‘frost, cold’); *teng- ‘to moisten, soak’ (Lat tingo¯ ‘moisten’, OHG thunko¯n ‘dunk’, Grk te´ggo¯ ‘moisten’); *reg- or *rek-ros ‘moist, make wet’ (e.g. Lat (ir)rigāre ‘water, irrigate’, NE rain, Lith rōkia ‘drizzles’, Alb rrjedh ‘flow, pour’); *weg- ‘wet’ (e.g. Lat u¯vidus ‘wet’, ON vo̞kr ‘wet, moist’, Grk hugarós ‘liquid, fluid’); *(s)meug- ∼ *(s)meuk- ‘slick, slippery’ (e.g. OIr mocht ‘soft, tender’, Lat mungô ‘blow the nose’, ON mják ‘soft, malleable’, Grk μίssomai ‘blow the nose’)—the verbal forms indicate ‘blow the nose’, cf. Lat mūcus ‘mucus’, and this set has been related to a larger (potentially PIE) group of words meaning ‘to run away’, e.g. Lith mûkti ‘slip away from’, Skt mûcâti ‘looses, frees’, Toch B mauk- ‘to let go’; and just possibly *swombhos ‘spongy’ (e.g. OE swamm ‘mushroom’, Grk somphós ‘spongy’). There is somewhat disputable evidence for *menkus ‘soft’ seen in a Baltic-Slavic-Albanian isogloss (Latv mı̞kst ‘soft’, OCS me˛ku˘ku˘ ‘soft’, Alb (Gheg) mekan ‘weak’). An adjective ‘slack’ is indicated by *slag- with cognates in Celtic (OIr lac ‘slack, weak’), Lat laxus ‘slack, loose’, Germanic (e.g. NE slack), Baltic (Latv legans ‘slack, soft’), and Grk lagarós ‘slack’ (there are also quite disputable cognates in both Indic and Tocharian). There is one Greek-Indic correspondence (Grk ksḗros ‘dry, dried up’, Skt ks̄a¯rá ‘caustic, burning’) in *ksḗros ‘dry (of weather or land)’, a lengthened grade derivative of *kṣeros seen in cognates in other groups (e.g. Lat serḗnus ‘dry, clean’, OHG serawēn ‘become weak’, Arm č’or ‘dry’).

20.10 Proto-Indo-European Perception

The sensual perception of the Proto-Indo-European lexicon is another area that may be appropriately analysed from the point of folk taxonomy. Although we customarily list five senses for ourselves: sight, hearing, taste, smell, and touch, Aristotle counted only four (taste was merely a form of touching). As Earl Anderson reminds us in his Folk-Taxonomies in Early English: “the five senses are a linguistic construct and a cultural convention.” The Classical and Christian worlds tended to rank the senses with taste and touch at the bottom as they are shared by all animals; the logic of this may escape us but we are told by Aulus Gellius that humans are the ones who are best delighted through sight
and hearing. Even a fairly parsimonious acceptance of the numerous words for ‘see’ would result in at least about half a dozen verbs: *derk*- ‘glance at’, *leuk-‘see’, *(s)*pek*- ‘observe’, *sek*- ‘see’, *wel*- ‘see’, *leg*- ‘see’, whereas only one root serves for ‘hear’ (*kleu-*). This apparent focus on ‘sight’ among the senses is hardly unique as sight was regarded by Plato as the most important of the senses and this theory has been echoed since in western tradition. The concept of ‘touch’ is perhaps more ambiguous to localize within the several words which cover this semantic field, i.e. *deg-*, *mlk*- and probably more remotely *klep-. ‘Smell’ as a sense is lacking although *pū- ‘stink’ indicates its cognitive existence and there is no evidence for the lexicalization of ‘taste’ although again there is certainly enough evidence that the Proto-Indo-Europeans experienced the differences between ‘sweet’ and ‘bitter’.

Proto-Indo-European cognition is another area where our lexical evidence hints at various levels of perception that invite our attention. We have seen how one of the main means of expressing knowledge is through a verb associated with sight, i.e. *weid-*, and that ‘thinking’ is handled by a different root, *men-, a split in the cognitive process that we would share today (in many languages this can also be handled by different verbal systems). It is interesting then that the concept of belief is expressed through a frozen expression ‘to put heart’ (*kred-dheh₁-) which would lead one to suspect either that the cognitive organ was the heart and not the brain in Proto-Indo-European or that belief was not strictly a cognitive process but more an act of faith.

One area that has seen considerable discussion is that of colour categories, especially since the publication of Berlin and Kay’s influential works on colour terms. They proposed a seven-stage evolutionary system whereby primary colours have been lexicalized. By primary colour terms we mean words that cannot be further analysed nor seen to be subsets of another colour term (as ‘scarlet’ is a type of ‘red’) nor employed for a restricted range of objects, e.g. ‘blond’, ‘brunette’ for hair colours or ‘bay and ‘roan’ for horses. The ultimate test is the native perception of the speaker of a language which, of course, is denied to us when we must work with a reconstructed lexicon. In the evolutionary system of Berlin and Kay, stage 1 is marked by distinctions for only WHITE and BLACK; stage 2 adds ROW, a category that embraces what we might regard as ‘red’ and ‘yellow’; stage 3 adds a fourth colour (WHITE, BLACK, RED, YELLOW OR WHITE, BLACK, ROW, and GRUE [a category that combines our ‘green’ and ‘blue’]); stage 4 adds one further category by deconstructing ROW into RED and YELLOW and possessing GRUE; in the next stage GRUE is deconstructed into its components, i.e. separate words for BLUE and GREEN are not expected until all the other categories have been filled out. Later categories see the introduction of BROWN, PINK, PURPLE, ORANGE, and GREY. One has generally presumed that one can move up through the stages but it would be unusual to move
down, i.e. lose colour terms or combine them, though development in the latter direction is exemplified. So when we find that Homeric Greek is classified as a stage 3 or even stage 2 language, then how do we reconcile our list of no less than eight potential colour categories in PIE, i.e. BLACK (*mel-n-, *kʷršnós), WHITE (*h₂rg(u), *h₁elbhós, *bhelh₁-, *kweitos), RED (*h₁reudh-, *h₁elu-, *kóu-nos), GREEN (*k₇yeh₁-, *k₇er- ~ *k₇-wo-?), BLUE (*modhr-?), YELLOW (*g₇hel- ~ *g₇hel-), BROWN (*bher-), and GREY (*k₇as-)?

First, it is evident that our reconstructed proto-meanings are not necessarily the precise colour categories required in ‘yellow’ (Celtic), ‘red’ (Italic), ‘blue’ (Baltic), ‘black’ (Baltic, Greek, Indic). *kʷršnós is at least semantically consistent as ‘black’ but it is confined to Balto-Slavic and Indic. In any event, there is no one who would dispute our ability to reconstruct the categories WHITE, BLACK, and RED to Proto-Indo-European. Now do we really have RED or only ROW? If we only had the evidence of *h₁elu- which returns meanings of ‘yellow’ (Germanic), ‘gold’ (Indic), ‘white’ (Iranian), and ‘red’ (Indic) we might well regard this as reflecting the different potential outcome of an original ROW. But we also have PIE *h₁reudh- which is the best-attested colour term in Indo-European and bears the meaning ‘red’ in the nine different groups in which it survives. As for YELLOW, we have *g₇hel- or *g₇hel- which tends to mean ‘yellow’ or ‘golden’ across seven language groups; where it attests a different meaning, it is noteworthy that it is ‘white’ (Celtic), ‘brown’ (Celtic), or ‘green’ (Slavic, Greek) but never ‘red’. If the stadial system has any validity, we might then expect GREY or, if more advanced, separate categories for GREEN and BLUE. PIE *k₇yeh₁- behaves with all the semantic variability that one might expect at this end of the colour scale. It can mean ‘green’ (Slavic, Indic), ‘grey’ (Germanic, Baltic, Slavic, Albanian, Tocharian), ‘blue’ (Germanic, Slavic), and ‘black’ or ‘dark’ (Iranian, Indic, Tocharian). PIE *k₇er- offers a similar disparate range of meanings. The word for ‘blue’ (*modhr-?) is consistent in its meaning in Germanic, Slavic, and Hittite but its Germanic meaning is consistently ‘madder’, the plant that provides a reddish dye, and hence there is reason to suspect that it is not a primary colour term. Similarly, the words for BROWN (*bher-), are so frequently associated with animals, e.g. the bear (Germanic), toad (Greek), horses (Baltic, Indic), and the word for GREY (*k₇as-) with the meaning ‘hare’ in Celtic, Germanic, Baltic, and Indo-Iranian, that we have good reasons to doubt their status as primary terms in Proto-Indo-European. This would all suggest that our primary colours in Proto-Indo-European were probably confined to BLACK, WHITE, RED, YELLOW, and perhaps GREY, thus indicating at least a stage 3 if not stage 4 language in terms of colour terminology.
Further Reading

## 21

### Speech and Sound

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### 21.0 Speech and Sounds

There is a rich vocabulary pertaining to speech and sound that may be reconstructed to Proto-Indo-European. Below we briefly review the evidence, first of ‘speech’ in its more general aspect and then at higher registers, e.g. the language of poets, and finally in terms of the various sounds that might be emitted by either a human or animal. Because of the very nature of this latter semantic sphere, many roots or words will be by their very nature onomatopoeic and there will be frequent instances where it is simply impossible to determine whether the root in question was inherited, borrowed, or independently created.

### 21.1 Speech

The primary roots and words concerned with speaking or calling out are listed in Table 21.1.

There were at least two basic words for ‘speak’. The root *wekʷ*- with its o-grade present formation *wokʷti* is widespread and old in Indo-European (e.g. OIr *focal* ‘word’, Lat *vocō* ‘call’, OHG *giwahanem* ‘recall’, OPrus *wackitwei* ‘entice’, Grk *eipōn* ‘spoke’, Arm *gočem* ‘call’, Av *vak-* ‘say’, Skt *vivakti* ‘speaks,
says’, Toch B wesk- ‘speak, say’). Equally widespread is *(s)wer- ‘say, speak’ (e.g. OPrus wertemmai ‘we swear’, Rus vru ‘lie’, Grk eirō ‘say’, Hit wer(i)y- ‘call, summon’; Lat sermō ‘conversation, lecture’ [> by borrowing NE sermon], NE swear, OCS svariti ‘despise; battle’, Lyd šfarwa- ‘/C6 oath’, Toch B sarm ‘origin’) with no clearly discernible distinction between it and the preceding word. Greek employs *(s)wer-, i.e. Grk eirō, in the present and *wek”-, i.e. Grk էpon in the aorist and it is possible that such a paradigm from two different roots derived from a still earlier period. In derived form, *(s)wer- also yields NE word (cf. also Lat verbum ‘word’ and Lith varūdas ‘name’). A root *ter- probably had some semantic specialization in Proto-Indo-European; in Hit tar- and Lith tariū it renders ‘say’ but in other languages we find ‘noise’, e.g. Celtic (Mlr to(i)rm ‘noise, din, uproar’), Baltic (OPrus tārin ‘noise’), Slavic (Rus torotōrti ‘chatter, prattle’), in Luvian it means ‘curse’ (tātariya-) and in Tocharian ‘implore’ (Toch B tār-). The root *wed- ‘raise one’s voice’ also has meanings that connote at least a loud or solemn sound (e.g. OHG far-wāzan ‘deny, disavow’, Lith vadinu ‘call, name’, OCS vaditi ‘accuse’, dialectal Grk wodāō ‘lament’, Skt vādati ‘speaks, says; raises one’s

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Lat vocō, Grk είπω, Skt vivakti
Lat sermō, NE swear, Grk eirō
Lat aiō, Grk ἔ
Skt vādati
Skt brāvīti
Skt vādati
voice, sings’). A Slavic-Indo-Iranian-Tocharian isogloss gives us *mleuh- ‘speak’ (e.g. OCS mlu˘vati ‘create a disturbance’, Av mraoiti ‘says, recites’, Skt bráviti ‘says’, Toch B pãlw- ‘mourn’) while *rek- is attested only in Slavic and Tocharian (e.g. OCS rešti ‘say’, Toch B reki ‘word’). A possible root *gwa- ‘say’ (there is some doubt about the status of some of the proposed cognates) is based on Germanic, Armenian, and Indo-Iranian (e.g. OE cweðan ‘say’ [whose past tense is reflected in (archaic) NE quoth], Arm koč’em ‘call’, Sogdian žut ‘says’, Skt gádati ‘says’).

Other words broadly meaning ‘call (out)’ include *gal-, a word largely of the North-West but extended by an Ossetic cognate (e.g. OIr gall ‘swan’, NWels galw ‘call’, Lat gallus ‘cock’, OE ceallian ‘call’ [NE call is not directly from Old English but rather borrowed from the latter’s ON cognate kalla], Lith gálsas ‘echo’, OCS glasu˘ ‘voice’, Oss γαλας ‘sound’). The root *gär- (e.g. OIr do-gair ‘call’, Lat garriõ ‘chatter, prattle’, OE cearu ‘care, sorrow, mourning’ [> NE care], Grk gérus ‘voice, call’) is similarly extended in its distribution to Asia by virtue of an Ossetic cognate (zarun ‘sing’); its meanings generally indicate a calling out or ‘shout’ (in Armenian we again find it forming bird names, cicärn ‘swallow’, cicärnuk ‘nightingale’). The Germanic meaning ‘mourn’ may give some indication of Proto-Indo-European, or at least Pre-Germanic, mourning customs involving wailing by the mourners. A loud ‘call’ or ‘cry’ is also indicated by the semantic range of *neu- (e.g. OIr nu¯all ‘cry, noise’, Lat nuntius ‘message; messenger’, Latv nauju ‘cry’, NPers navı¯dan ‘cry’, Skt navate ‘shouts cries’, Toch AB nu- ‘roar’). The connotation of ‘invoke’ seems to lie behind some of the cognates derived from *ghéu(h)- (e.g. OIr guth ‘voice’, OCS zovo ˛ ‘call’, Av zavaiti ‘calls’, Skt hāvate ‘calls, invokes’, Toch B kuwa¯- ‘call, invite’); it supplies the Germanic word for ‘god’ as ‘what is invoked’ (*gêhtom) and probably also in Tocharian (e.g. Toch B ňakte ‘god’ < *ni-gêhto- i.e. ‘the one invoked downward’) and, as we have seen, it may carry the meaning ‘invoke’ also in Indic. Another noisy ‘call’ is seen in *kelh- which gives the ‘cock’ in Celtic and Indic (e.g. OIr cailech, Skt uṣā-kala- < *dawn-singer’) and more formal acts of announcement, e.g. Lat calendae ‘the first days of the month on which the ides and nones were announced’, the ultimate origin of NE calendar, and Grk kaléò ‘call’, kalêrö ‘herald’ (cf. also ON hjala ‘chatter, talk’, Latv kaluõ ‘chatter’, Hit kalless- ‘call’). A Baltic-Tocharian correspondence gives us *keuk- ‘cry out’ (e.g. Lith šaukiu ‘call, cry, shout; summon’, Toch B kuk- ‘call out to’).

What we would translate as ‘show’ indicates a strong if not primary verbal component. The widely attested *deik- may mean ‘say’, ‘accuse’, ‘announce’, as well as ‘show’ in the various languages where it is attested (e.g. Lat dēcò ‘say’, OE tēon ‘accuse’, Grk deixnumi ‘show’, Av disyeiti ~ daésayeiti ‘shows’, Skt dišāti ~ deśayati ‘shows’). A Hittite-Avestan isogloss supports the reconstruction of *d(h)ekʰ- ‘show’ (Hit tekkussa- ‘show’, Av daxșa- ‘teach, show’).
The most widely attested word for ‘be silent’ is *t(e)h₂us- (e.g. OPrus tusnan ‘quiet’, Hit tuhuss(i)y- ‘keep quiet, acquiesce’, Av tuśni- ‘sitting quietly’, Skt tūṣṇīṃ ‘quiet, silent’). To this we might add words for ‘quiet’ such as *h₁erh₁- ‘quiet, at rest’ with cognates in Celtic (e.g. NWels araf ‘quiet, calm’, Gothic rīmis ‘rest’, Baltic (e.g. Lith rinti ‘to be calm’, Grk erémos ‘lonely’, and Indo-Iranian (e.g. Skt rámate ‘stays still, calms down’). We might also add *k₁weih₁- ‘rest, quiet’, seen in Lat quies ‘quiet’, OE hwïl ‘while, time’ (> NE while), OCS pokojí ‘peace, quiet, rest’, Arm han-gist ‘rest, quiet’, OPers sיוa¯ti ‘comfort’ (note also Lat quiētus ‘quiet’, Av śyātī- ‘happy’).

Regionally attested cognates comprise (from the North-West) *tolkʷ- ‘speak’ (e.g. OIr ad-tluichetar ‘gives thanks, rejoices’, Lat loquor [<*tloquor] ‘speak’, OCS tlu˘ku˘ ‘meaning, explanation’); *(s)trep- ‘cry out, dispute’ (e.g. Lat strepō ‘cry loudly, make noise’, OE þraW ‘restrain, reprove; urge, demand’); *weh₁a- ‘cry, scream’ (e.g. Lat vōbyti ‘summon at court’, OCS vabljọ ‘cry’); *(s)leugh- ‘lie, tell a lie’ which yields ‘lie’ in Germanic (e.g. NE lie) and Slavic (e.g. OCS lăžo ‘lie’) but ‘ask’ in Baltic (e.g. Lith lăgōti ‘ask’); *tak- ‘be silent’ (e.g. OIr tachtaid ‘chokes, stiXes’, Lat taceo¯ ‘am silent’, ON þegja ‘be silent’); and *(s)tel- ‘be still, quiet’ may involve the absence of speech in some of its cognates in Celtic (OIr tuilid ‘sleeps’), Germanic (e.g. NE still), Baltic (e.g. Lith tylà ‘quiet person’). From the West Central region: *bheh₁a- ‘speak’ (e.g. Lat for ‘speak’, NE ban, Rus báju ‘relate’, Grk phēmı´ ‘say’, Arm bay ‘says’) with derived *bheh₁meh₁- ‘saying’ (Lat fāma ‘talk, reputation, fame’, Grk phēmē ‘saying, speech’); *(s)preg- ‘speak’ (e.g. NE speak, Alb shpreg ‘express, voice, utter’); *(s)ghel- ‘cry out, sing’ (e.g. NE yell, Rus na-gálitì ‘cry, sing’, Grk khelidôn ‘swallow’ [the bird]); *(s)weh₁ₑgh- ‘cry out; resound’ (e.g. Lat văgìo ‘cry, squall [of babies], scream’, NE sough, Lith svagèti ‘sound’, Grk ēkhē ‘noise’, ēkhēò ‘sound, ring’); *bheidh- ‘persuade, compel, confide’ (Lat fīdō, OE beadan ‘urge’, OCS beđiti ‘constrain’, Alb be ‘oath’, Grk peithō ‘persuade’, *swıg/k- ‘be silent, hush’ with a possible onomatopoeic origin (e.g. OE swōgian ‘be silent’, Grk σίγαδο); and *(s)neu- ‘nod’ (Lat ad-nuō ‘agree by nodding’, Grk neúō ‘nod’ which does have a putative but semantically distant and therefore unsecure Indic cognate (Skt návate ‘goes, moves’).

21.2 Elevated Speech

While it is not always possible to distinguish the register associated with different words, we can attempt a rough division between those words that simply convey the act of speech and those which carry a more formal nuance, e.g. the distinction between ‘say’ and ‘proclaim’. In Table 21.2 we have
assembled those words which we might associate with a higher register or more formally specialized area of speech.

A verbal root *kêh₁- with a present *kêh₁ti (e.g. Alb thetē ‘says’, OPers ðâṭîy ‘says, proclaims’) conveys a more formal manner of speaking in Indo-Iranian and may be translated as ‘declare solemnly’. More certain of its formal connotations is *kê(n)s- whose meanings range from ‘proclaim solemnly’ to ‘praise’, i.e. in both judicial and religious spheres (e.g. Lat cēnseō, Skt šâmsati

Table 21.2. Elevated speech and song

<table>
<thead>
<tr>
<th>Root</th>
<th>Meaning</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>*kêh₁-</td>
<td>‘declare solemnly’</td>
<td>Lat cēnseō, Skt šâmsati</td>
</tr>
<tr>
<td>*kê(n)s-</td>
<td>‘declare solemnly’</td>
<td>Lat cēnseō, Skt šâmsati</td>
</tr>
<tr>
<td>*h₁/ôr-</td>
<td>‘speak a ritual formula’</td>
<td>Lat ořō, Grk ará, Skt āryati</td>
</tr>
<tr>
<td>*(s)pel-</td>
<td>‘say aloud, recite’</td>
<td>NE spell, Grk apeiléò</td>
</tr>
<tr>
<td>*yek-</td>
<td>‘± express, avow’</td>
<td>Lat locus, Skt yâcati</td>
</tr>
<tr>
<td>*h₁erkʷ-</td>
<td>‘praise’</td>
<td>Skt ārcati</td>
</tr>
<tr>
<td>*h₁eugʷh-</td>
<td>‘speak solemnly’</td>
<td>Grk eûkhomai, Skt ójate</td>
</tr>
<tr>
<td>*wegʷh-</td>
<td>‘speak solemnly’</td>
<td>Lat voveô, Skt vâghât-</td>
</tr>
<tr>
<td>*gʷerh-</td>
<td>‘praise’</td>
<td>Lat grâtēs, Skt gînâti</td>
</tr>
<tr>
<td>*kar-</td>
<td>‘praise loudly’</td>
<td>Skt carkarti</td>
</tr>
<tr>
<td>*sengʷh-</td>
<td>‘sing, make an incantation’</td>
<td>NE sing, Grk omphé</td>
</tr>
<tr>
<td>*geh₁(i)-</td>
<td>‘sing’</td>
<td>Skt gâti</td>
</tr>
<tr>
<td>*pei-</td>
<td>‘sing’</td>
<td>Skt gâti</td>
</tr>
<tr>
<td>*shǐömen-</td>
<td>‘song’</td>
<td>Grk hûmmos, Skt sâman-</td>
</tr>
<tr>
<td>*kléwes-</td>
<td>‘fame’</td>
<td>Lat cluor, Grk kléos, Skt šrávas-</td>
</tr>
<tr>
<td>*h₁nömy</td>
<td>‘name’</td>
<td>Lat nömen, NE name, Grk ónoma, Skt náma</td>
</tr>
<tr>
<td>*meldh-</td>
<td>‘pray, speak words to a deity’</td>
<td>NE meld</td>
</tr>
<tr>
<td>*gʷhedh-</td>
<td>‘ask, pray’</td>
<td>NE bid, Grk théssasthai</td>
</tr>
<tr>
<td>*h₂eru-</td>
<td>‘± pray, curse’</td>
<td>Grk aráomai</td>
</tr>
<tr>
<td>*telh-</td>
<td>‘± pray’</td>
<td>Grk aráomai</td>
</tr>
<tr>
<td>*perk-</td>
<td>‘ask, ask for (in marriage)’</td>
<td>Lat poscô, Skt pçccháti</td>
</tr>
<tr>
<td>*kreuk-</td>
<td>‘cry out, raise the hue and cry’</td>
<td>Skt krosâti</td>
</tr>
</tbody>
</table>

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threat’, Toch AB pāl- ‘praise’). More ambiguous is *yek- where the range of meanings is disparate, e.g. Lat iocus ‘joke’ but Umb iuka ‘prayers’ (cf. also MWels ieith ‘speech’, OHG jēhan ‘express, explain’, Skt yācati ‘asks, solicits, entreats’); about the only thing we can say is that it meant some form of verbal expression.

Among the formal expressions, those that comprise the concept of ‘praise’ are well represented in Indo-European. We have both the verbal root *h₁erkʷ- ‘praise’ (e.g. Hit arkuwai- ‘explain, answer’, Skt árcati ‘praises’) and a nominal derivative *h₁erkʷo´s ‘song of praise’ (e.g. OIr erc ‘heaven’, Arm erg ‘song’, Oss aryaw ‘tale’, Skt arká- ‘song’, Toch B yarke ‘honour’). The verbal root *h₁eughʷh- ‘praise’ takes a present *h₁eughʷhetor and renders ‘praises’ and ‘proclaims’ (e.g. Grk eu´khomai ‘pray [for], vaunt’, Lyd ow- ‘proclaim’, Av aojaite ‘says, pronounces’, Skt ójate ‘they praise’). Probably related to it is *wegʷh- which returns meanings of ‘vow, promise solemnly, consecrate’ in Lat voveo¯ and ‘sacriWcer, supplicant, institutor of a sacriWce’ in Skt va¯gha´t-, as well as the more mundane Arm gog ‘say’. The root *gʷerhʷ- ‘sing’ (e.g. OPrus girtwei ‘praise’, Alb ge¨rshas ‘invite to a marriage’, Av gar- ‘praise’, Skt gnāti ‘songs, praises’) gives us the Irish and Welsh words for bard (bardd in Welsh, on which see further below); a derivative is Lat gra¯te¯s [pl.] ‘thanks’ (i.e. ‘praisings’). The root *kar- indicates ‘praise’ in Indo-Iranian (Av cˇar kˇrˇ- ‘praise’, Skt carkarti ‘praises’) and ‘fame’ (e.g. OE hre¯þ) and ‘report’ (e.g. ON herma). A Slavic-Tocharian isogloss gives us *pei- ‘sing’ (e.g. OCS peˇti ‘sing’, Toch B pi- ‘sing’). Another possible Proto-Indo-European word for ‘sing’ is *kan-, on which see below. The Proto-Indo-European word for ‘song’ was *sh₂oˈmen-., e.g. Grk hûmnos ‘song, festival song (of praise in honour of gods and heroes)’ (borrowed into NE as hymn), Hit ishamai- ‘song, melody’, Skt s´aman- ‘song, chant’.

As we have already seen, acts of ‘praising’ and ‘singing’ would have been closely associated with the concept of ‘fame’. Proto-Indo-European *kléwes ‘fame’ (e.g. OIr clá ‘fame’, Lat cluor ‘glory’, OCS slovo ‘word’, Grk kléos ‘fame’, Av sravah- ‘word’, Skt śravas- ‘fame’, Toch B -kālywe ‘fame’) is from *klee- ‘hear’ (see also Section 20.5), i.e. ‘what is heard’, a central feature of the Indo-European poetic tradition. As one’s fame attaches to one’s name, we should add here *h₁nómý ‘name’ which is attested in all major Indo-European
groups (e.g. OIr aínm, Lat nomen, NE name, OPrus emens, OCS ime, Alb emër, Grk ónoma, Arm amn, Hit lāman, Av Skt nāma, Toch B ūnem, all ‘name’). The actual expression for giving a name was *h₁nómhdheh₁- ‘name-put’ which is seen in OCzech dieti jmě-, Hit lāman dā-, Skt nāma dhā- and as a noun in Grk onomatōthētēs ‘name-giver’. Although there are regionally attested words for the ‘poet’, there is no single well-attested form for Proto-Indo-European. As we have seen, the Celtic word for ‘bard’ (OIr bard, NWels bardd) was based on the verbal root *gʷerh₁x- ‘praise’. It is actually from a nominal compound *gʷr₁h₁x-dhh₁-oś which itself derives from the verbal compound *gʷr₁h₁x-dheh₁- ‘praise-put’. This collocation exists as an uncompounded expression in Indo-Iranian, i.e. Av gārom dā-: Skt girām dhā- ‘give praise’ but the Indo-Iranian and Celtic evidence is insufficient to allow us to reconstruct ‘praise-put’ to Proto-Indo-European; the phrase may well have been independently created at either end of the Indo-European world.

In addition to some of the words for ‘praise’ or ‘speak solemnly’, which may also be translated as ‘pray’, we have several more words that can be simply rendered ‘pray’. Although the Germanic cognates of *meldh- do not have obviously religious connotations (e.g. OE meld(i)an ‘announce, declare, proclaim, reveal’; NE meld ‘show a combination of cards in a game’ is a loan borrowed from German [cf. OHG meldōn ‘report’]), the other cognates in Baltic (e.g. Lith meldžiū), Slavic (e.g. OCS moljú), Arm mált’em, and, most significantly, Hit maldā(i)-, all mean ‘pray’. Those words derived from *gʷhedh₁-rather consistently mean ‘pray’ (OIr guidid ‘asks, prays’, Lith gedaju ‘desire’, OCS zęźdo ‘desire’, dialectal Grk theßasthai ‘ask, pray’, Av jaiyemi ‘ask, pray’); to these we might add NE bid. A Greek-Luvian correspondence gives *h₂eru- which can mean both ‘pray’ and ‘call down a curse’ (Grk araómai ‘pray, vow; call down a curse’, Luv hıруt- ‘curse’). A Germanic-Hittite isogloss yields *telh₁x- ‘pray’ (e.g. ON þulr ‘wiseman, sage, sayer of sacred rituals’, Hit tälliya- ‘appeal to a god for help’).

Although *perk₁- ‘ask’ (e.g. OIr arcu ‘ask’, Lat poscō ‘ask’, precor ‘ask for’, OHG forsćōn ‘ask, examine’, Lith prašāu ‘request’, OCS prositi ‘ask’, Arm harc’anem ‘ask’, Av parśaiti ‘asks’, Skt prčcháti ‘asks’, Toch AB pārk- ‘ask’) may carry a general meaning it is also the best candidate we have in Proto-Indo-European for ‘to ask for someone in marriage’ (cf. particularly Lat procus ‘wooer’, Lith persā ‘ask in marriage’, Arm harsn ‘bride’; see Section 12.2). Finally, a judicial connotation adheres to *kreuk₁- which has both Germanic and Indic cognates that mean ‘raise a hue and cry’ (OE hrēam ‘[judicial] outcry’, Av xraos- ‘call’, Skt [āmu] króšati ‘cries out, raises the hue and cry’).

From the West Central region: *kan- ‘sing’ (e.g. OIr canaid ‘sings’, Lat canō ‘sing’, carmen ‘song, prophecy, form of incantation’ OHG hano ‘cock’, Grk cǐkanōs ‘cock’ [literally ‘dawn-singer’ just as in Skt uṣā-kala-], and probably
Toch B kene ‘song, tune’, in which case we have a general Proto-Indo-European word rather than a regionalism) and *sekw- ‘say, recount publicly’ (e.g. OIr insce ‘discourse’, Lat insequre ‘say!’), NE say, Lith sakau ~ sekū ‘say’, OCS sočiti ‘indicate’, Grk ennépō ‘say’). Greek-Indo-Iranian correspondences (Grk kéruls ‘herald’, Skt kārū- ‘one who sings or praises, poet’) comprise *kāru- ‘poet’ (from *kar- ‘praise’ although the Indo-European status of the Greek word has been challenged) and *steu- ‘praise’ (Grk steutai ‘make a gesture of or show of [doing something], promise, engage oneself, or threaten [to do something]’, Av staoiti ‘praises’, Skt śāsti ‘punishes, controls, commands, instructs’, Toch A kās- ‘chide, reprimand’) and a common root *yeha- ‘ask for, beg’ (e.g. Skt yā- ‘beg, entreat’, Toch B yāsk- ‘beg’).

21.3 Interjections and Human Sounds

Here we have gathered together in Table 21.3 those words which may be described as interjections or describe the type of noises that might issue from a human (laugh, babble, moan, etc.); animal noises will be treated separately in Section 21.4 although there will be some crossing between these two spheres, e.g. both people and wolves ‘howl’ in English. Obviously, when dealing with words that may be sound symbolic, there may be independent onomatopoeia involved rather than genetic inheritance.

The instrument responsible for making the following noises is the *wōkw’s ‘voice’ (e.g. Lat vöx, Grk [acc.] ōpa, Av vāxs, Skt vāk, Toch B wēk, all ‘voice’), a nominal derivative from *wēkw- ‘speak’. The standard vocative particle in Proto-Indo-European was *o̞ where it meets this formal use in Celtic (e.g. OIr á), Germanic (MHG á, NE O), Baltic (Lith ŏ), Slavic (OCS o), Grk (ō), and Indic (Skt á). In Lat ō it is a cry (as it may also be in Greek) and in Goth ō it means ‘alas’. The expression of grief seen in *wai ‘alas’ has undergone irregular phonological developments but would seem to be strongly reconstructed nevertheless (e.g. OIr fae, Lat vae, OE wa, Lith va, Grk ouai, Av vayōi, all ‘alas’, and NE woe, Alb vaj ‘lament’, Arm vay ‘woe, misfortune’—compare also Yiddish, and now English, oy veh).

The word for ‘laugh’ in Proto-Indo-European was obviously onomatopoeic and although it is provided a root reconstruction, i.e. *kha-, it is generally found in reduplicated form, e.g. in addition to the Lat cachinmō ‘laugh’ we have OE ceahhettan, OCS chochotati, Grk ka(g)kházō, Arm xaxank, Skt kákhati ~ khákkhati, all ‘laugh’, suggesting that one might have laughed *kha kha! in
Proto-Indo-European. Alternatively, we have the more familiar \*ha ha (Lat hahae, Grk h\`ha\` \ha, Skt ha ha). A single \*ha tended to indicate surprise (Lat h\=a, Grk h\=a\, Skt ha). The root \*smei- means ‘smile’ in ME and NE smile, Grk meidi\=ao, Skt sm\=ayate but ‘laugh’ in Norw smila, Baltic (Latv smeju), Slavic (OCS sme\=jo), and Tocharian (Toch B smi-).

Words for ‘babble’ are so clearly onomatopoeic that certainty of reconstruction is impossible. There are three widespread words or, perhaps more accurately, sounds: \*baba- (e.g. Lat babit ‘bears himself proudly, prances’, babiger ‘foolish, simple’, NE baby, babble, Lith \=oba ‘old woman’, OCS baba ‘old

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Language(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>wōkʷ</em>-s</td>
<td>‘voice’</td>
<td>Lat vōx, Grk ὀπά, Skt vāk</td>
</tr>
<tr>
<td>*ō</td>
<td>‘O’</td>
<td>Lat ō, NE O, Skt ā</td>
</tr>
<tr>
<td>*wai</td>
<td>‘alas’</td>
<td>Lat vae, NE woe, Grk ouai</td>
</tr>
<tr>
<td>*kha-</td>
<td>‘laugh’</td>
<td>Lat cachinnō, Grk ka(t)kházō, Skt kā(k)kati</td>
</tr>
<tr>
<td>*ha ha</td>
<td>(laughing sound)</td>
<td>Lat hahae, Grk h`ha` \ha, Skt ha ha</td>
</tr>
<tr>
<td>*ha</td>
<td>(sound of surprise)</td>
<td>Lat h=a, Grk h=a, Skt ha</td>
</tr>
<tr>
<td>*smei-</td>
<td>‘smile, laugh’</td>
<td>NE smile, Grk meidi=ao, Skt sm=ayate</td>
</tr>
<tr>
<td>*baba-</td>
<td>‘babble’</td>
<td>Lat badit, NE baby, babble, Grk babá=zō, Skt bababā-karōti</td>
</tr>
<tr>
<td>*halba-</td>
<td>‘± stammer’</td>
<td>Lat balbus, NE babble</td>
</tr>
<tr>
<td>*lal-</td>
<td>‘babble’</td>
<td>Lat lallo, NE lullaby, Grk lalē=o, Skt lalallā-</td>
</tr>
<tr>
<td>*reudhₜ</td>
<td>‘mourn, lament’</td>
<td>Lat rudo, Skt róditi</td>
</tr>
<tr>
<td>*gla=gh-</td>
<td>‘cry out, lament’</td>
<td>Skt grhāti</td>
</tr>
<tr>
<td>*leug-</td>
<td>‘grieve, be pained’</td>
<td>Lat lüge=o, Grk lugrōs</td>
</tr>
<tr>
<td>*sten-</td>
<td>‘moan’</td>
<td>Grk stōnos, Skt stānati</td>
</tr>
<tr>
<td>*murmur-</td>
<td>‘murmur’</td>
<td>Lat murmurō, Grk mollūrō, Skt marmar-</td>
</tr>
<tr>
<td>*mug-</td>
<td>‘± make a (low) noise’</td>
<td>Lat m=ugō, Grk mūzō, Skt mū=jati</td>
</tr>
<tr>
<td>*(s)phₜ</td>
<td>‘crackle, sputter’</td>
<td>Grk spharagéomai, Skt sphurjati</td>
</tr>
<tr>
<td>*mehₜ</td>
<td>‘± mumble’</td>
<td>Grk mimikhmōs, Skt mimāti</td>
</tr>
<tr>
<td>*dhren-</td>
<td>‘± rumble, drone’</td>
<td>Lat drēnōs, NE drone, Grk thrēnos, Skt dhrānati</td>
</tr>
<tr>
<td>*kweshₜ</td>
<td>‘± breathe; sigh, groan’</td>
<td>Lat quēr, NE wheeze, Skt śvāsīti</td>
</tr>
<tr>
<td>*gh(h)iy-ehₜ</td>
<td>‘yawn’</td>
<td>Lat hiāre, NE yawn</td>
</tr>
<tr>
<td>*dhwen-</td>
<td>‘sound’</td>
<td>NE din, Skt dhrānati</td>
</tr>
<tr>
<td>*swenhₜ</td>
<td>‘(re)sound’</td>
<td>Lat sonō, NE swan, Skt svānati</td>
</tr>
<tr>
<td>*klun-</td>
<td>‘resound’</td>
<td></td>
</tr>
<tr>
<td>*gerg-</td>
<td>‘± crack, resound’</td>
<td>NE crack, Skt gārjati</td>
</tr>
<tr>
<td>*ghwono=s</td>
<td>‘a sound, voice’</td>
<td></td>
</tr>
<tr>
<td>*klēutrom</td>
<td>‘a sound’</td>
<td>Skt śrōtra-</td>
</tr>
</tbody>
</table>

| Table 21.3. Human noises |

Proto-Indo-European. Alternatively, we have the more familiar \*ha ha (Lat hahae, Grk h\`ha\` \ha, Skt ha ha). A single \*ha tended to indicate surprise (Lat h\=a, Grk h\=a, Skt ha). The root \*smei- means ‘smile’ in ME and NE smile, Grk meidi\=ao and Indic sm\=ayate but ‘laugh’ in Norw smila, Baltic (Latv smeju), Slavic (OCS sme\=jo), and Tocharian (Toch B smi-).

Words for ‘babble’ are so clearly onomatopoeic that certainty of reconstruction is impossible. There are three widespread words or, perhaps more accurately, sounds: \*baba- (e.g. Lat babit ‘bears himself proudly, prances’, babiger ‘foolish, simple’, NE baby, babble, Lith \=oba ‘old woman’, OCS baba ‘old
woman’, Alb bebe ‘newborn child’, Grk babázo ‘babble’, Skt bababā-karóti ‘crackles [of a fire]’; *balba- (and *balbal- and *barbar-), e.g. Lat balbus ‘stammer’, NE babble, Lith blebėnti ‘stammer’, Czech beblati ‘stammer’; Grk bárbaros ‘non-Greek speaker’ [whence via Latin to NE barbarian], Skt barbara- ‘stammerer, non-Indic speaker’; and *lal- (e.g. Lat lallō ‘sing to sleep’, NE lullaby, NHG lallen ‘stammer, babble, speak indistinctly’, Lith lalúoti ‘stammer’, Rus lál ‘babbler’, Grk lálos ‘babbling, loquacious’, lálēo ‘talk, chat, prattle’, Hit lala- ‘tongue’, Skt lalallā- ‘indistinct or lisping utterance’). The first exhibits the meaning ‘babble’, e.g. Grk babázo ‘babble’ or, in Indic, ‘crackle’ but is also associated with infants and shows a two-way semantic development such that we have a meaning ‘baby’ in English and Albanian but a reversed perspective in Middle High German, Lithuanian, and Old Church Slavonic where we find ‘old woman’ or ‘mother’. Clearly related are those that close the initial syllable with an *-l- or *-r-. The meaning of these extended forms seems to have also included a pejorative for ‘speak in a foreign way’. Hence both Grk bárbaros and its Skt equivalent barbara- could refer to one who did not speak the respective language concerned, i.e. a barbarian was literally someone whose speech sounded like bar-bar. The third word generally means ‘babble’ but in Hit lala- means ‘tongue’.

A number of words fill out the vocabulary of ‘grief’. The verbal root *reudhₐ- (with a present *re´udhₐti) ‘mourn’ (Lat rudō ‘roar, bellow, Bray’, ON rauta ‘roar’ [whence by borrowing NE root (for someone)], OE rēotan ‘moan’, Lith raumi ‘mourn, lament’, Slov rydati ‘weep, cry, sob’, Av raod- ‘lament, mourn’, Skt rōditi ‘weeps, roars’) also yields a derivative *roudhₐos ‘cry’ (OHG rōz, Lith grauda’, Skt rōda-, all ‘cry’). There is also *glagḥ- ‘cry out’ (e.g. OHG klağōn ‘bewail, complain about’, Av gərzaiti ‘laments, cries’, Skt gḥāte ‘lament’). Latin, Greek, and Tocharian all point to a *leug- ‘weep’ (Lat lūgeō ‘mourn, lament’, Grk leugaleós ‘sad, horrible’, lugróς ‘baneful, mournful’, Toch B lakle ‘pain, suffering’). A ‘moan’ was conveyed by *sten- (e.g. OE stenan, Lith stenu-, OCS stenjo, all ‘moan’, Grk stēnō ‘roar’, stónos ‘moaning’, Skt stānati ‘thunders’) which is probably related to *(s)tenhₐ, - ‘thunder’ (see Section 8.4).

Another reduplicated form is *murmur- ‘murmur’, e.g. Lat murmūrō [whence by borrowing NE murmur], Lith murmėnti, Grk mormúrō, Arm mrmrn, all ‘murmur’, and Skt marmar- ‘roaring’. There are a series of sounds that defy easy semantic reconstruction. Probably the clearest is *mug- whose meanings run from Hit mugā(i) ‘entreat’ to low moaning sounds (e.g. Lat mūgiō ‘low, bellow’, OHG muckazen ‘grumble’, Grk múζo ‘mutter, moan, growl’, Skt mūŋjati ‘makes a noise’); it would appear to be an enlargement of *mu- a low sound of some sort (in Czech it does mean to ‘moo’ like a cow). Germanic, Baltic, and Greek agree that their derivatives from *(s)prgₐ- mean ‘crackle’ (e.g. ON spraka, Lith spragėti, Grk spheragéomaí); the Indic cognate means
‘thunders’ (Skt sphūrjati ‘thunders, rumbles’). The sound indicated by *meh₁(i)- is difficult to ascertain as it means ‘stammer’ in OCS mūmati, ‘neigh’ in Grk mimikhmos, ‘bleat’ in Armenian and Indic (mayem and mīmāti respectively), but ‘speak’ in the oldest attested language, Hit memma-. The sound made in *dhren-, if Germanic, Lithuanian, and Greek are anything to go by, should approximate that of a bee as it does produce the word ‘drone’ in these different groups (e.g. NE drone, Lith trānas, Grk thrōnaks; cf. also MIr dresacht ‘creaking noise’, Lat drēnsō ‘cry [of a swarm]’, Grk thrēnos ‘funeral lamentation’, Arm drncˇim ‘toot, resound’, Skt dhra´nati ‘resounds’, and perhaps Toch B bren- ‘speak’). A ‘sigh’ or some other breathing sound is associated with *kˆwesh-x-; it can mean ‘lament’ in Lat queror and Toch B kwās- but in Germanic and Indic we have ‘cough’ (OE hwōsan, ‘snort’, ‘hiss’, etc., Skt śvāsīti; NE wheeze is a loanword from Old Norse. The concept of ‘yawn’ or ‘open the mouth wide’ is provided by various forms related to *gh(h₁)i-h₁-w₁- which provide the North-Western words (Lat hīare, OHG giēn, NE yawn, Lith žiōju, Rus zījātī, all ‘yawn’) but with an o-grade we have Toch B kāyā- ‘yawn, gape’.

There is a series of totally ambiguous sounds. A Germanic-Baltic-Indic isogloss delivers *dhwen- which seems to be some form of ‘loud noise’ (e.g. NE din, Lith dūnėti ‘rumble, roar, thunder’, Skt dhvānati ‘sounds, roars’). Although the Sanskrit word derived from *swenh-x-, svānati, means ‘roars, makes sound’, the fact that the word means ‘resound’ in other languages (e.g. Lat sonō, Latv sāne¯t ‘sing’ in OE swinsian, and ‘play a musical instrument’ in OIr seinnid suggests a meaning ‘resound’ or something less noisy; derivatives of the verbal root include Lat sonus ‘sound’ and NE swan (< *singer’). A Germanic-Tocharian isogloss preserves *klun- ‘resound’ (e.g. OE hlynn ‘sound, noise, roaring stream’, Toch AB kān- ‘resound’). The root *gerg- is regarded as onomatopoeic but it is by no means clear what that sound signifies; it means ‘creak’ and ‘crack’ in Germanic and Baltic (e.g. OE cearcian ‘creak, gnash’, NE crack, Lith girgždžiu ‘creak’) but ‘roars, howls’ in Indic (Skt gārjati) and simply ‘noise’ in Arm karkač. The verbal root *gheu(h₁)- ‘call’ yields the derivative *ghwonoš ‘sound, voice’ (OCS zvonu˘ ‘noise’, Alb zë ‘voice’, Arm jayn ‘voice’) while from the the root *kleu- ‘hear’ (see also Section 20.5) regularly (and perhaps independently) derived *kletrom ‘a sound’ (e.g. OE hlōodor ‘sound’, Av sraobram ‘song’, Skt śrōtra- ‘tone’).

Regional correspondences are all from the West Central region and offer frequent question marks over the solidity of their reconstruction (so many are onomatopoeic). We have *gag- ‘cackle’ (e.g. NE cackle, Lith gagu, Rus gogoláti, Arm kakačem, all ‘cackle’) and a possible Welsh-Greek isogloss *sward- ‘laugh’ (NWels chwarddiad ‘laugh’, Grk sardánios ‘(bitter) laughter’, sardázō ‘scoff, jeer’ [whence by borrowing NE sardonic]; *leh₁- ‘complain, cry out’ (e.g. OIr liüd ‘complains’, Lat lāmenta ‘lamentation’, dialectal Grk laiō
‘± make a sound’, Arm lam ‘cry, weep’) which might be the same as *lehₐ- ‘bark’ (see Section 21.4); *gem- ‘weep, lament, moan’ (e.g. NIr geamh ‘prattle’, Lat gemō ‘sigh, moan, lament, groan’, Arm cmrir ‘grieve’); *yu- ‘± shout (for joy)’ (e.g. MIr ilach ‘victory cry’, Lat iūbīlō ‘shout’, NE yowl, Grk iūzō ‘shout’); *sner- ‘± rattle, growl’ (e.g. NE snore, snarl, Lith niūnii ‘growl, grumble’, dialectal Grk ēnuren ‘± cried out’); *ger- ‘± hiss, howl’ (e.g. OE ceorran ‘creak’, Lith gūrti ‘yell’, Alb nguron ‘howls [of the wind]’); *srenk- ‘snore’ (OIr sreinnid ‘snores’, Grk hreγko¯ ‘snore’); and *ghehₐ- ‘yawn’ (ON gan ‘yawn’, Grk khāskō ‘yawn’).

21.4 Animal Sounds

We have already seen that the words for the names of birds are often onomatopoetic and in addition to these there are a number of other words associated with the speech of animals. That the language of animals is specific to one’s individual language is easily illustrated by the fact that an English-, German- and Greek-speaking dog all bark slightly differently, i.e. NE bow-wow, NHG wau-wau, and Grk baubau. Noises associated with animals are listed in Table 21.4.

The root *bhrem- would seem to involve some sort of buzzing or roaring sound and it tends to mean ‘roar’ in Germanic (e.g. OE bremman) but returns a Sanskrit word for ‘bee’ (bhramarā-); cf. also Lat fremō ‘growl, roar’, NHG brumen ‘growl, grumble, hum’, Pol brzmieć ‘resound’). A Proto-Indo-European dog was said to *lehₐ- ‘bark’ (e.g. Lat lätrō ‘bark [at]; rant, roar’, Lith lōju ‘bark’, OCS lajo ‘bark’, Alb leh ‘bark’, Oss rejun ‘bark’, Skt ráyati ‘barks’) or *bhels- ‘howl’ (e.g. OE bellan ‘roar, howl’, Skt bhasati ‘barks, yelps’) or *bukk- ‘howl’ (SC bu´kati ‘howl’, Grk búkτēs ‘howling’, Av buxti- ‘howling’, Skt bukkati

<table>
<thead>
<tr>
<th>Root</th>
<th>Meaning</th>
<th>Example</th>
</tr>
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<tr>
<td>*bhrem-</td>
<td>‘± make a noise (of animals)’</td>
<td>Lat fremō, Skt bhramārā-</td>
</tr>
<tr>
<td>*lehₐ-</td>
<td>‘bark’</td>
<td>Lat lätrō, Skt ráyati</td>
</tr>
<tr>
<td>*bhels-</td>
<td>‘yelp, howl’</td>
<td>Skt bhasati</td>
</tr>
<tr>
<td>*kau(k)-</td>
<td>‘cry out; cry out as a bird’</td>
<td>Lat cavanus, Grk kēks, Skt kōka-</td>
</tr>
<tr>
<td>*ker-</td>
<td>‘± caw’</td>
<td>Lat corvus, Grk kōraks, Skt karata-</td>
</tr>
<tr>
<td>*ul-</td>
<td>‘± howl, hoot’</td>
<td>Lat ululāre, Grk hulāo, Skt ululū-</td>
</tr>
<tr>
<td>*gher-</td>
<td>‘± cry (of animals or birds)’</td>
<td>Lat hirrōre, Skt ghārghara-</td>
</tr>
<tr>
<td>*bukk-</td>
<td>‘howl’</td>
<td>Grk búkτēs, Skt bukkati</td>
</tr>
<tr>
<td>*reu-</td>
<td>‘roar, howl’</td>
<td>Lat rūmor, Grk ōrŏuomai, Skt ruvati</td>
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</table>
'barks'). The first word means 'bark' in the six groups in which it is attested and it is not obviously onomatopoeic but seems to be firmly inherited from Proto-Indo-European. It is also curious that the other two roots do not themselves appear to be onomatopoeic or, at least, if *bukk- is, it does not reflect a sound that an English speaker would intuitively regard as a 'howling noise'.

There are several words for 'bird cry'. The raucous-sounding *kau(k)- (e.g. Skt kaúti 'cries out', Lith kaukiú 'howl', Grk kókúō 'cry, lament' Arm k'uk- 'sighing, groaning', Skt kokúyat 'cries out') has been associated with the word for 'owl': Celtic (NWels cuan 'nightowl'), Italic (Lat cavannus 'nightowl'), Germanic (OHG hūwo); the 'tern' (Grk kēks), and the 'goose' (Skt kōka- 'kind of goose'). Lat corvus and Grk kóraks return 'raven' as a derivative of *ker- while the Indic cognate (Skt karaṭa-) means 'crow' (cf. also Czech krákoratı 'cackle', Grk skorakızo 'dismiss contemptuously'). Both Latin and Indic mean 'owl' (Lat uluc(us) 'screech owl', Skt uḷukā-) as a name built on *ul- although this can also mean 'howl' (Grk hulāō, Lat ululāre), 'ululate' (Skt uḷulā- 'ululating'), and even 'shout hello' (Lith ululōti). A more general 'animal cry' was *ger- which may be independently invented over a number of its putative cognate languages (e.g. Lat hirrōre 'howl like a rabid dog', ON garpr 'warlike man', RusCS ģūrkati 'coo', Skt ḍharghara- 'gurgling'). Certainly the semantic disparities seen in this group would seem to favour the notion of independent creation rather than inheritance.

Finally, *reu- 'roar, howl' can be found with this meaning in Germanic (e.g. ON rymja 'roar'), Slavic (e.g. OCS rovo 'roar'), Grk (ōrōmai 'howl'), and Indic (Skt ruvāti 'roars, bellows'); in Lat rūmor it has come to mean 'rumour, common talk'.

Regional words from the North-west comprise *kem- 'hum' (e.g. NE hum, Latv kamines 'bee, bumble-bee', Rus cmelī 'bumble-bee') returning 'bee' in Baltic and Slavic, *berg- '± bark, growl' (e.g. NE bark, Lith burgēti 'spurt, splash, howl'); and *bleh- 'bleat' (e.g. Lat fleō 'weep, cry, lament; shed tears', MHG blejen 'bleat', Latv blēju 'bleat', Rus blēju 'bleat'). From the West Central region: *baub- 'bark, low' (Lat baubōr 'bark', Lith baūbti 'low [of cows]', Grk baūzō 'bark') with 'bark' in Latin and Greek but 'low (of cattle)' in Lithuanian; *kla(n)g- 'scream (of birds)' (Lat clangō 'cry [of birds]', ON hlakka 'cry [of an eagle]', Lith klagēti 'cackle', Grk klázō 'resound', klaggōdēs 'shouting, screaming [of people and birds], barking or baying [of dogs]'); *g(h)ru(n)(d)- 'grunt' (e.g. Lat grunniō ~ gründiō 'grunt', NE grunt, Grk grūzō 'grunt'); and *b(h)(o)mb(h)- '± muffled noise' (e.g. ON bumba 'drum', Lith bambēti 'roar', Rus būben 'drum', Alb bumbullit 'it thunders', Grk bómbos 'muffled noise') with related words for 'bee' in Lith baṃbalas, Grk bombūlē, and Skt bambahara-.
21.5 Proto-Indo-European Speech

In their typological distinctions between humans and beasts, Gamkrelidze and Ivanov emphasize speech as a major defining characteristic of humans (a feature also found in many non-IE traditions) and in Old English we find reordberend ‘speech-bearers’ as a kenning for human beings. The category of speech in Indo-European is one of its larger semantic fields. If these are divided into twenty-five categories, speech trails only after words concerning the body and health and the large variety of action verbs. Interestingly enough, if the same semantic fields are superimposed on Proto-Uralic, speech is one of the least represented categories and ties for twentieth place. What this says about the loquaciousness of Indo-Europeans vis-à-vis Uralics is anyone’s guess.

Among the variety of words for speech reconstructed to Proto-Indo-European is fairly convincing evidence of different registers. In English we can ‘utter’, ‘declare’, ‘pronounce’, ‘asseverate’, or, dropping a level, we can ‘talk’ and ‘say’, and now in free fall, ‘yak’, ‘gab’, and ‘yap’, and ultimately enter a world where we are unsure whether it is humans or animals making the noises, e.g. ‘growl’, ‘grunt’, ‘yelp’. A similar range of expression seems to have been open to the Proto-Indo-Europeans. Words based on *kʰe(n)s- and *h₁gro-, for example, appear to fill out special formal contexts of speech associated with religion or the law. It is likely that the less nuanced expressions of speech include the more widely attested forms such as *wekw- and *(s)wer-, while at the bottom we might have some of the expressions associated with children or foreigners, e.g. *lal-, *baba-.

Among the key functions of speech was prayer. Words for ‘pray’ are well attested in Proto-Indo-European, e.g. *meldh-, *gʷhedh-, and the structure of the earliest IE prayers appears to follow a basic pattern of invocation to the deity, statement of why the deity should assist one or be honoured, and then the actual request, often with an imperative verb. In some IE traditions, e.g. Phrygian, Italic, we have abundant evidence for curses as well as prayers, especially in the context of protecting graves from defilement, and this is further supported by the evidence in Greek and Anatolian for *h₂eru- ‘pray, curse’. We have also seen the specialized use of the verb *perkʰ- ‘ask’ to indicate a marriage proposal.

In addition to the verbs listed above that indicate recite or sing, e.g. *(s)pel-, *sengʷh-, there are a number of isoglosses, generally involving Greek and Indo-Iranian, that suggest specific collocations associated with the art of poetry. For example, the standard verb for ‘make’ (*tekʰs-) is found associated with ‘speech’ (*wekw-οs) in Grk epéōn téktones, Av vačastaši-, and Skt vácas takṣ- to suggest a PIE ‘fashion speech’. Another technical verb that enters the realm of poetry is
"weave" where we find that words can be woven in OE *webh- 'weave', Grk *máthous kai médea pásin húphainon 'they have woven words and thoughts for all', and Avestan where vaf can mean both 'weave' and 'praise'.

Recitation of poetry and the fame of heroes appears in almost all IE traditions and the entire vocabulary of 'fame everlasting' (*kléwos ŋdhg"hitom) has already been mentioned in Section 20.5 and we have listed some of the reconstructed poetic phrases in Table 7.9. These examples of poetic diction are unfortunately the closest we can get to reconstructing Proto-Indo-European poetry although comparisons between the different Indo-European traditions permit us to suggest some of the general features of the verse. For example, there are widespread examples in a number of poetic traditions for what Martin West terms the 'Augmented Triad'. This involves a verse line where three names are indicated and the last is marked by some form of epithet, e.g. in the Rgveda we have Indrāṇi, Aṅgāyī, Aśvini rāṭ 'Indrāṇi, Aṅgāyī, Aśvini the queen', in Homer one finds Ἠτέας Ἠν Ἰδομενεύς ἄδιος Ὀδυσσεύς 'Ajax and Idomeneus or lordly Odysseus', in Beowulf an example would be Heorogār ond Hrōðgar ond Hālga til 'Heorogar, Hrothgar, and Halga the good'. To go further and reconstruct the actual metrical system of the Proto-Indo-Europeans has been attempted a number of times and there is no doubt that there are striking similarities between some of the earliest poetic traditions, especially Greek and Indic, e.g. both offer examples of lines that are twelve, eleven, or eight lines long. But the only concrete observation that includes all the relevant evidence indicates that the Proto-Indo-Europeans probably had a variety of metres with stable patterns of long and short syllables and numbers of syllables per line.

A number of IE traditions recognize a distinction between the language of gods and that of humans. In Norse poetry we find a series of pairs where the first is the divine word and the second is that of humans, e.g. fold/jorð 'earth', sunna/soł 'sun', mýlmi/māni 'moon'. Other traces derive from Greek, e.g. khalkίs/kúmindis 'some type of bird', Skt, e.g. háya/-áśva- 'horse', and, especially, in Avestan where certain words are only associated with the demons of Zarathustra’s religion.

Finally, is there any evidence for Proto-Indo-European personal names? Probably, if some of the examples of poetic diction are truly evidence of cognate personal names, e.g. Illyr Vescleves-, Grk Eukléês, and Skt Suśráva-all derive from PIE *kléwos wésu ~ *kléwos h₁esu- 'possessing good fame'. The other area where we may suspect the retention of ancient Proto-Indo-European names (though find it difficult to prove) is the use of cognate animal names or numerals as a personal name among various Indo-European groups, e.g. OIr Olc, OE Wulf, Grk Lúkos, Skt Vīka-, all from PIE *wĺkʷos ‘wolf’; Lat Quārta, Lith Keturai, Rus Četveroj, Grk Tetartiôn, all ‘Fourth’.
Further Reading

The word for ‘name’ and possible Indo-European names can be found in Beekes (1987b), Markey (1981), Pinault (1982), Schmitt (1973), and Watkins (1970a). Indo-European verse has been frequently discussed and the reader is directed to just some of the works: Bader (1989), Campanile (1977, 1990), Kurlyowicz (1975), Meid (1978, 1990), Nagy (1974c), Schmitt (1967), Watkins (1995), West (1973, 2004). For ‘speech’ see Turcan (1982); against a PIE *kāru- see Beekes (2003); the interjections were treated long ago in Schwenter (1924); for the ‘language of gods and men’ see Watkins (1970b).
22
Activities

22.1 Existence, Ability and Attempt

Verbs associated with ‘being’ and ‘doing’ are obviously a fundamental concept in any vocabulary and such words are often very strongly reconstructable to Proto-Indo-European. A list of the basic verbs is provided in Table 22.1.

The basic verb ‘to be’, *h₁es-, is reconstructed in its principal parts which may be displayed in tabular form (Table 22.2).

The origin of the verb is often associated with *h₁ēs- ‘sit’, which looks like a lengthened grade derivative of *h₁es-. One might compare the paradigm of Spanish ser ‘be’ which historically is a mixture of the Latin words for ‘be’ and ‘sit’. The English verb ‘to be’ (also, e.g., OIr -bīu ‘become’, Lat fiō ‘become’, Lith būtī ‘be’, OCS byti ‘be’) derives from our second form, *bheu(h₁)- ‘come into being’, and this form tends to supply the aorist forms in a number of Indo-European groups (e.g. Grk ἔφην ‘would be’, Skt ābhāt ‘was’, and perhaps Lat fuī ‘was, have been’, OCS by ‘was’). It also exhibits nominal derivatives such as *bhuto- ‘dwelling’ (e.g. OIr both ‘hut’, NWels bod ‘dwelling’, OPrus buttan ‘house’, Lith būtas ‘house’).
A verb ‘be able’, *magh-*, is widespread within the West and Centre of the Indo-European world (e.g. NE may, Lith magėti ‘please, be agreeable’, OCS mögo ‘am able’) but it lacks clear cognates in the East unless one accepts a number of potentially derived forms such as Av mo-ú- (whence ultimately Lat magus, plural magi) and Skt maga- ‘magician’, i.e. ‘one who has power’ (though the -g- of Sanskrit rather than the expected *-gh- is difficult). The verb ‘accomplish’ or ‘seek to accomplish’ is seen in *sen(hₚ)*- where the meanings run from ‘strive’ to ‘win’ (e.g. OIr do-seinn ‘pursues, strives’, Grk a̱nu̱mi ‘accomplish, get [somewhere, something]’, Hit sanhzi ‘seeks, plans, demands’, Av han- ‘gain, obtain’, Skt sanóti ‘wins, gets; grants’). Another verb ‘attempt’, *dlers-* (e.g. Lith dresū ‘dare’, Skt dhṛṣṇóti ‘is bold, dares’), also yields adjectival formations, e.g. Germanic *dorso- > NE dare and words for ‘brave’ in Grk thérsoς ‘bravery’ and Iranian (Av darši- ‘brave’).

### Table 22.1. Existence, doing, and making

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<th>PIE</th>
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<th>Lat</th>
<th>OE</th>
<th>Lith</th>
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### Table 22.2. The verb ‘to be’ in selected IE languages

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<th>Lat</th>
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The actual ‘doing’ or ‘making’ was conveyed by a number of different verbs. Hittite and Tocharian alone preserve the underlying verb form *yeh₁-, i.e. Hit iēzi ‘does, makes’, Toch A ya- ‘do, make’, but nominal derivatives are widely found including Grk hérōs ‘hero’ and the name of the goddess Hērā; here Indo-Iranian has shifted the meaning to the occult, e.g. Skt yātu- ‘witchcraft’. A similar partial shift to magic is seen in the descendants of *kʷer- (e.g. OIr cruth ‘form’, Lith kurūi ‘make, build, create’, OCS krucjǐ‘smith’, Av kṣaṇaoit ‘does, makes’, Skt kṛṇōti ‘does, makes, performs; executes, builds’; but Lith kėras ‘magician’, Rus čáry ‘sorcery’). An Ossetic cognate (kæn- ‘make’) of what is otherwise a Western and Central distribution of *kon- (e.g. OWels di-goni ‘makes, does’, Lat cōnor ‘put myself in motion, attempt’, Czech konat ‘do, achieve’) secures its Proto-Indo-European antiquity; the root is preserved in NE deacon which is borrowed from Grk diākonos. A primarily south-eastern distribution (e.g. Grk ararisko ‘put together’, Arm aɾnem ‘make’, Av arante ‘they set themselves, remain’) is associated with *h₂er-( our Skt cognate arā- means ‘spoke [of a wheel]’) but it also has more widespread nominal derivatives such as Lat ars ‘art’, Arm ard ‘structure, ornament’, Skt ṭū- ‘fixed time, time appointed for some purpose’). Semantically more distant (and also difficult in terms of establishing a more precise proto-meaning) is *sep- which conveys such concepts as ‘touch, serve, prepare’ (in Grk hépō ‘serve, prepare’, Av hap- ‘hold’, Skt sapati ‘touches, handles, caresses; venerates’, and the Latin derivative sepelīō ‘bury’, i.e. ‘prepare a body’, which is the formal equivalent of Skt saparyaṭi ‘honours, upholds’) and is associated with the management of horses in both Greek and Sanskrit (Grk methepō / C24 ephepō ‘manage [horses]’, Skt sapti- ‘team of horses’).

There are two verbs to ‘use’ indicated for Proto-Indo-European. The most widely attested is *dheugh- whose meanings fluctuate around ‘use’, ‘be fitting’, ‘succeed’ in most of its Western and Central cognates (e.g. OIr dūal ‘fitting’, OE duggan ‘be useful’, NE doughty, Rus dūžij ‘strong, healthy’, Grk teukhō ‘prepare’) but is associated with the act of ‘milking’ in Skt dōhati ‘extracts, milks’; both this semantic shift and its implications for a more precise reconstruction of the proto-meaning have been widely discussed (most recently it has been interpreted as ‘be strong, have force’). A root *bheug- ‘use’ is based on a Latin-Sanskrit isogloss (Lat fungor ‘am engaged in, perform’, Skt bhunakti ‘aids, serves, protects’, bhuukté ‘enjoys, uses, consumes’).

There are a number of words for ‘work’. Widespread are the forms attesting *werg- ‘work’ which are semantically consistent except for Tocharian where the meaning is ‘strength, power’ (e.g. NE work, Grk hrézō ‘do’, Av varzyeyiti ‘works’, Toch B warkšāl ‘power, strength, energy’). A noun ‘work’ is attested as *h₂ıp-es- (e.g. Lat opus ‘work’, OE efnan ‘to work, make’, Av -apah- ‘work’, Skt ápas- ‘work’) which may be related (by way of an early avatar of the ‘Protestant work ethic’) to *h₂ıp- ‘wealth’ (e.g. Lat opēs [pl.] ‘possessions,
abundance, wealth’, Grk ἄφενος ‘wealth’, Hit happīna(nt)- ‘rich’, Av afnahvant- ‘wealthy’, Skt āpnaś- ‘wealth’). The underlying semantics of *dheigh- indicate that it was specifically associated with the working of clay (e.g. Lat fingō ‘fashion’, Skt délimi ‘smear, anoint’, Toch AB tsik- ‘fashion [pots, etc.]’), hence the English cognate dough; in Greek and Indo-Iranian it is also associated with building walls, e.g. Av pairi-daēzayeiti ‘build a wall around’ which, via Greek then Latin then French, gives us NE paradise, but there are also cognates of more general meaning, e.g. OIr con-utaine ‘builds’, Lith diežti ‘whip, beat’, Arm dizanem ‘heap up’.

From the North-West we have *gal- ‘be physically able’ in Celtic (e.g. NWels gallu ‘is able’) and Baltic (e.g. Lith galiū ‘am able’); *kob- ‘fit, suit, accomplish’ from Celtic (OIr cob ‘victory’), Germanic (ON happ ‘chance, luck’, whence by borrowing NE happy), and Slavic (OCS kobě ‘divination’); and two roots confined to Germanic and Baltic: *kēlb- ‘help’ (e.g. NE help, Lith šelpiū ‘help, support’) and *neud- ‘use, enjoy’ (e.g. OE nēotan ‘use, enjoy’ [where the NE cognate neat ‘work animal, cattle’ is now rarely heard, although one can still buy neat’s foot oil], Lith naudą ‘use, property’). From the West Central area we have *per- ‘trial, attempt’, found in Lat experior ‘attempt’, Grk πείρα ‘attempt’, and Arm p’orj ‘test, proof’; and a Baltic-Greek isogloss *derhₐ- ‘work’ (e.g. Lith dar(i)aū ‘do, make’, Grk drāō ‘make, do’). A Greek-Indic isogloss (Grk -kmētōs ‘made, worked’, Skt śamitā- ‘prepared’) furnishes us with *kmēhₐ- ‘made, prepared’ from *kemhₐ- whose transitive meaning is ‘work’ and intransitive is ‘become tired’.

22.2 Reductive Activities

In this general category we have assembled all those words that relate to reducing material in some way by breaking, crushing, grinding, cutting, or carving. The vocabulary, as one can see in Table 22.3, is fairly extensive and could obviously be augmented if we were to include the verbs of aggressive action listed in Table 17.5 and some of the verbs associated with construction in Section 13.1.

A number of roots express the concept of breaking or crushing. The meaning ‘break’ is associated with the Irish, Armenian, and Indic descendants of *bheg- (e.g. OIr boingid, Arm bekanem, Skt bhanākti); the Baltic cognates (e.g. Lith beŋtį) indicate ‘finish, end’, perhaps from ‘breaking off’. The semantic range attested under *leug- is even wider with ‘break’ in Baltic (Lith laužti) and Skt rujāti but Latin and Tocharian indicate ‘pain’ (Lat lūgeō ‘mourn’, Toch B lakte ‘pain, suffering’) while the Celtic cognates (e.g. OIr lucht ‘load, cargo’) mean ‘burden’. The putative Sanskrit cognate, rūpyati, from *reup- ‘break’ has been challenged
<table>
<thead>
<tr>
<th>Reductive activities</th>
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<tbody>
<tr>
<td><em>bheg-</em></td>
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<td><em>leag-</em></td>
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<td><em>reup-</em></td>
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<td><em>mer-</em></td>
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<tr>
<td><em>wes-</em></td>
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<tr>
<td><em>(s)tergh-</em></td>
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<td><em>weld-</em></td>
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<td><em>del-</em></td>
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<td><em>(s)ker-</em></td>
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<td>*skeh-th-(d)-</td>
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<td><em>sek-</em></td>
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<td><em>k&quot;er-</em></td>
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<td><em>put-</em></td>
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<td><em>bheid-</em></td>
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<td><em>wag-</em></td>
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<td><em>(s)kel-</em></td>
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<tr>
<td><em>bher-</em></td>
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<td>*wel(h2)-</td>
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<td><em>der-</em></td>
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<td><em>drep-</em></td>
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<td><em>rendh-</em></td>
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<td>*reu(h3)-</td>
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<tr>
<td><em>h2reik-</em></td>
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<tr>
<td><em>(s)pel-</em></td>
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<td><em>(s)pel-</em></td>
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<td><em>leup-</em></td>
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<td><em>keh-ta-</em></td>
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<td><em>keus-</em></td>
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<td><em>terh-</em></td>
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<td>*h2weg(h)-</td>
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<td><em>dhwer-</em></td>
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<td><em>steig-</em></td>
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<td><em>kel-</em></td>
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(Cont'd)
as it means ‘suffer racking pain’. However, if it is accepted, then the distribution is Proto-Indo-European (cf. also Lat *rumpō ‘break’, NE rift, Lith *rupėti ‘grieve, afflict’). The meaning ‘crush’ is found in four more roots. The active meaning behind *mer- ‘crush’ is preserved only in Greek, Hittite, and Sanskrit (Grk *maraı´no¯ ‘extinguish [a fire]’, Hit mariyattari ‘is smashed’, Skt *mṛṇa¯‘crushes, grinds’) while the other cognates yield the results, e.g. OIr meirb ‘lifeless’, OE mearu ‘soft’. Hittite preserves a meaning ‘press’ from *wes- (wesuriya- ‘press, oppress’) while the Germanic and Albanian cognates mean ‘wither’ (e.g. OE wisse ‘dry up, wither, waste away’, Alb veshk ‘wither, shrivel, wilt’). A PIE *(s)tergˆh- ‘crush’ rests on a Hittite-Indic isogloss where both exhibit a rare and presumably archaic ne-present, i.e. *(s)tr- né-gh-ti (Hit istarninkzi ‘afflicts’, Skt tyngđhi ‘crushes, bruises’). Although there are few cognate sets for *weld-, i.e. NWels gwlydd ‘mild, soft, tender’, NE wilt, and Tocharian (Toch B wált-‘crush, grind’), their distribution indicates Proto-Indo-European status.

The concept of ‘cut’ is well represented in Proto-Indo-European. A root *del- ‘cut’ is widely found in Europe (e.g. OIr dello ‘form’, Lat dolō ‘hew’, ON telgia ‘carve’, Lith dalti ‘divide’, Alb dalloj ‘cut’, Grk daidállō ‘work cunningly’) and its ascription to Proto-Indo-European depends on acceptance of a potential late Indic cognate (Skt dālati ‘bursts, cracks’); as we see, it means ‘cut’ in Germanic, ‘divide’ in Baltic, but shows extended meanings associated with manufacture in Greek (cf. Daedalus who invents wings for himself and his too high-flying son Icarus) and in Celtic ‘form’. The meaning ‘cut apart/over’ appears to underlie the widely attested *(s)ker-, e.g. Hit karsmi ‘cut off, castrate’ (and also OIr scaraid ‘separates, divides’, NE shear, Lith skiriu ‘separate, divide’, Rus krajū ‘cut’, Alb shqerr ‘tear apart’, Grk keíro ‘cut’, Arm k’erem ‘scrape off, scratch off’, Skt kṛṇāti ‘wounds, kills’). It also exists in an extended form *(s)kert- (e.g. Lith kertū ‘hew’, Arm k’ert’em ‘skin’, Hit kartai- ‘cut off’, Av karantaiti ‘cuts’, Skt kṣntāti ‘cuts’) and the word underlies ON skor ‘notch’ (i.e. ‘what has been cut’) which is borrowed into English to gives us score. A word *(s)kehj-ı- generally yields meanings of ‘cut’ or ‘split’ (e.g. Lat scindō ‘cut’, Lith skiedžiu ‘separate’, OCS čëditî ‘filter, strain’, Grk skhízō ‘split, tear’) but in Germanic it gives us ‘defecate’, e.g. OE be-settan > NE shit. An unextended *(s)kehjı- gives Skt chyāti ‘cuts’. The even more fundamental root

### Table 22.3. (Cont’d)

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<thead>
<tr>
<th>Root</th>
<th>Meaning</th>
<th>Language(s)</th>
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<tbody>
<tr>
<td><em>red-</em></td>
<td>‘gnaw, scrape’</td>
<td>Lat <em>rōdō, NE rat, Skt rādati</em></td>
</tr>
<tr>
<td><em>bhes-</em></td>
<td>‘rub’</td>
<td>Grk <em>psăō, Skt bābhasti</em></td>
</tr>
<tr>
<td><em>merd-</em></td>
<td>‘± rub, scrape’</td>
<td>Lat <em>mordeō, Skt mṛṇāti</em></td>
</tr>
<tr>
<td><em>keh,i-</em></td>
<td>‘sharpen, hone’</td>
<td>Lat <em>catus, NE hone, Skt śisāti</em></td>
</tr>
<tr>
<td><em>kseu-</em></td>
<td>‘rub, whet’</td>
<td>Grk <em>ksō, Skt kṣṇāuti</em></td>
</tr>
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22. ACTIVITIES
*sek- ‘cut’ (e.g. MIR eiscid ‘cuts off’, Lat secō ‘cut’, Lith i-sėkti ‘dig’, OCS sēkq ‘cut’) also gives us Lat sciō ‘know’ and Hit sakk- ‘know’. The semantic change from *cut to ‘know’ is not, admittedly, an obvious one, but it is confirmed by the same change in the history of *ker-s-, another enlargement of *ker- (above) which means ‘cut’ in Hit karsmi, as we would expect, but ‘know’ in Tocharian (AB kārs-). The root *k-wer- retains its original verbal meaning ‘cut’ in Anatolian (e.g. Hit kuerzi ‘cuts’ but NWels pryd ‘time’, Osc -pert ‘. . . time[s]’, and Skt -kṛt ‘. . . time[s]’ all employ this root also to mean ‘time(s)’, i.e. a ‘slice of time’. A Latin-Tocharian isogloss supports a PIE *put- ‘cut’ (Lat puto¯ ‘prune’, Toch AB putk- ‘divide, share, separate’). To these we may add the words for ‘split’. A PIE *bheid- ‘split’ (e.g. Lat findō ‘split’, Skt bhinādmi ‘bite’) supplies the Germanic words for ‘bite’ and the Grk cognate pheı´domai ‘sparer’ develops from the idea of ‘separating oneself from’ something. The root *wag- retains verbal meaning ‘split’ in Grk a´gnu¯mai ‘break apart, snap, crush’, Anatolian (Hit wāki ‘bites’), and Tocharian (Toch AB wāk- ‘split open, separate but remain attached; bloom’) but reveals nominal forms in Latin (where we have vāgina ‘sheath, scabbard’, the encasement of a weapon), and in India the mythical vájra-, the ‘club’ or ‘splitter’ of the god Indra. Another verb, *s(ken)-, ‘split’ (e.g. Grk skállo¯ ‘hoe, stir up’, Arm skalim ‘split, be splintered’, Hit iskalla- ‘slit, slash, tear’) or ‘chip’ in Celtic and Baltic (e.g. MIR scoiltid ‘chips’, Lith skeliu` ‘chip’), develops a secondary meaning of ‘that which is apart, distinguished’ in Germanic, hence ON skil ‘distinction’ which is borrowed into English as skill. Finally, we have *bher- ‘strike (through), split’ with cognates in Lat feriō ‘strike, pound’, OE borian > NE bore, Lith bar(i)ū ‘revile, abuse’, OCS borjo ˛ ’fight, struggle’, Grk pharao¯ ‘plough’, Skt bhr-_a¯´ti ‘wounds’.

Words that suggest the concept of ‘tearing’ include *wel(h)_2- with meanings of ‘strike’, e.g. Hit wāl- ‘strike, attack’ as well as ‘pluck, tear’ (e.g. Latvellō); in Hieroglyphic Luvian (walka-) and Tocharian (Toch A wāl-) it means ‘die’ and in Germanic it is employed to denote either a ‘corpse on a battlefield’, e.g. ON valr (whence we have both Valhalla and Valkyrie), or the ‘battlefield’ itself. The root *der- is more properly ‘tear’ or ‘flay’ as in NE tear, Lith diriu¯ ‘flay’, OCS derq ‘flay’, Grk dérō ‘skin, flay’, Arm term ‘flay, strip bark’, Av darød- ‘split’, Skt dnpāti ‘causes to burst, tears’, Toch AB tsār- ‘separate’. An extended form, *drep- ‘scratch, tear’, is widely found (e.g. Rus drjapati ‘scratch, tear’, Grk drépō ‘pluck’); the possible Tocharian cognates (Toch A rāp-, Toch B rāp-) show the meaning ‘dig’, and the possible Anatolian cognates show the meaning ‘plough’ (e.g. Hit tēripzi ‘ploughs’). A Germanic-Indic isogloss secures *rendh- ‘rend’ (e.g. NE rend, Skt rándhram ‘opening, split, hole’). A meaning ‘tear out’ or ‘pluck’ is seen in *reu(h)_2- (e.g. MIR rūam ‘spade’, Lat ruō ‘tear off; fall violently’, ON rýja ‘pluck wool from a sheep’, Lith rāaju ‘pull out, weed’, OCS rūvo ‘pull out’, Toch AB ruwā- ‘pull out [from below the surface with violence]’). Both the
Welsh and Greek cognates derived from *h1reik- mean ‘tear’ (NWels rhygo, Grk ereikō) while other cognates yield meanings of ‘pull a thread’ (OHG rīhan), ‘cut bread’ (Lith riekiū), and ‘scratch’ (Skt rikhāti). As a verb *(s)pel- is only attested in Skt phālati ‘bursts, splits in two’ with its derivative phāla- ‘ploughshare’ (< *splitter), but there is a widespread PIE derivative *spolih₂om ‘something torn or split off’ in Lat spolium ‘hide stripped from an animal; booty, spoils’, dialectal Grk spo´lia [pl.] ‘wool plucked from the legs of sheep’, Lith spąliai [pl.] ‘refuse of hemp and flax’, as well as other derivatives meaning ‘hide, skin’ (see Section 11.3). An enlarged *(s)pel- ‘split’ is more widespread as a verb (e.g. OHG spalten, OCS ras-platiti, Skt spha´tati, all ‘split’, and Skt pa´tati ‘splits, apart, bursts’). Other, less widespread, enlargements of *(s)pel- are common (e.g. NE split). A Balto-Slavic-Indic isogloss gives us *leup- ‘peel’ (e.g. Lith lupù ‘peel’, Skt lumpāti ‘break, violate, hurt’).

Although we find ‘dig’ in some of the daughter languages, there are several more specific forms reconstructed to Proto-Indo-European. The underlying meaning of *bhedh- is clearly ‘dig’ (Lat fodio¯, Hit padaa- ~ podda-) with obviously derived meanings in other language groups, e.g. ‘grave’ (NWels bedd), ‘plough’ (Toch A pāt-). There have been attempts to place the Germanic set that includes NE bed here under the reasoning that the Proto-Germans once slept in hollows in the ground like animals but this set is far more likely to derive from a homophonous *bhedh- ‘bend’ which yields ‘cushion’. The verb *h₁reuk- means ‘dig’ in Baltic and Greek (Latv ru¯kı¯t, Grk oru´sso¯, and indirectly in Celtic, i.e. OIr rucht ‘pig’ [i.e. *one who digs up]) but the idea of ‘plucks’ appears in Latin (where the cognate runcō means ‘weeds’) and Skt lúncati ‘tears, plucks’.

The notion of ‘hollowing out’ is seen in three roots with largely nominal derivatives. The first, *k*euh₂-, is to be seen in MIr cu¯a ‘hollow’, Lat cavus (Early Lat covus) ‘cave’, Alb thellë ‘deep’, Grk kúar ‘eye of a needle’ koθlos ‘hollow, deep’, Arm soyl ‘hole’, Skt śúnya- ‘empty, hollow’, Toch B kor ‘throat’. The second, *keh₂u-, appears enlarged with a *-p- in Lat cúpa ‘cask’, Grk (Hesychius) kúœpē ‘cave’, Skt kápa- ‘hole, hollow, cave’. Enlarged with *-l- we have, e.g. Lat caulis ‘stalk’, NE hollow, Grk káoulos ‘stalk’, Lith káulas ‘bone’, Skt kúlyam ‘bone’, and perhaps Hit gullant- if, as seems likely, it means ‘hollow’. Finally, we have *keus- in the Lithuanian verb kautiši ‘hollow out’ and various nominal derivatives, e.g. ON hauss ‘skull’, Lith káušas ‘skull, ladle’, Skt koṣa- ‘vessel’, and various words for ‘dwelling’ of some sort, e.g. NE house, Arm xuc’ ‘room’, Khot kūšda- ‘mansion’, Toch B kušā- ‘village’ [<*collection of dwellings’], all suggesting that one type of Proto-Indo-European dwelling was at least partially dug below ground level (see Section 13.1).

There are several terms for ‘pierce’. The first, *terh₁- might be glossed as ‘pierce by rubbing’ and is widely attested, e.g. in OIr tarathar ‘instrument for drilling’, Lat terō ‘rub, wear away’, Lith trimū ‘rub’, OCS tīrō ‘rub’, Alb tjerr
'spin' [<*rub yarn back and forth*], Grk teîrō ‘pierce’, Skt tårā- ‘piercing’ (see Section 15.3). The other two verbs of piercing are much less abundantly seen. The first, *h₂weg(h)-*, is found in both Hit hwek- ‘slaughter, butcher, slay’, and OPers vag- ‘pierce’. The second, *dhwer-*, shows up in Lith duriu‘ thrust, stab’, Grk türkhē ‘two-pronged fork’, Arm dur ‘tool, gimlet’; an enlarged *dhwerk-*, may appear in Hit dwarnai- ‘break, shatter’, Skt dhvārati ‘bends, causes to fall, shatters’.

There are two verbs for ‘prick’. A root *steig-* is both widely attested and semantically reasonably congruent across the various Indo-European groups (e.g. Lat instīgo- ‘goad’, NE stick and stitch, Grk stizō ‘prick, tattoo’, Av bitaśya- ‘having two edges’, Skt tējaste ‘is sharp, makes sharp’). A second root, *kel-*, has a verbal meaning but no verbs: here we have a set of nouns, e.g. ‘holly’ (Celtic, Germanic), ‘ear of grain’ (Slavic, e.g. OCS klasǐ), ‘barley meal’ (Toch B klese), ‘straw, chaff’ (Alb kali), and ‘arrow’ (Skt kaṭambha-), from which we presume an underlying verbal root for something ‘sharp’ or ‘prickly’. It may be related to the homophonous root *kel-* ‘cut’. The English rat takes its name from *red-* ‘gnaw, scrape’ (cf. also Lat rodo- ‘gnaw’, MPers randītan ‘scrape, smooth’, Skt ra´dati ‘bites, gnaws, cuts, makes way, opens’).

For ‘rubbing’ we have two Proto-Indo-European terms, *bhes- and *merd-. The former occurs in Alb fshij ‘sweep, wipe, brush’, Grk psaîo- ‘rub’, Skt babhasti ‘chews thoroughly, devours’, psáti ‘chews, swallows’. The latter also shows a connection with oral activities in Lat mordeo- ‘bite’, but Skt mṛññati ‘rub’s, Toch B mārt- ‘shave [hair]’.

Two words appear to be reconstructable for ‘sharpen, hone’. The first, *kêh(i)-*, appears as a verb only in Indic, i.e. in Skt śisāti ~ śyāti ‘sharpen, whets’, but much more widely in a number of old derivatives (e.g. Lat catus ‘wise’, perhaps Grk kōnos ‘pinecone, fircone; peak of a helmet’ [if < *sharp(ened) object’], Skt śaṇa- ‘whetstone’, Toch B kāntsā- ‘sharpen’, Arm srem ‘sharpen’, NE hone). The second, *kseu-*, appears in Lat novacula (< *ksnewə-tla-) ‘razor’, Grk ksúō ‘sharpen’, ksurón ‘razor’, Av hu-xšnuta- ‘well-sharpened’, Skt ksñauti ‘sharpenes, whets’, ksurá- ‘razor’.

There are many regional terms for breaking, cutting, and other reductive activities. From the North-West we have *bhreg- ‘break’ (e.g. Lat frangō ‘break’, NE break); *dhelbh- ‘dig’ (e.g. NE delve, Lith dâlba ‘crowbar’); *ghrebh- ‘dig’ (e.g. NE grave, Lith grēbsti ‘rake’, OCS pogrebô ‘buri’); *dhelg- ‘sting, pierce’ (e.g. OIr delg ‘needle, pin’, Lat fâlx ‘curved blade’, OE dælc ‘bracelet, brooch’, Lith dilgūs ‘stinging, smart’); *skebh- ‘scratch, shave’ (e.g. Lat scabō ‘shave, scratch’, NE shave, Lith skabūs ‘sharp’, OCS skobli ‘scraping knife’); and *kʷed- ‘whet, sharpen’ (Lat triquetrus ‘having three corners’, NE whet).

From the West Central region there is *bhreus- ‘break, smash to pieces’ (e.g. OIr brúid ‘breaks, crashes’, Lat frustum ‘piece’, NE bruise, Alb breshēr ‘hail’),
perhaps an enlargement of *bher- ‘strike (through), split’; *h3lem- ‘break’ (e.g. OIr ro-laimethar ‘dares, ventures’, NE lame [<*broken’], Latv lemesis ‘plough-share’, OCS lomljó ‘break’, Alb lëmë ‘threshing floor’, Grk nòlemés ‘without a break, unceasingly’); *wrehʒ- ‘break, tear to pieces’ (e.g. Lith rëžti ‘cut, scratch’, OCS rëžati ‘cut, hew’, Grk rhëgnûmi ‘break’); *gleubh- ‘cut off, cut out’ (e.g. Lat glâbô ‘peel’, NE cleave, Grk glûphô ‘carve out’ whence glyph); *(s)grebh- ‘scratch, cut’ (e.g. NE carve [NE scrape is borrowed from ON skrapa], OPrus gîrbin ‘number’, OCS zˇreˇbu˘ ‘lot’, Grk gra´pho¯ ‘scratch’); *kerd- ‘cut into, carve’ (e.g. OIr cerd ‘art, handicraft’, Grk ke´rdos ‘writ’); *h3rei- ‘tear’ (e.g. Lat rë¯pa ‘river bank’, ON rí¯fa ‘tear out’, Grk erı´pnai [pl.] ‘broken cli’) is an extended form of the unextended, and unattested, *h3reik- (above); *plekˆ- ‘break, tear out’ (e.g. NE Xay, Lith pleˇ sˇiu` ‘tear out’, Alb plas ‘burst, break’); *lak- ‘rend, tear’ (Lat lacer ‘worn out’, Alb lakur ‘naked’, Grk lakı´zo¯ ‘tear’); *lep- ‘peel’ (Grk le´po¯ ‘peel’ and nominal derivatives in other groups, e.g. OE lo¯f ‘headband’, Lith la˜pas ‘leaf’, Rus lápotˇi ‘bast-shoe’, Alb lapë ‘dewlap of an ox’); *gwel- ‘sting, pierce’ (e.g. Lith ge´lti ‘sting [as a bee]’, Grk belo´ne¯ ‘needle’; *geid- ‘tickle’, a Germanic-Armenian isogloss, both with the same meaning (e.g. OE citelian, Arm kcem); *peug- ‘prick, poke’ (Lat pungô ‘prick’, Grk pugmê ‘fist’); *(s)kerbh- /C24 (s)kerkh- ‘shrink, shrivel’ with the following cognates: ON skorpna ‘shrivel’, Lith skurbdˇti ‘suffer a decline, wither; mourn’, Rus skórblyj ‘shrivelled’, Grk kárphô ‘let shrivel, dry out’.

22.3 Rotary and Lateral Motion

Grouped here are verbal activities involving twisting, turning, shaking, and covering over.

A verb ‘turn’ is well attested in Proto-Indo-European. The root *k’wel- and its extended form *k’welu- both mean ‘turn’ and arguably suggest rotary or circular motion. The evidence for rotary motion is suggested by its association with wheels (one of the nominal forms for ‘wheel’, *k’wèk’lòm or *k’wèk’lòs, is a reduplicated form of this verb and the Old Irish cognate of the unreduplicated verbal form is cul ‘wagon’ while Greek also provides a nominal derivative pólos ‘axle’). The other cognate forms are all verbs with more generalized meanings, e.g. Indo-Iranian ‘circulate, wander’ (Av čaraiti ‘circulates’, Skt cáraṭi ‘moves, wanders, drives’), possibly suggesting the type of cyclic movements attributed
to pastoralists (cf. also Alb sjell ‘turn around’, qell ‘carry’, Grk pêlô ‘be in motion; be’). The Latin cognate colô can mean ‘till; dwell; care for’. That the first meaning may have been original, i.e. ‘turn the earth over’, is perhaps suggested by *trep- ‘turn’ whose potential Hittite cognate is te¯ripp- ‘plough’ (if, indeed, this word belongs here and not with *drep- in Section 22.3); the other cognate forms indicate simply ‘turn’ (Lat trepit, Grk tre´po¯ ‘turn’) except for Skt tra´pate ‘becomes perplexed’. A root *wert- also indicates ‘turn’ (e.g. OIr do-fortad ‘pour out’, Lat vertô ‘turn’, Lith vercˇiu` ‘turn’, OCS vrı˘teˇti se ˛ ‘draw around’, dialectal Grk brata´non ‘ladle’, Av varat- ‘turn’, Skt vârte ‘turns’, Toch A wa¨rt- ‘throw’) and in Indo-Iranian has specific associations with chariotry, e.g. Sog wrtn ‘chariot’ or Mitanni -wartanna ‘lap around a horse track’. This root supplies the Germanic languages with their verb ‘become’, e.g. OE weorpan ‘become’, OHG werdan ‘become’. Semantically more vague is *weig/k- which does yield the meaning ‘turn’ in ON (vikja ~ vîkva), but also ‘yield’ in the other Germanic languages and Greek (e.g. OE wican, Grk eîkô), ‘throw’ in Av vaêg-, and ‘disappear’ in Toch AB wik-.

The related concept of ‘wind’ or ‘twist’ can be seen in *wendh- whose reflexes are both verbs, e.g. NE wind, and nominal forms that suggest any object

<table>
<thead>
<tr>
<th>Root</th>
<th>Meaning</th>
<th>Latin</th>
<th>Greek</th>
<th>Sanskrit</th>
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</thead>
<tbody>
<tr>
<td>*k&quot;el-</td>
<td>‘turn’</td>
<td>colô</td>
<td>pêlô</td>
<td>cărati</td>
</tr>
<tr>
<td>*k&quot;leu-</td>
<td>‘turn’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*trep-</td>
<td>‘turn’</td>
<td>trepit</td>
<td>trépo¯</td>
<td></td>
</tr>
<tr>
<td>*wert-</td>
<td>‘turn’</td>
<td>vertô</td>
<td>Gratôn, vârte</td>
<td></td>
</tr>
<tr>
<td>*weig/k-</td>
<td>‘± turn, yield’</td>
<td>eîko¯</td>
<td>eîkô, vijâte</td>
<td>vart</td>
</tr>
<tr>
<td>*wendh-</td>
<td>‘wind, twist’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*derbh-</td>
<td>‘turn, twist’</td>
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<td></td>
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<tr>
<td>*k&quot;erp-</td>
<td>‘turn’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*twer-</td>
<td>‘stir, agitate’</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>*weip - *weib-</td>
<td>‘turn’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*wel-</td>
<td>‘turn, wind, roll’</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>*(w)rep-</td>
<td>‘turn, incline’</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>*(s)pre(n)g-</td>
<td>‘wrap up, construct’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*weis-</td>
<td>‘twist, wind around’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*kem-</td>
<td>‘cover’</td>
<td></td>
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<tr>
<td>*(s)keuh(h) -</td>
<td>‘cover, wrap’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*trem-</td>
<td>‘shake, tremble (in fear)’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*tres-</td>
<td>‘tremble, shake with fear’</td>
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<td></td>
</tr>
<tr>
<td>*rei-</td>
<td>‘tremble, be unsteady’</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>*kseubh-</td>
<td>‘shake’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*wer-</td>
<td>‘surround, cover, contain’</td>
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</tbody>
</table>
produced by twisting flexible branches or osiers, e.g. Grk κάμμαθρον ‘basket-carriage’ or Skt vandhúra- ‘wicker carriage’ (cf. also Umbrian pre-uendo ‘turn’, Arm gind ‘ring’, Toch AB wánt- ‘± cover, envelop’). Similarly, *derbh- can mean simply ‘turn’ in Germanic (e.g. OE tearflian ‘turn, roll, wallow’) but it indicates something bound by twisting in Armenian and Indo-Iranian (Arm տոռ ‘cord’, Av dārśāda- ‘bundle of muscles’, Skt ḍyabháti ‘knots, ties’). Germanic also preserves a basic meaning ‘turn’ for *kʷerp- (e.g. OE hwærfan ‘turn, change’) which gives us nominal forms such as Grk karpoś ‘wrist’ and words for ‘spear’ in Celtic (MIr carr, NWels pár) and, by metaphorical extension, ‘be concerned with’ (<*turn onself toward’) in Toch AB kurp-. To ‘turn’ in the sense to ‘stir’ is suggested by *twer- which means both ‘stir’ and ‘agitate, stir up’ (e.g. Lat trua ‘scoop, ladle’, OE þweran ‘stir, churn, agitate’, Grk otrámo ‘drive, agitate’, Skt tvárate ‘hurry’)(see also Section 16.2 for terms associated with food preparation). A possible Greek-Tocharian isogloss suggests *(w)rep- ‘turn, incline’ (Grk ἱρέπο ‘incline oneself, be inclined to’, Toch A rapurñe ‘desire, cupidity’).

More distant concepts are ‘wrap up, constrict’ seen in *(s)pre(n)g- whose outcomes suggest a meaning ‘wind around’ (for Greek ‘swaddle’ in spárgō) or Baltic ‘constrict’ (e.g. Lith springstu ‘choke, become choked or constricted’), cf. also MHG phrengen ‘oppress’, Toch AB práink- ‘restrain oneself, hold back’. Surviving in English only dialectally is ware in the meaning of ‘seaweed’ which is derived from *weis- ‘twist, wind around’ and attests just one of the ways this verbal concept was preserved in different Indo-European groups; others include Lith vystytı ‘swaddle’ and Skt vēśa- ‘dress’, Rus vīkh(o)rī ‘whirlwind’, and Arm gi ‘juniper’.

There are several words for ‘cover’ which often take nominal formations. Proto-Indo-European *kʰem- ‘cover’ gives us words for clothing in Late Lat camīsia ‘linen shirt, nightgown’ (perhaps borrowed from Gaulish), Germanic (e.g. OE hama ‘dress, covering’), and Skt śāmāla- ‘thick woollen shirt’ while *(s)keu(h)₃ - preserves its original meaning in Lat ob-scūrus ‘dark, obscure’, i.e. ‘covered’, and Indic (i.e. Skt skunṭi ‘covers’) or in words for ‘hide’ (NE hide is ultimately derived from this root with a t-extension while Grk skūlos ‘pelt, skin’ shows an *(s)-l) or ‘leather’ (Grk skūtos).

The lateral motion of shaking or, by extension, trembling is indicated by four words. A Proto-Indo-European *trem- ‘shake, tremble’ is well attested in five groups (e.g. Lat tremō ‘shake’, Lith trimtį ‘shake’, Alb tremb ‘scare, startle, shock’, Grk trémō ‘shake’, Toch A trām- ‘be enraged’); NE tremble is ultimately borrowed from Late Latin. The semantic range of *tres- includes both ‘shaking’ and ‘fear’ itself (e.g. MIr tarrach ‘fearful’, Lat terrēre ‘terrify’, terror ‘terror’, Lith trīšū ‘tremble’, OCS tɾesq ‘tremble’, Grk třḗ ‘tremble, flee’, Av tṝsāiti ‘fears’, Skt trásāti ‘trembles, is afraid’; see also Section 20.6) and both
*trem- and *tres- may derive from a common though unattested verbal root **ter-. A PIE *rei- rests entirely on a Gothic-Sanskrit correspondence (Goth reiran ‘tremble, shake’, Skt lelāyati ‘swings, is unsteady’) and there is a Polish-Indo-Iranian isogloss that gives us *kseubh- ‘shake’ (Polish chybnac ‘shake’, Av xšaob- ‘agitate’, Skt kṣūbhyaṭi ‘shakes’).

From the North-West there is *kret- ‘shake’ (e.g. MIr crothaid ‘shakes’, OE hrađe ‘quick’, Lith krečėti ‘shake, jolt; strew by shaking’); *(s)ku(n)t- ‘shake, jolt’ (e.g. NE shudder, Lith kuniu ‘recover, get better’ [i.e. ‘shake something off’], OCS skytati se ‘wander’); *kreut- ‘± shake’ (e.g. ON hraust ‘quick’, Lith krutu ‘move, stir’); *slenk- ‘turn, twist (like a snake)’ (e.g. NWels llyngyr ‘worms’, NE sling, Lith slenk ‘crawl [like a snake]’); *swerbh- ‘turn, move in a twirling motion’ (e.g. NWels chwerfan ‘spindlewhorl’, OE sweorfan ‘wipe, rub’, Latv svārpstīti ‘bore’, OCS svrabū ‘scabies’). The West Central region offers a possible *kʷat- ‘shake’, a Latin (quattiō ‘shake’)-Greek (pássō ‘strew’) isogloss; *sper- ‘wrap around’, a Baltic (Lith spartas ‘band, ribbon’)-Greek (speīra ‘coils’)-Armenian (p’arem ‘enclose, surround’) isogloss; *kel- ‘conceal, cover’ (e.g. OIr ceilid ‘conceals, dissembles’, Lat célo ‘conceal’, OE helan ‘conceal’, Grk kalúptō ‘cover’); *(s)teg- ‘cover’ (e.g. Lat tegō ‘cover’, NE thatch, Lith stiegiu ‘put on a thatch roof’, Grk stégō ‘cover’), which has a possible Sanskrit cognate in sthagayati ‘covers’ which, if accepted (the -th- suggests to some a non-Indo-European origin for the word in Indic), would point to Proto-Indo-European status. There is a Greek-Indo-Iranian isogloss in *tweis- ‘shake’ (Grk seĩō ‘shake’, Av ṭwaēṣah- ‘fear, anxiety’, Skt tvēṣate ‘is excited’).

### 22.4 Bind, Stick, and Smear

The concept of attachment, both natural and artificial, is reflected in a series of roots, largely verbal, to describe the act of binding, both metaphorically and through the use of an instrument, sticking, and smearing. These are listed in Table 22.5.

The root *bhendh- ‘bind’ exhibits verbal reflexes in Germanic and Indo-Iranian, e.g. NE bind, Av bandayeiti ‘binds’, Skt badhnāti ‘binds’, but is also reflected in nominal forms in Grk peĩsma ‘rope’ and, evidently in an extended sense to indicate a social binding, as kinship terms such as ‘companion’ or ‘father-in-law’ in Baltic (Lith beĩdras ‘companion’), Grk pentherós ‘father-in-law’, and Skt bándhu- ‘kinsman; connection, kinship’ (see Section 12.3). A small group of correspondences (Albanian-Greek-Sanskrit) indicates *deh₁- ‘bind’ (the Alb duaj is nominal ‘sheaves’, but Grk δεῖ and Skt dyāti are verbal ‘bind’).

A root *h₂ep- is attested in Latin, Anatolian, and Tocharian (e.g. Lat aptus
Toch A ápsá [pl. ‘limbs’) and like *bhendh- it may underlie words with extended social meanings such as Skt ápí- ‘ally’. The root *yeu- ‘bind, join together’ (e.g. Lith jautis ‘ox, steer’ [<*that which is yoked’], Skt yáuti) also means ‘fitting’ and yields an o-grade *gho¯dho- in Germanic whence we have NE good. The basic root *yeu- ‘bind, join together’ (e.g. Lith jaútis ‘ox, steer’ [<*that which is yoked’], Skt yáuti) also means ‘fitting’ and yields an o-grade *gho¯dho- in Germanic whence we have NE good. The basic root *yeu- ‘bind, join together’ (e.g. Lith jautis ‘ox, steer’ [<*that which is yoked’], Skt yáuti) also means ‘fitting’ and yields an o-grade *gho¯dho- in Germanic whence we have NE good.

The meaning ‘constrain’ as well as simply ‘tie’ is suggested in *dhergˆh- where we find a Baltic nominal form meaning ‘belt’ (Lith dirža) and Av darzayeiti ‘letters’. The semantic range of *peh,g- ~ *peh,k- suggests a meaning such as ‘fasten securely’ as many of the Germanic cognates indicate ‘capture’ (e.g. Goth fahan) while Grk pégnumi means ‘plant, make solid’ (cf. also Lat pangō ‘drive in’, Skt pásáyati ‘binds’). It may be that Lat pàx ‘peace’ [> via Old French NE peace] also belongs here as *a binding together by treaty’. A root *seg- ‘fasten’ is found from Ireland (where it is nominalized as OIr suainem ‘cord’) to India (Lith se`gti ‘fasten, buckle’, OCS se`gno´ti ‘take, grab’, Skt sa`jati ‘binds’).

A Baltic-Tocharian isogloss secures *kergh- ‘bind’ (Lith keįgti ‘tie, bind’, Toch AB kärk- ‘bind’).

| *bhendh- | ‘bind’ | NE bind, Grk peísmα, Skt badhmāti |
| *deh₁- | ‘bind’ | Grk déo, Skt dyáti |
| *h₂ep- | ‘fasten, join’ | Lat aptus |
| *ghedh- | ‘join, fit together’ | NE together, Skt gádhya- |
| *yeu- | ‘bind, join together’ | Skt yáuti |
| *h₂emgh- | ‘tie, constrain’ | Lat angō, Grk ágkhō |
| *dhergh- | ‘bind fast’ | Skt dhįhyati |
| *peh,g- ~ *peh,k- | ‘fasten securely’ | Lat pangō, Grk pégnumi, Skt pásáyati |
| *seg- | ‘fasten’ | Skt sa`jati |
| *kergh- | ‘bind’ | |
| *h₂eng-~ | ‘anoint (with salve), (be)smear’ | Lat unguō, Skt anákti |
| *leip- | ‘adhere, stick; smear’ | Skt limpáti |
| *h₂lei- | ‘smear’ | Lat línō, Grk alínō, Skt lináti |
A root *h₂eng*- supplies the basis for both a verb ‘anoint, smear’ (e.g. Lat ung(u)ō ‘(be)smear, anoint’, Arm awcanem ‘anoint’, Skt anākti ‘anooints’) and nominal derivatives that indicate either ‘butter’ in the West (e.g. OIr imb, OHG ancho, OPrus anctan) or ‘salve’ in the East, e.g. Skt ānjas-. The semantic field of *leip*- suggests a proto-meaning of ‘smear’ (as in Hit lipp-) or ‘adhere’ (as in Baltic and Slavic, e.g. Lith limpu, OCS pri-lipjo ‘stick on’) which also developed into ‘remain’ or ‘be left over’ (still attached?) in Germanic and Tocharian (e.g. OE bilīfan, Toch AB lip-). Related is Grk liparōs ‘fat, anointed’ (see Section 20.10). Meanings of ‘smear’ or ‘stick’ are fairly uniform across those cognates that derive from *h₂lei- ‘smear’ (e.g. OIr aś-lena ‘stain’, Lat lino¯ ‘smear’, Lith laistau~ ‘smear’, Grk alīno¯ ‘spread, smear’, Skt lina¯´ti ‘pastes’, Toch B linā- ‘stick, place’).

West Central words comprise *mer- ‘braid, bind’ (e.g. NE moor [a boat] [<MLG mören], Grk mérmēs ‘cord’); *(h₂)wer- ‘± attach’ (a Balto-Slavic-Albanian isogloss [e.g. Lith vėrī ‘thread a needle’, Rus verāti ‘prick’, Alb vjerr ‘hang up’] though one might possibly include Grk aeı´ro¯ ‘attach’ here); *kol- ‘glue’ (e.g. MLG/MDutch hēlen ‘stick’, Grk ko´lla ‘glue’), and possibly *smeid- ‘smear’ if one can accept Arm mic ‘dirt’ as cognate with various German words (e.g. Goth ge-smēitan ‘smear’).

### 22.5 Bend and Press

The vocabulary associated with bending, pressing, and folding is indicated in Table 22.6.

The vocabulary associated with the concept ‘bend’ is fairly large and we are in some instances able to suggest specific differences in meaning between the different words. The semantics of *h₂enk- ‘bend’ suggests that this word was used to describe an object that held a bent shape; the meaning ‘hook’ or ‘barb’ can be found in Celtic (OIr êcath), Germanic (OHG ango ‘fishhook’), Slavic (OCS oˇkoti), Grk o`gkos ‘barb’, and Iranian (Av aku-). The underlying verb is only certainly found in MPers ančitan ‘bend’, but may also be seen in Hit hinkzi ‘bows (reverentially), curtsies’ though there are phonological difficulties. The object bent in *bhedh- seems to have been the human body, e.g. Toch B pauto ‘honour’, i.e. bend one’s knees; the Germanic cognates that have been sometimes placed here are all associated with the concept of ‘ask’, i.e. ‘request on bended knee’ (NE bid), while Alb bind means ‘convince’. Less clear is *bheug- ‘bend’ which yields meanings of both ‘bend’ (OHG biogan, Skt bhujāti) and ‘break’ (Goth biugan) or survives merely in terms of a curved shape (Latv bauga ‘hill’).

Two roots provide interesting case studies. The root *geu- is treated as a verbal root which only survives in a number of nominal forms, e.g. *gudom
‘intestines’, *gu-ro-‘lock of hair’, *gu-r-nos ‘back’, all presumably derived from a no longer extant (or at least recoverable) verbal form. The wide semantic range of the meanings associated with the cognate forms derived from *keu-k- ‘curve’ are truly daunting. Skt kucāti ‘bends, curves’ provides a base verbal meaning which is also seen in nominal form as kuca- ‘breast’ which takes us into the realm of anything ‘curved’, e.g. OIr cu¯ar ‘curved’ which may include a ‘hill’, e.g. Lith kau~karas, and then on to the abstract meaning ‘high’, e.g. NE high, Toch B kauc ‘high’; Baltic words for ‘devil’ (OPrus cawx) or ‘goblin’ (Lith kau~ks) are explained either by the fact that goblins are covered with warts, boils, have crooked backs or noses (cf. OCS kukonosu˘ ‘curve-nosed’), or, alternatively, such creatures live in or under hills.

A root *kleng- ‘bend’ is attested in the North-West with meanings such as ‘gird’ (Lat clingo¯) and ‘chain’ (NE link) while the Tocharian cognates indicate a ‘vehicle/way of arriving at knowledge’ (Toch B klei ke) and ‘doubt’ (Toch B klānk-). Two similar roots, *leng- and *lenk-, both mean ‘bend’; Lithuanian preserves both of these words in linguoti ‘soar’ and leĩkti ‘tilts, bends’ respectively (cf. also Slov lqač ‘bend’, OCS raz-locti ‘separate, divide’, Alb lëŋor ‘flexible’, Skt rângati ‘moves here and there’, Toch AB lâîk- ‘hang’ [<*’dangle’], Toch B lei ke ‘valley, cleft’). We have seen how ‘bend’ > ‘curve’ > ‘hill’ above in the discussion of *keu-k-; the example of Toch B lei ke shows that semantic evolution might also lead to a concave shape such as a ‘valley’, also seen in NWels nant or Gaul nanto, both derived from *nem- ‘bend’. Some would assign to this root a series of words indicating a ‘sacred grove’, e.g. OIr

| Root | Meaning | Language
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<tbody>
<tr>
<td>*h₂enk-</td>
<td>‘bend’</td>
<td>Lat uncus, Grk ógkos, Skt aṅcati</td>
</tr>
<tr>
<td>*bhedh-</td>
<td>‘bend (one’s body)’</td>
<td>NE bid, Skt bādhate</td>
</tr>
<tr>
<td>*bheug-</td>
<td>‘bend (an object)’</td>
<td>Skt bhujāti</td>
</tr>
<tr>
<td>*gew-</td>
<td>‘curve’</td>
<td></td>
</tr>
<tr>
<td>*keu-k-</td>
<td>‘curve’</td>
<td>NE high, Skt kucāti</td>
</tr>
<tr>
<td>*kleng-</td>
<td>‘bend, turn’</td>
<td>Lat clingo¯, NE link</td>
</tr>
<tr>
<td>*leng-</td>
<td>‘bend’</td>
<td>Skt rāngati</td>
</tr>
<tr>
<td>*lenk-</td>
<td>‘bend; traverse, divide’</td>
<td></td>
</tr>
<tr>
<td>*nem-</td>
<td>‘bend’</td>
<td>Skt nāmati</td>
</tr>
<tr>
<td>*pel-</td>
<td>‘fold’</td>
<td>Lat duplus, Grk diplóos</td>
</tr>
<tr>
<td>*swe(n)g-</td>
<td>‘bend, swing’</td>
<td>NE swing, Skt svājate</td>
</tr>
<tr>
<td>*weng-</td>
<td>‘bend’</td>
<td>NE wink, Skt vāngati</td>
</tr>
<tr>
<td>*prem-</td>
<td>‘press down or back’</td>
<td>Lat premere</td>
</tr>
<tr>
<td>*menk-</td>
<td>‘press’</td>
<td>Grk mássō, Skt mácāte</td>
</tr>
<tr>
<td>*bhrak-</td>
<td>‘squeeze together’</td>
<td>Lat fācīō, Grk frāssō</td>
</tr>
<tr>
<td>*puk-</td>
<td>‘press together’</td>
<td>Grk āmpukś</td>
</tr>
</tbody>
</table>
neimed, Lat nemus, Fris nimidas, Grk némos, on the supposition that we have ‘bend’ > ‘bow in reverence’ > ‘place where one honours the gods’. The verb itself is to be seen in Av námaiti ‘bends’, Skt námati ‘bends, bows, submits oneself to’, Toch AB nam- ‘bend’. A root *pel- indicates ‘fold’, both in the literal sense, e.g. NE fold as in to fold a piece of cloth (similarly Alb palē ‘fold’) or Grk péplos ‘garment that falls in folds’ to the more abstract multiplicative, e.g. OIr diábual, Lat duplus, Grk diplōsos ‘double’, i.e. ‘twofold’. Of less certain status is *swe(n)g- with cognates in the West in Celtic and Germanic, e.g. NE swing, and a possible cognate in Skt svájati ‘embraces’ and possibly Toch B suk- ‘hand over’. Similarly, the status of a PIE *weng- ‘bend’ (NE wink, Lith vėngti ‘try to avoid’, Alb vang ‘felloe’) depends on acceptance of the existence of a Skt vángati ‘limps’ which occurs in medieval dictionaries but nowhere in texts.

The meaning ‘press’ or ‘squeeze’ is found in three possible Proto-Indo-European roots. A Latin-Tocharian isogloss secures *prem- where Lat premerē ‘press down’ is compared with Toch B prām- ‘restrain’. More widely attested is *menk- which gives us a Greek word for ‘knead’, i.e. mássō, and Skt mácate ‘crushes’, as well as Germanic, e.g. OE mengan ‘mix’, Lith minkytį ‘knead, touch’, OCS mękākū ‘soft, delicate’. The underlying meaning of *bhrak- is more difficult; Grk phrássō can mean ‘push together’ and the root may also have indicated that this resulted in making something firm, e.g. Toch B prākreb ‘firm’ and Lat fārtus ‘thick’; to this series is also added the far more semantically opaque OIr bārc ‘storm, fury’ (perhaps indicating that one is in the ‘thick’ of things). Finally, *puk̑- ‘press together’ provides the base for both the Greek and Iranian words for a ‘headband’ (Grk āmpuks, Av pusā-) as well as Alb puth ‘kiss’.

Regional words from the North-West include *māk- ‘press’ (e.g. Lat mācerō ‘tenderize by marination’, Latv mākt ‘oppress, depress’, Czech mackati ‘press, squeeze’) and *greut- ‘compress’, an Irish (OIr gruth ‘cheese’)-English (NE crowd) isogloss. Far more words derive from the West Central area: *kam-p- ‘bend (of terrain)’ (e.g. Lat campus ‘field’, Goth hamfs ‘maimed’, Lith kaũpas ‘corner; region’, Grk kampē ‘bend of river’); *k̑elp- ‘arch’, a Germanic-Greek (e.g. OE hlwealf ‘vault’, Grk kōlpos ‘fold, hollow’) isogloss; *lerd- ‘compress’ (Scots Gaelic lorcach ‘lame’, Grk lordōs ‘stooped’, Arm lorc’ ‘twisted bodies’); *leug- ‘bend; bend together, entwine’ (e.g. OIr fo-long ‘sustains, supports’, Lat luctō ‘struggle’, NE lock (of hair) and lock of door (a bending together), Lith lūgnas ‘flexible, pliable’, Grk lugizō ‘fold, bend’); *gem- ‘press, squeeze together, squeeze’ (e.g. MIr gemel ‘fetters’, Umb gomia ‘pregnant’, OE cuml ‘swelling, wound’, Lith gūmstų ‘seize, grasp’, OCS zimō ‘press’, Grk gémol ‘am full’, Arm čmlēm ‘press together’); *treud- ‘thrust, press’ (e.g. OIr trom ‘oppressive’, Lat trūdō ‘thrust’, Goth us-þriutan ‘bother, persecute’, OCS truditi
sect ‘exert oneself’, Alb tredh ‘castrate’; *kem- ‘± press together’ (e.g. NE hamper, Lith kamūoti ‘press together’, Rus komiti ‘press into a ball’, Grk kōmos ‘band of revellers (= crowd)’, Arm k’amel ‘press, squeeze, filter’; *gen- ‘± compress’ which underlies many extended forms, e.g. NE knock, knife, dialectal Grk kμυζόō ‘draw together’. A Greek-Indic isogloss is seen in *pisd- ‘press’ (Grk πιέζō ‘press’, Skt पढ़याति ‘presses’).

### 22.6 Inflation

The vocabulary associated with swelling and blowing is rich in Proto-Indo-European and is listed below in Table 22.7.

The semantic field of the derivatives of *bhleu- ‘swell, overflow’ is rather varied and none specifically means ‘swell’ but rather ‘roar’ (Baltic, e.g. Lith blįjaţi), ‘spew’ (Slavic, e.g. OCS bljujo), and ‘gush, teem, overflow’ (Grk phlēó). Extended forms in *-d, however, include Toch B plukt- ‘swell’ and Grk phludāō ‘have an excess of moisture’; an extended form in *-g- yields Lat fluō ‘flow’ and flāmen ‘river’, Grk phlūzō ‘boil up, boil over’. The meaning ‘swell’ is better attested in *bhelgʰ- ‘swell’ Grk phlēó, OIr bolgaid ‘swells’, OHG belgan ‘swell up’, and it underlies the widespread PIE *bhól̂ghis ‘bag’. A metaphorical use of ‘swell’ is to be found in *keuh₁- whose semantics may either focus on pregnancy, e.g. Lat inciēns ‘pregnant’, Grk kuēō ‘am pregnant’, or the concept of ‘swells with power, be powerful’, e.g. Skt śva̞yati ‘swells, becomes powerful’ which in derived forms yields NWels cawr ‘giant’, Grk καύριος ‘lord’, and ‘powerful’ in Indo-Iranian (e.g. Av sārā-, Skt sārā-). Similarly, *teuh₂- ‘swell’ also means

| *bhleu- | ‘swell, overflow’ | Grk phlēó |
| *bhelgʰ- | ‘swell’ | |
| *keuh₁- | ‘swell, grow great with child’ | Lat inciēns, Grk kuēō, Skt śva̞yati |
| *teuh₂- | ‘swell (with power), grow fat’ | Grk sāos, Skt tāvīti |
| *h₂weh₁- | ‘blow’ | Grk āēsi, Skt váti |
| *bhel- | ‘blow, blow up, swell’ | Lat flō, NE blow, Grk phallōs, Skt bhāṇa- |
| *peis- | ‘blow to make a noise’ | Lat spīrō, Skt picchorā |
| *swei- | ‘blow to hiss or buzz’ | Grk sızō, Skt kṣvēdāti |
| *p(h)eu- | ‘blow, swell’ | Lat pustula, Grk phūsa, Skt pūsyati |
| *per- | ‘blow (on a fire)’ | Grk prēthō |
| *bhes- | ‘blow’ | Grk ψύkhō, Skt bābhasti |

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Table 22.7. Inflation
'powerful' or 'strong' (e.g. Av tav- 'be capable of', Skt táviti 'is strong, powerful'). This word may take a literal meaning of 'fat' as well (rather than pregnant) with the interesting contrast in meanings between ORus tyju 'become fat' and Grk sáos 'healthy'. The *tuh₃s-kₚtʰo- 'fat-hundred' is the basis for 'thousand' (see Section 19.1) in Germanic (e.g. NE thousand), Baltic (Lith tūkstantis), and Slavic (OCS tysẹ́šta) and Tocharian 'ten thousand' (e.g. Toch B tumane).

The clearest root designating 'blow' is *h₂weh₁- with derivatives (including extended forms) in nine Indo-European groups (e.g. OE wāwan blow', OCS věžati 'blow', Grk aësi 'blows', Av vāti 'blows', Skt váti 'blows'). The verbal form universally means 'blow' while the nominalized participle *h₂weh₁-ntos gives us our Proto-Indo-European word for 'wind', e.g. NWels gwynt, Lat ventus, NE wind, Hit huwa³nt-, Skt vāta-, Toch B yente. The verb 'blow' is also attested by *bhel- although only Germanic and Italic (e.g. NE blow, Lat flō 'blow') retain the verbal sense while other groups have nominalized the root, e.g. Lat follis 'leather sack inflated with air'; two groups (OIr ball ferda and Grk phallós) employ the root to form their words for 'penis'. In Indic we have a different kind of metaphorical transfer in Skt bha¯n_- 'pot'. To 'blow to make a noise' is indicated by *peis- which means 'to whistle' in OCS piskati and 'flute' in Skt picchorā; more prosaically we have OE fisting 'fart', but a simple 'blow' in Lat spīrō and 'blow an instrument' in Toch A pis-. Another musical 'blow' is to be seen in *(k)swei-, e.g. OIr sētitid 'blows', OCS svistati 'whistle', Grk sizō 'crackle', Skt ksvedatī 'buzzes, hums, murmurs', and the extended form in Goth swiglōn 'play the flute'. A root *p(h)eu-, surely onomatopoeic in origin, and its extended forms may have originally meant 'swell' or 'blow'; literal meanings such as Grk phūsa 'wind, blast' exist alongside other cognates that indicate an inflated shape, e.g. both OPrus pounian and Grk pug̣ē mean 'buttocks', Rus pūlja means 'ball', and MIr āan mean 'foam'. Associations with burning or smoke in OCS and Greek suggest that *per- might have meant 'blow on a fire' (e.g. OCS para 'steam, smoke', Grk prēthō 'blow, pimprēmi 'burn', Hit p(a)rāi- 'breathe, blow'). A Greek-Indic-Tocharian isogloss has been suggested to support *bh-es- 'blow' (Grk psākhō 'cool off' [= *cool off by blowing']?), Skt bābhasti 'blows', Toch B pās- 'whisper').

There are few regional terms. From the North-West comes *bhreus- 'swell' (e.g. OIr brū 'belly, breast', NE breast, Rus brostī 'bud') and from the West Central region: *bhlei- '± become inflated' (Latv blīstu 'become thick', Grk phlīdāō 'overflow of moisture'), an enlargement on Proto-Indo-European bhel- 'blow'; *h₃e₁id- 'swell' (e.g. OHG eiz 'abscess', Lat aemīdus 'swollen', Grk oidēō 'swell', Oidīpous 'Oedipus' [literally 'swollen-foot'], Arm aynum 'swell').
22.7 Extend

A number of words, grouped together under the general meaning of ‘extend’, ‘stretch’, or ‘hang’, are listed in Table 22.8.

Nine groups provide evidence for a PIE *h₃rēg*- ‘extend’ which provides the base for two other important concepts: ‘correct’ and ‘king’. The semantic field normally covered by the cognate forms is ‘extend’ or ‘stretch’ (e.g. OIr rigid ‘stretches’, OE reccan ‘stretch out; be concerned about’ [> NE reck], Lith rėžti ‘stretch’, Grk orēgō ‘stretch’, Skt ṛḍjāti ‘stretches’) but in Lat regō ‘direct in a straight line’ and Av rāzayēti ‘adjusts, arranges’, we find the notion of ‘order’ which provides the semantic link to *h₃rēgRTOS ‘right, correct’, i.e. ‘ordered’, and *h₃rēgS ‘ruler, king’, perhaps ‘one who puts/keeps things in order’ (see Section 17.1). A root *ten- ‘stretch’ is well attested, both in its root form and with various extensions (e.g. Lat tendō ‘stretch’, OE þenian ‘stretch’, Lith tinti ‘swell’, Alb ndej ‘extend, stretch, spread’, Grk tanuō ‘stretch’, Skt tanōti ‘expands, stretches’). It yields such derivatives as Lat tentus ‘thin’ and NE thin, as well as a participial form *ten-s-s which is reflected perfectly in Lat tentus, Grk tatōs, and Skt tatā- ‘stretched’. The same root with an s-extension, *ten-s-s, yields ‘pull’ if the Germanic and Baltic cognates in the West (e.g. OHG dinsan ‘pull’, Lith tėsti ‘stretch, pull’) and the corresponding Indic word (Skt tamsayati ‘draws to and fro’) are not independent creations. Also meaning ‘pull’ is *teng(h)- where the verbal meaning is retained in Slavic and Iranian (OCS ras-tešgo ‘pull apart’, Av ṧang- ‘pull’) but the word has been nominalized in both Latin and Germanic to refer to the ‘pole’ on a vehicle (e.g. Lat tēmō ‘chariot pole’, OE þīxl ‘wagon-pole, shaft’). The set of cognates that suggests a *ten-p-, which through assimilation is reconstructed as *temp- ‘stretch’, shows such wide semantic variation that the status of some of the cognate forms is not

| *h₃rēg- | ‘extend, stretch’ | Lat regō, NE reck, Grk orēgō, Skt ṛḍjāti |
| *ten- | ‘stretch’ | Lat tendō, Grk tanuō, Skt tanōti |
| *temp- | ‘stretch’ | Lat tempus? |
| *teng(h)- | ‘pull’ | Lat tēmō |
| *ten-s- | ‘pull’ | Skt tamsayati |
| *seik- | ‘reach for’ | Grk ḥīkō |
| *pleth₂- | ‘spread out’ | Lat plantō, Skt prāthati |
| *ster- | ‘spread out’ | Lat struō, NE strew, Grk stōrnumi, Skt stṛṇōti |
| *konk- | ‘hang’ | Lat cunctor, NE hang, Skt śāṅkate |
| *lamb- ~ *remb- | ‘hang down’ | Lat limbus, Skt rámbate |

Table 22.8. Extend
entirely secure. Baltic (e.g. Lith taępti ‘stretch out, pull out’) shows the meaning ‘stretch’ while Germanic (ON þambr) and Slavic (OCS topu) show ‘thick’ (and not ‘thin’). The Tocharian cognate, e.g. Toch A tampe, means ‘power’ (and Toch AB cämp- ‘be able to’) while Lat tempus ‘time’ which is set here by some suggests conceiving of time as a linear object, a concept that we have no problem with today but which raises problems when extrapolated into antiquity. A root *seik- ‘reach for’ can mean ‘reach with the hands’ as in Lith siekti ‘reach for something’, but Toch B sik- ‘set foot’, i.e. ‘reach out the foot’, indicates that the lower limbs may be also envisaged; the latter would also seem to be the case with Grk híkó ‘arrive, reach’. A root *pleth₂- ‘spread out’ (e.g. OIr lethaid ‘extends, expands’, Lat plantō ‘plant’, Lith plečiū ‘widen, spread out’, Lat prάtθi ‘spreads out’) also yields the widespread adjectival form *plθh₂ús ‘broad, wide’ (see Section 18.5). A productive root *ster- occurs with several enlargements, e.g. Lat struθ ‘build up’ and sternō ‘spread out’, NE strew, Alb stribi ‘stretch’, Grk stórθnūmi ‘spread out’, Av stōrṇaοτί ‘stōrṇaīti ‘spreads out’, Skt stṛṇΩtί ~ stṛṇātί ‘spreads out’).

There are two forms for ‘hang’. A root *konk- is well attested in this meaning in Germanic (e.g. NE hang) and Hit kank- ‘hang’ but has undergone a shift to an emotional state in Indic, e.g. Skt śāṅkate ‘doubts, fears’ (as in ‘left hanging’), while Lat cuncθr ‘delay’ would seem to be ‘hang about’. A word *lemθ- or *remθ- ‘hang down’ retains this meaning in Skt rāmβate ‘hangs down’ and is nominalized in Lat limbus ‘hem, border’.

From the North-West we have *reigθ- ‘extend, stretch out (a body part)’ (e.g. OIr ringid ‘twists, tortures’, NE reach, Lith rėižti ‘stretch, tighten’) and *kleh₂θ- ‘spread out flat’ (e.g. Lith klōju ‘spread out’, and with extensions NE lade, OCS klάδθ ‘load, lay’); and from the West Central region: *peth₂θ- ‘spread out (the arms)’ (Lat pandō ‘spread out’, NE fathōm, Grk πίτθmēi ‘spread out’) where not only Germanic but also Celtic, e.g. OWels etem ‘fathom’, and Lat passus ‘step, fathom’, all employ the root as a unit of measurement, the ‘fathom’.

22.8 Throw

Words indicating ‘throw’ are listed in Table 22.9.

A verb *(s)keud- ‘throw’ is attested by cognates in Germanic (e.g. NE shoot), Slavic (e.g. Rus kidaθı˘ ‘throw’), and Alb hedθ which all mean ‘throw’ and, in the East, Skt cόdθti ‘incites’ and Tocharian. The Tocharian cognates, e.g. Toch B kaumθe, indicate the ‘shoot of a plant’, a semantic development paralleled in English where the same part of a plant derives ultimately from the Middle English verb shooten ‘throw’. An alternative root with the same meaning is *h₁es- ‘throw’
which is attested in Hittite and Indo-Iranian (e.g. Hit sivēzi ‘throws, hurls’, Av as-‘throw’, Skt āsyati ‘throws, hurls’). The root *gʷelh₁ ‘throw’ supplies the same meaning again (e.g. NWels blif ‘catapult’, Grk bâllō ‘throw’, Av ni-γar- ‘be thrown down’). Although *sweep- ‘throw’ retains its verbal meanings in Latin (e.g. supō ‘throw’) and Slavic (e.g. OCS su̯půq ‘strew, pour about’), it is often nominalized into an object that is either thrown or might make a sweeping motion, e.g. ON svâf ‘spear’ and sofl ‘broom’, Skt svapû ‘broom’, and Toch B sopi ‘net, snare, throwing net’. A possible Latin-Avestan isogloss suggests *smeit- ‘throw’ (Lat mittō ‘let go, send’, Av maēθ- ‘throw’).

Semantically more distant are words for ‘sprinkle’ and ‘scatter’. A root *pers- ‘sprinkle’ indicates either the verbal action, e.g. Hit pappars- and Toch AB pârs-, both ‘sprinkle’, or the type of material that might be sprinkled, e.g. Skt p̄ṣat- ‘drop’, OCS prachû ‘dust’, or from which one might be sprinkled, e.g. ON fors ‘waterfall’. The alternation between verbal form and nominalization is also seen in *sper- ‘strew, sow’ where both Grk speîrō and Hit ispârī retains the verbal forms and OHG sprât ‘scattering’ the underlying meaning, but we also have Alb farë and Grk spērma, both ‘seed’, and more distantly, OIr sreb ‘stream’. Another word for ‘scatter’ is *(s)ked- with cognates in Germanic, Baltic, Greek, and Tocharian (e.g. NE scatter, Lith kedëti ‘burst’, Grk skîdnêmi ‘scatter, strew, sprinkle’, Toch AB kätna- ‘scatter, strew, sow’).

From the North-West: *(s)kehr,sgr- ‘strew, sprinkle’ (Lat spargō ‘strew’, NE spark and sprinkle); from the West Central area we have a Latin (iăciō)-Greek (hiēmi) correspondence that attests a *yeh₁- ‘throw’.

### Table 22.9. Throw

<table>
<thead>
<tr>
<th>Root</th>
<th>Meaning</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>*(s)keud-</td>
<td>‘throw, shoot’</td>
<td>NE shoot, Skt cōdati</td>
</tr>
<tr>
<td>*h₁es-</td>
<td>‘throw, hurl’</td>
<td>Skt āsyati</td>
</tr>
<tr>
<td>*gʷelh₁-</td>
<td>‘throw’</td>
<td>Grk bâllō</td>
</tr>
<tr>
<td>*sweep-</td>
<td>‘throw, sweep’</td>
<td>Lat supō, NE sweep, Skt svapû</td>
</tr>
<tr>
<td>*smeit-</td>
<td>‘throw’</td>
<td>Lat mittō</td>
</tr>
<tr>
<td>*pers-</td>
<td>‘sprinkle’</td>
<td>Skt p̄ṣat-</td>
</tr>
<tr>
<td>*sper-</td>
<td>‘strew, sow’</td>
<td>Grk speîrō</td>
</tr>
<tr>
<td>*(s)ked-</td>
<td>‘scatter’</td>
<td>NE scatter, Grk skîdnêmi</td>
</tr>
</tbody>
</table>

There are four words associated with ‘cleaning’ or ‘washing’ that may be attributed to Proto-Indo-European.
Widespread are cognates derived from *neigʷ- ‘wash’ which carries that meaning in Celtic (OIr nígí), Grk nízō, and Indo-Iranian (Av naēnīzaiti ‘washes’, Skt nênekti ‘washes’) although there are problems with the Irish form (as Proto-Indo-European *gʷ > Celtic b and not g). Tocharian lik- ‘wash’ may belong here too, if the initial l- can be explained as resulting from the contamination of some other root (e.g. *leuh- ‘wash’). PIE *neigʷ- also exhibits a derived form *nigʷ-tos ‘washed’, seen in OIr necht, Grk ániptos ‘unwashed’, and Skt nikt-. In Germanic the root is nominalized to designate a ‘water spirit’, e.g. NE nix ~ nixie. An Anatolian (Hit ārr(a)-) -Tocharian (Toch A yâr-) isogloss secures *h₁erh₁x- ‘wash’. The precise semantics of *m(e)uh₁x- ‘wash’ presents an interesting puzzle. In Baltic (e.g. OPrus amūsnan), Slavic (OCS myjo), and Cypriot Grk mûsasasthai, the cognates all mean ‘wash’; however, in both Mİr mûm and Skt mûtra- the meaning of the nominal derivatives found in those languages is ‘urine’. Some have suggested that the meaning here has shifted from ‘wash’ to ‘dirt’ although it should be noted that urine was employed by the Romans as a mouthwash and was a component of toothpastes and mouthwashes up the eighteenth century; in India, the walls of a room might be washed in cow’s urine to honour a guest, so there is some evidence that the notion of urine as a cleanser is of Proto-Indo-European age. A verbal root *peuh₁x- ‘clean’ is found in both Germanic (OHG fowen ‘sieve, clean grain’) and Skt pawáyati ‘cleanses’ and in various derivatives, e.g. *puh₁x-to-s ‘cleaned’ (e.g. Lat putus ‘clean’, Av pûtaka- ‘serving as purification’, Skt pûtâ- ‘clean’) and *puh₁x-ro-s ‘clean’ (e.g. OIr ār ‘new, fresh’, Lat pûrus ‘pure’).

There are two West Central regional words: *kûleu- ‘clean’ (OLat cloāca ‘gutter’, OE hlûttor ‘clean’, Lith šliūja ‘sweep’, Grk klûzō ‘wash’) and *leuh₁- ‘wash, bathe’, (Lat lavō ‘wash’, Grk louō ‘wash’, Arm loganam ‘bathe, wash myself’). There is also a Greek-Indic isogloss in *h₁idhrós ‘pure’ (Grk itharós ‘glad; pure’, Skt vîdhra- [< *wi-h₁idhra- ‘burned away’] ‘clean, pure’ which derives from *h₁eîdh- ‘burn’ and may either be inherited or independent developments).

### 22.10 Movement

There are a considerable number of roots that have been reconstructed with the general semantic field of ‘set in motion’ or ‘move’. In some cases, the recon-

<table>
<thead>
<tr>
<th>Root</th>
<th>Meaning</th>
<th>Language(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*neigʷ-</td>
<td>‘wash’</td>
<td>Grk nízō, Skt nênek ti</td>
</tr>
<tr>
<td>*h₁erh₁x-</td>
<td>‘wash’</td>
<td></td>
</tr>
<tr>
<td>*(e)uh₁x-</td>
<td>‘wash (in urine?)’</td>
<td>Grk mulásasthai, Skt mûtra-</td>
</tr>
<tr>
<td>*peuh₁x-</td>
<td>‘clean’</td>
<td>Skt pawáyati</td>
</tr>
</tbody>
</table>

Table 22.10. Clean
structured meanings are reasonably justified by the evidence from the various Indo-European groups while in other cases they reflect an act of semantic desperation to attempt to find a common core that might account for a wide range of meanings that have something vaguely to do with motion. The list of movement words is found in Table 22.11.

Both *h₁er- ‘set in motion (horizontally)’ and *h₃er- ‘set in motion (vertically)’ seem assured for Proto-Indo-European but their similarity in meaning made them liable to confusion, probably even before the loss of laryngeals made them largely homophonous. Surely belonging to the first are Grk ἑρχόμαι ‘set out; come; got’ and Skt चढ़ति ‘goes towards, reaches’; while surely belonging to the second is Lat orior ‘rise’ (whence NE orient). There is a set of forms with a *neu-present, i.e. Skt गोति ‘sets in motion’, Av चर्मावति ‘sets in motion’, Grk ορνύμι ‘stir up’, and Arm ρ-arnem ‘stand up’ which would seem to have both meanings. Finally there is Hit arta ‘stands, is present, occurs’ which must reflect *h₁er- but which is semantically compatible only with *h₃er-.

For the root *h₁eis- the Indo-Iranian cognates, e.g. Skt यष्टति and Av aēš-, do indicate ‘set in motion’ while other cognates indicate slightly different activities, e.g. ON eisa ‘go dashing’ or, further removed, Grk ἰνάο ‘pour’.

The derivatives of a root *kei- also generally indicate ‘set in motion’ (e.g. Lat ciëō ‘set in motion’, Grk σεύο ‘set in motion’, Arm էvem ‘set off’, Av

<table>
<thead>
<tr>
<th></th>
<th>Movement</th>
</tr>
</thead>
<tbody>
<tr>
<td>*h₁er-</td>
<td>‘set in motion (horizontally)’</td>
</tr>
<tr>
<td>*h₃er-</td>
<td>‘set in motion (vertically)’</td>
</tr>
<tr>
<td>*h₁eis-</td>
<td>‘set in motion’</td>
</tr>
<tr>
<td>*kei-</td>
<td>‘set in motion’</td>
</tr>
<tr>
<td>*h₂lei-</td>
<td>‘set in motion’</td>
</tr>
<tr>
<td>*yeudh-</td>
<td>‘set in motion, stir up’</td>
</tr>
<tr>
<td>*wegh-</td>
<td>‘shake, set in motion’</td>
</tr>
<tr>
<td>(*wegh-?)</td>
<td></td>
</tr>
<tr>
<td>*seuh₃-</td>
<td>‘set in motion’</td>
</tr>
<tr>
<td>*neik-</td>
<td>‘begin’</td>
</tr>
<tr>
<td>*meu(h₃)-</td>
<td>‘move’</td>
</tr>
<tr>
<td>*meus-</td>
<td>‘move; remove’</td>
</tr>
<tr>
<td>*dheu(h₃)-</td>
<td>‘be in (com)motion’</td>
</tr>
<tr>
<td>*h₁rei-</td>
<td>‘move’</td>
</tr>
<tr>
<td>*h₁eig-</td>
<td>‘move’</td>
</tr>
<tr>
<td>*selg-</td>
<td>‘release, send out’</td>
</tr>
<tr>
<td>*TerK-</td>
<td>‘release, allow’</td>
</tr>
</tbody>
</table>

Table 22.11. Movement
(y)avaite ‘sets off’, Skt cyávate ‘goes forth’; Alb qoj means ‘wake’). The root *h₂lei-, however, retains ‘set in motion’ only in Anatolian (e.g. Hit hálā(i)-) but elsewhere is associated with liquids, either in a verbal sense, e.g. Lith léju ‘pour’, OCS léjo ‘pour’, or nominalized into some form of liquid, e.g. OHG līth ‘fruit wine’, OIr lie ‘sea’, or something associated with liquids, e.g. Lat lītus ‘beach’ Grk ἀλεισόν ‘cup’. The semantic field of *yeudh- ‘set in motion’ (e.g. Lat iubeō ‘order’, Lith judu` ‘move oneself, stir’, Pol judzić ‘incite’, Av yaozaiti ‘becomes agitated [of water and emotions]’, Toch A yutk- ‘become upset, worry’) also includes specialized developments associated with combat, e.g. Grk husmínē ‘combat’, Skt yúdhyate ‘fights’. A ‘shaking motion’ lies behind a number of the cognates derived from *wegh- or *wegˆh-, e.g. Lat vexāre ‘shake, vex’, Goth wagjan ‘shake’, and Grk gaiê-okhos ‘earthen-shaking’ (cf. also Tocharian wa¯sk-/wa¨sk- ‘move, budge, have motion [intr.]; move [tr.]’). A root *seuh3- ‘set in motion’ retains this precise meaning in Skt suváti (cf. also OIr soı¨d ‘twists, turns’, Hit suwa¯i- ‘push, urge’, Av huna¯iti ‘seeks to create; drives forward’, Toch AB su¯n ‘pour out’, which suggests again an association with liquids. We also have *neik- ‘begin’ attested in Baltic (e.g. Lith u-ninkū ‘begin’), OCS vůz-níknoti ‘regain consciousness’, and Hit nini(n)k- ‘start up, mobilize’.

We can reconstruct a meaning ‘move’ for at least three roots. A widespread root is *meu(h)- (e.g. Lat moveō ‘set in motion’, Lith máuju ‘put on or off’, Grk ameusasthai ‘surpass, outstrip; pass over’, Hit mauszi ‘falls’, Av ava-mīva- ‘take away’, Skt mīvati ‘shoves, moves, sets in motion’, to Toch B miw- ‘shake’ which also appears in an old enlarged form *meus- where the semantics suggests not so much ‘move’ as ‘remove’, e.g. OHG chrē-mōsido ‘grave-robbers’, Khot mūša- ‘robbers’, Skt muṣṇāti ‘steals’, Toch AB musna¯- ‘lift, move [aside]’, musk- ‘disappear’, mās- ‘go’; the verb would appear to underlie the root noun *mās ‘mouse’, i.e. the ‘stealer’ (see Section 9.1). A root *dheu(h)- indicates movement in the sense of ‘being stirred up (like dust or smoke), e.g. Lat suf-fiō ‘smoke’, ON dýja ‘shake’, Goth daun’s ‘dust, smoke’, Lith dujà ‘dust’, OCS dunq ‘blow’, Alb deh ‘intoxicate, make drunk’, Grk thūo ‘rush on’, Arm dedevim ‘shake’, Av dvāzaiti ‘flutters’, Skt dhūnōti ‘shakes, moves about; kindles a flame’, dhūlī- ‘dust’, Toch B tweye ‘dust’. The movement indicated by *h₁rei- often suggests both ‘run’ and ‘flow’, e.g. NE run, OCS vy-rinoti ‘thrust out’, Skt ṛṇvati ‘lets flow’; Greek shows semantic extensions, e.g. Grk ornō ‘stir’, erṃmō ‘be angry with’, i.e. ‘be stirred up’, Toch AB rin- ‘renounce’. A possible root *h₁eig- ‘move’ is based on ON eikinn ‘furious’, OCS igrati ‘play’, Grk ep-eigō ‘drive on’, and Skt ḫatā ‘stirs’. PIE *selg- ‘release, send out’ can be found in Celtic where it is associated with hunting, i.e. releasing hunting dogs? (OIr selg ‘hunt’), Germanic (e.g. MHG silken ‘drip’),
and Indo-Iranian (Av hóražáti, Skt sjáti, both ‘releases’). And, finally, a Hittite (tarna- ‘let, release’)-Tocharian (Toch AB tärk- ‘let go, allow’) isogloss suggests a PIE *TerK- ‘release’. Both languages reflect a PIE present stem *TīK-neh₄-

From the North-West (a Celtic-Italic isogloss) we have *pelh₂-, ‘set in motion’ (e.g. OIr ad-ella ‘seeks’, Lat pellō ‘push’). Indo-Iranian and Tocharian offer two isoglosses: *kerh₃- ‘propel’ (Skt kiráti ‘pour out, throw’, Toch B kärsk- ‘propel’) and *weip- ‘set in motion, agitate’ (e.g. Av vip- ‘throw, ejaculate’, Skt vëpati ‘trembles’, Toch B wip- ‘shake’).

### 22.11 Pour and Flow

Gathered here in Table 22.12 are those words that are specifically concerned with the movement of liquids, either transitively, i.e. ‘pour’, or intransitively, i.e. ‘flow’.

The meaning ‘pour’ is clearly reconstructed for *g₈heu- where its reflexes either appear in the verbal form, e.g. Grk khé(w)ō ‘pour’, Toch AB ku- ‘pour’, or nominalized either as the object from which something is poured, e.g. Lat fättis ‘pitcher’, Av zaotra- ‘libation’, or the one who does the pouring, e.g. Skt hótar- ‘priest’ who juhóti ‘pours out the sacrificial libation’. We also have *seik- ‘pour’ where it means ‘strain’ in Grk ikmázō and ‘sprinkles’ in Indo-

<table>
<thead>
<tr>
<th>*g₈heu-</th>
<th>‘pour’</th>
</tr>
</thead>
<tbody>
<tr>
<td>*seik-</td>
<td>‘pour out; overflow’</td>
</tr>
<tr>
<td>*leh₂-</td>
<td>‘pour, wet, make flow’</td>
</tr>
<tr>
<td>*h₁ ers-</td>
<td>‘flow’</td>
</tr>
<tr>
<td>*h₁ eih₃-</td>
<td>‘move’</td>
</tr>
<tr>
<td>*g² el(s)-</td>
<td>‘well up, flow’</td>
</tr>
<tr>
<td>*h₃ el-</td>
<td>‘well up, flow’</td>
</tr>
<tr>
<td>*sreu-</td>
<td>‘flow’</td>
</tr>
<tr>
<td>*weis-</td>
<td>‘ooze out’</td>
</tr>
<tr>
<td>*weis-</td>
<td>‘ooze out’</td>
</tr>
</tbody>
</table>

Grk *laβhdzi, Skt juhóti; and ‘overflow’ in Toch A sik-; the now obsolete NE sye ‘sink’ belongs here and probably also Lat siat ‘urinates’ (in baby talk). Only Hittite retains the verbal meaning of *leθ₂- ‘pour, make flow’, i.e. lahhuzi ‘overflows, pours’ (and also lahmı- ‘bottle, pitcher’); elsewhere we only have nominalizations, e.g. Lat lāma ‘bog’, Grk lēnós ‘tub’, Toch B lāñe ‘flood’.

Table 22.12. Pour and Flow

<table>
<thead>
<tr>
<th>*g₈heu-</th>
<th>‘pour’</th>
<th>Lat fättis, Grk khé(w)ō, Skt juhóti</th>
</tr>
</thead>
<tbody>
<tr>
<td>*seik-</td>
<td>‘pour out; overflow’</td>
<td>Lat siat, NE sye, Grk ikmázō, Skt sičáti</td>
</tr>
<tr>
<td>*leh₂-</td>
<td>‘pour, wet, make flow’</td>
<td>Lat lāma, Grk lēnós</td>
</tr>
<tr>
<td>*h₁ ers-</td>
<td>‘flow’</td>
<td>Lat errō, Grk aperāo Skt ārṣati</td>
</tr>
<tr>
<td>*h₁ eih₃-</td>
<td>‘move’</td>
<td>Skt rīṇāti</td>
</tr>
<tr>
<td>*g² el(s)-</td>
<td>‘well up, flow’</td>
<td>Grk pliō, Skt gālati</td>
</tr>
<tr>
<td>*h₃ el-</td>
<td>‘well up, flow’</td>
<td>Skt ārṇa-</td>
</tr>
<tr>
<td>*sreu-</td>
<td>‘flow’</td>
<td>Grk rhéō, Skt sravati</td>
</tr>
<tr>
<td>*weis-</td>
<td>‘ooze out’</td>
<td>NE ooze, Skt avesan</td>
</tr>
</tbody>
</table>

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Verbal roots for ‘move’ and ‘run’ may either have encompassed the movement of liquids as well or have served as the base (with extensions) to form new words for ‘flow’. One such possible enlargement is from *h₁er- ‘move’ where we have *h₁ers- ‘flow’. The original verbal meaning is attested in Hit arṣati ‘flows’, Skt árṣati ‘flows’, Grk aperáø ‘pour out’, while in the West the word has come to mean ‘go off course’, e.g. Lat errō ‘go astray’, OHG irran ‘confused’ (with a somewhat different semantic specialization we have Arm erām ‘seethe, be disquieted’). Another extended form, the verbal root *h₁erih₃- ‘move’, has been further extended as *h₁erih₃tis to give ‘waterfall’ in Celtic (OIr riathor), Skt rītī- ‘stream, run’, also related is Lat rīvus ‘brook’. Both the Germanic and Greek reflexes of *g₃el(s)- mean ‘well up’, e.g. OHG quellan, Grk blōō, while Skt gālāti and Toch B kāl-s- mean something like ‘trickle, ooze’. A root *h₃el- ‘well up, flow’ is based on the connection between Lith almēs ‘serum, pus’ on the one hand, and Skt arma- and Toch B ālme, both ‘spring’ on the other (cf. also Latv alūōgs ‘spring’); to these are also added a number of European river names, e.g. Almus, Alma. A root *sreu- ‘flow’ is attested in its basic verbal form, e.g. Lith sraivū ‘ooze’, Grk ῥέο¯ ‘flow’, Arm aroganem ‘moisten’, srāvati ‘flows’, or in extended forms, e.g. NE stream. The verbal root *weis- survives only in Skt āvēsan ‘they flowed’ but it underlies the noun *wis- ‘poison’, NE ooze, and a number of European river names, e.g. Weser, Vistula.

In the North-West we find *gheud-, an enlargement of *gheu- ‘pour’, in Italic (e.g. Lat fundō ‘pour’) and Germanic (e.g. NHG giessen). In the West Central area is *del- ‘flow’ (e.g. NE tallow), *ser- ‘flow’ (which underlies *sreu- above), seen in verbal form solely in Mir sirid ‘wanders through’ but nominalized elsewhere, e.g. Lat serum ‘whey’, Alb gjizë ‘whey, cheese’, Grk orόs ‘whey’, Toch B sārwïye ‘cheese’; *leg- ‘drip, trickle’ (e.g. OIr legaid ‘perishes, melts’, NE leach, Arm lič ‘bog’) and *stag- ‘seep, drip’ (e.g. Lat stāgnum ‘standing water’, Grk stāzō ‘drip’). A Greek-Indo-Iranian isogloss is seen in *dhg*her- ‘flow (away)’, e.g. Grk phtheïro¯ ‘ruin, waste’, Av γząratedi ‘flows’, Skt kṣārati ‘flows, perishes’.

### 22.12 Come and Go

The concepts of ‘come’ and ‘go’ are so basic that we are hardly surprised that there are a large number of roots associated with these concepts. They are listed in Table 22.13.

There are two variants of the basic root ‘come’, *g₃em- (Lat ventō ‘come’, NE come, Grk bainō ‘come’, Skt gacchati ‘goes’, Toch B kām- ‘come’); in Baltic there has been a semantic specialization to ‘come into the world’, e.g. Lith gimū ‘am
born’). Related in root but less clearly indicating motion towards the speaker is *gʷeh₂-, e.g. OIr baid ‘dies’, Latv gāju ‘go’, dialectal Grk bibánti ‘they stride’, Skt jīgāti ‘goes’. This alteration *gʷem- is paralleled in the verbal root ‘to run’, i.e. drem- : *dreh₂- (see Section 22.14).

The basic (or at least most widely attested) verb for ‘go’ is *h₁ei- which is found in all major groups save Albanian and Armenian (e.g. Lat eō ‘go’, Goth iđđja ‘went’, Lith ėimi ‘go’, OCS ̃iti ‘go’, Grk ēimi ‘will go’, Hit yanzi ‘they go’, Av aēiti ‘goes’, Skt ēti ‘goes’, Toch AB ̃i- ‘go’). The semantics are regularly ‘go’, e.g. Lat eō ‘go’, Grk ēimi ‘go’, except for Celtic where it appears as NWels wyf ‘am’. Skt átati ‘goes’ alone preserves the verbal meaning of *h₁et- ‘go’ which otherwise we find meaning ‘year’, e.g. Lat annus, Goth aþn. Here the presumed semantic development runs ‘go’ > ‘cycle’ > ‘year’. A root *sed- ‘go’ would be problematic in that it is homophonous with the basic verb ‘sit’. It is preserved as such only in Indo-Iranian and there only with a prefix, e.g. Av āsnaoiti ‘approaches’, Skt ā-sad- ‘enter’, but is found elsewhere in derived form, e.g. the Greek o-grade noun hodós ‘way’, OCS chodā ‘walk’. A verbal root *sent- ‘go’ underlies the Germanic and Baltic words for ‘send’ (e.g. NE send, Lith suntū ‘send’) but a more general meaning survives in OHG simnan ‘go’, Av hant- ‘arrive’, and in nominal derivatives such as OIr sēt ‘way’, OHG sind ‘way, side’.

| *gʷem-  | ‘come’ | Lat veniō, NE come, Grk bainō, Skt gacchati |
| *gʷeh₂- | ‘come’ | Grk bibánti, Skt jīgāti |
| *h₁ei-  | ‘go’   | Lat eō, Grk ēimi, Skt ēti |
| *h₁et-  | ‘go’   | Lat annus, Skt átati |
| *sed-   | ‘go’   | Skt ā-sad- |
| *sent-  | ‘go’   | NE send |
| *yeh₃-  | ‘go, travel’ | Skt yāti |
| *leit(h₃)- | ‘go away, go forth’ | NE lead, Grk loiteiō |
| *h₁leudh- | ‘go (out)’ | Grk ἐλθον |
| *seh₃(i)-  | ‘go forward, advance’ | Grk ἰθήκε, Skt sādhatte |
| *per-    | ‘pass through’ | Lat portāre, NE fare, Grk περαо, Skt piparti |
| *terh₂-  | ‘bring across; overcome’ | Lat intrāre, Grk τρανέ̣s, Skt tārati |
| *tem-   | ‘reach; attain’ | Grk tēméi |
| *h₁enek-  | ‘attain’ | Lat nanciō, Grk enegkei̯n, Skt aṣnōti – nāsati |
| *serK-   | ‘pass, surpass’ | Lat cēdō |
| ?*ked-   | ‘pass through’ | Grk steikhō, Skt stighnōti |
| *steigh- | ‘step (up), go’ | Skt jāmḥas |
| *ghengh- | ‘step, walk’ | Skt jāmhas |
| *ghredh- | ‘step, go’ | Lat gradior |
| *spleigh- | ‘step, go’ | Grk plissomai, Skt pléhate |

**Table 22.13. Come and go**
Arm *ont’ac* ‘way, passage’, Toch A *sont ‘street*. A verb *yehₐ*-, possibly an iterative-intensive derivative of *h₁ei-*; i.e. *h₁y-ehₐ*- means ‘ride’ in Baltic and Slavic, e.g. Lith jōju ‘ride’, OCS jadǫ ‘ride’, but simply ‘go’ in Indo-Iranian (Av yā- ‘go’, Skt yāti ‘goes, travels’) and Tocharian (AB yā- ‘go, travel’).

Other verbs suggest motion in a particular direction. For example, *h₁leudh*- ‘go (out)’ appears in the form of the same thematic aorist (*h₁leudhēt*) in OIr lod ‘went’, Grk ēluthon ‘went’, and Toch AB lac- ‘went out’. The meaning of *leit(hₐ)*- would also appear to include ‘go away’, e.g. Toch B lit- ‘pass on’ (cf. also OE līdan ‘go, travel’, NE lead); three groups all suggest an association with death, i.e. Germanic (OHG beleite ‘burial’), Grk loiteu－‘bury’, and Iranian (Av raē-t die’), suggesting that this verb may also have indicated ‘pass away’. Movement that is forward or, perhaps better, ‘straight on’ seems to have been indicated by *sehₐ*(i)- where we have Grk īthu－‘press forward’, Phryg sideto ‘succeeded, achieved’, and Skt śādhate ‘succeeds’; Hit zāi- means ‘cross over’. To ‘go beyond’ was *per*-; a verbalization of the preposition *per* ‘through’. It is widely attested both as a verbal form, e.g. Lat portāre ‘lead’, NE fare, OCS na-perjo－‘bore through’, pero－‘fly’, Alb sh-pie ‘send, carry, take to, lead’, Grk perādō ‘pass through’, peirō ‘pierce, bore through’, Arm hordan ‘go away’, Av -par- ‘convey across’, Skt pīparti ‘conveys across; saves’, and in derived form as the nouns *pērtus* ‘passage way’, e.g. Lat portus ‘harbour’, ON fjōrðr ‘estuary’ [whence by borrowing NE fjord], NE ford, Av pärtu－‘bridge’. Another preposition similarly verbalized into a motion was *ter* ‘through’ which yields *terh₂- ‘bring across; overcome’, the second meaning seen in Hit tarhzi ‘defeats’, Skt tārati ‘overcomes’; we also have Lat intrāre ‘enter’ (cf. also Skt tārāṭi ‘protects, shelters’, Grk trānos ‘penetrating, clear’).

A Greek (*tēmei ‘arrives, reaches’)–Tocharian (Toch AB tām- ‘be born’) isogloss secures a PIE *tem- ‘reach, attain’; the notion of birth in Tocharian can be compared with the development of PIE *gʷem- ‘come’ which yields ‘be born’ (e.g. Lith gemū) in Baltic. A more widely distributed word with the meaning ‘attain’ is *h₁enek˚- which is found in OIr ro-ice ‘reaches’, Lat nanciō ‘attain’, OE geneah ‘is adequate’ (cf. NE enough), Lith nešū ‘carry’, OCS nesq ‘carry’, Grk enegkeiν ‘to carry’, Arm hasanem ‘arrive’, Skt aśnōti ~ nāsati ‘gains’, and Toch A ents- ‘take, grasp, seize’. A Hittite-Tocharian isogloss indicates *serK- ‘pass’ (Hit sarku－‘projecting, immense, powerful’, Toch B särk- ‘pass, surpass, go beyond’) while a Latin-Tocharian isogloss gives us *ked- ‘pass through’ seen in Lat cēdō ‘go from’, Toch AB kätk- ‘cross over’.

The original semantics of *steigh- ‘step, go’ are imprecise: we have ‘stride’ in Celtic (OIr tīagu), ‘climb’ in Germanic (e.g. OHG stīgan) and Indic (Skt stighnōti), ‘hurry’ in Baltic (e.g. Lith steigiu), ‘step, go’ in Grk steikhō, and simple ‘come’ in OCS stigno. It provides the basis for several widespread derivatives such as *stūghs* ‘step’ (e.g. ON stig ‘step’, OCS stūda ‘footstep;
street’, Grk stíkhos ‘row, line’) and *stóigho-eh- ‘way’ (e.g. OHG steiga ‘step, way’, Alb shteg ‘path’, Grk stótkhos ‘row, line’). There are several other words that indicate ‘step’. Verbal forms of *ghênh- ‘step are preserved in Celtic, e.g. OIr cingid ‘steps’, Germanic, e.g. OE gangan ‘go’, Baltic, e.g. Lith žengiū ‘stride, step’, or in nominalized forms, e.g. Av zanga- ‘ankle’, Skt jàmhas- ‘step, wing-beat’. Also reasonably widespread is *ghredh- ‘step, go’, seen in, for example, OIr in-greinn ‘pursue’, Lat gradior ‘stride’, gradus ‘step’ (whence by borrowing NE grade), Goth grihs ‘step’, Lith gridyju ‘go, wander about’, Rus grjadá ‘go’. Finally, *spleig¬- ‘step, go’ is attested verbally in Greek and Indic (Grk plíkhás ‘space between the thighs’ and OIr slíasait ‘thigh’).

From the North-West is *meih¬- ‘go’, e.g. MWels mynet ‘go’, Lat meô ‘go, wander’, OCS minò ‘pass away, pass by’. From the West Central area we have *h₁el¬- ‘go’, e.g. MWels el ‘may go’, Grk elaínō ‘drive’, Arm el ‘climbed, came out’. And if not independently formed in Greek and Indo-Iranian, there is evidence for *peri-h₁es¬- ‘surpass’, i.e. Grk periésti ‘comes round’, Skt pary asti ‘surpasses’.

### 22.13 Run and Jump

The vocabulary of motion also includes a variety of words to indicate more specialized activities such as running, hurrying, jumping, and flying, which are listed in Table 22.14.

There are at least four PIE roots for ‘move quickly, hurry’. The verbal reflexes of *speud-, e.g. Lith spáusti ‘press’, Grk speúðō ‘hurry’, and its o-grade derivative *spoudeh₁-, e.g. Lith spaudû ‘press’, Grk spoudē ‘haste’, Arm p’oyt ‘zeal’, NP poy ‘haste’, indicate swift movement (or, in the case of Armenian, a metaphorical extension) while a derived nominal form in Germanic yields the word for ‘spear’, e.g. OHG spioz, whereas Alb punë yields the general term for ‘work’. NE spring derives from a PIE *spérgh- ‘move energetically’, seen also in Grk spérkhô ‘drive, press’ and with further semantic developments in Indic, e.g. Skt spêhayati ‘desires’ (cf. Av ā-spērāsa- ‘excited’), and Tocharian, e.g. Toch AB spärk¬- ‘disappear, perish’. The root *sel¬- ‘move quickly’ probably has its original meaning preserved in Skt ucchalati (< *udsal-) ‘hurries forward’ (cf. also Toch AB sãl- ‘fly’ and sãl- ‘throw [down]’) which develops into ‘send’, Arm ylem, OCS sùľo, and into ‘deliver’, e.g. OE sellan (NE sell); we also have nominalizations of the one delivering, e.g. OCS sûľû ‘messenger’. A Celtic-Germanic-Tocharian isogloss suggests the existence of *krob- ‘hurry’, e.g. OIr crip ‘quick’, ON hraða ‘fall, hurry’, Toch AB kârpa- ‘descend, come down, step down’.
A root *bhegʷ- ‘run’ is attested in Baltic (e.g. Lith bėgą ‘run, flee’), Slavic (e.g. Rus begú ‘run, flee’), and Grk phébomai ‘flee’ and finds its Asian cognate preserved solely in modern Indic, i.e. Hindi bha¯gna¯ ‘run’. As mentioned above, we have the related pairing of *dreh₂-, (reduplicated) ON dtré ‘tremble’, Grk édran ‘ran’, Skt dráti ‘runs’, and *drem-, e.g. OE trem ‘footstep’, Grk dromeı́n ‘run’, Skt drámati ‘runs about’; the Toch B reflex of this root is rémr ‘swift’, originally from *dremor-. The verbal reflexes of *tek-, e.g. OIr teic ‘flee’, NWels rhedaf ‘run’, but it is well known as a deverbal noun *roth₂eh₂- or *roth₂os ‘wheel’, e.g. OIr roth ‘wheel’, Lat rota ‘wheel’, OHG rad ‘wheel’, Lith rātas ‘wheel’ (and plural rātaı̊ ‘wagon’), Alb reth ‘ring, hoop, tyre’, Av raṭa- ‘chariot, wagon’, Skt ráthá- ‘chariot, wagon’; the Tocharian word for ‘army’, e.g. Toch B retke, is probably derived from PIE *róth₁ikos ‘pertaining to chariot’, i.e. the army was originally the ‘chariotsry’. As with ‘go’,

Table 22.14. Run and jump

<table>
<thead>
<tr>
<th>Root</th>
<th>Meaning</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>*speud-</td>
<td>‘hurry’</td>
<td>Grk speudó</td>
</tr>
<tr>
<td>*spergh-</td>
<td>‘move energetically’</td>
<td>NE spring, Grk spérkhó, Skt spṛhāyatí</td>
</tr>
<tr>
<td>*sel-</td>
<td>‘move quickly’</td>
<td>NE sell and sale, Skt ucchaláti</td>
</tr>
<tr>
<td>?*krob-</td>
<td>‘hurry’</td>
<td></td>
</tr>
<tr>
<td>*bhegʷ-</td>
<td>‘run’</td>
<td>Grk phébomai</td>
</tr>
<tr>
<td>*dreh₂-</td>
<td>‘run’</td>
<td></td>
</tr>
<tr>
<td>*drem-</td>
<td>‘run’</td>
<td>Grk drameśn, Skt drámáti</td>
</tr>
<tr>
<td>*tek-</td>
<td>‘run, flow swiftly’</td>
<td>Skt tákki</td>
</tr>
<tr>
<td>*reth₂-</td>
<td>‘run’</td>
<td></td>
</tr>
<tr>
<td>*dhen-</td>
<td>‘run’</td>
<td></td>
</tr>
<tr>
<td>*preu-</td>
<td>‘jump’</td>
<td>Skt právate</td>
</tr>
<tr>
<td>*preug-</td>
<td>‘jump’</td>
<td>NE frog</td>
</tr>
<tr>
<td>*h₁leig</td>
<td>‘jump’</td>
<td>Grk elélió, Skt réjáte</td>
</tr>
<tr>
<td>*lek-</td>
<td>‘jump, scuttle along’</td>
<td>Grk lékáó</td>
</tr>
<tr>
<td>*dher-</td>
<td>‘leap, spring’</td>
<td>Grk thróös, Skt dhárá</td>
</tr>
<tr>
<td>*skand-</td>
<td>‘jump’</td>
<td>Lat scandó, Skt skándáti</td>
</tr>
<tr>
<td>*skek-</td>
<td>‘± jump’</td>
<td>Skt khacad</td>
</tr>
<tr>
<td>*pet(h₁a)-</td>
<td>‘fly’</td>
<td>Lat petó, Grk péтомai, Skt pátáti</td>
</tr>
<tr>
<td>*dih₁-</td>
<td>‘fly; move swiftly’</td>
<td>Grk diemí, Skt diýáti</td>
</tr>
</tbody>
</table>

The basic verbal meaning of *reth₂- ‘run’ survives only in Celtic, e.g. OIr reithid ‘runs’, NWels rhedaf ‘run’, but it is well known as a deverbal noun *roth₂eh₂- or *roth₂os ‘wheel’, e.g. OIr roth ‘wheel’, Lat rota ‘wheel’, OHG rad ‘wheel’, Lith rātas ‘wheel’ (and plural rātaı̊ ‘wagon’), Alb reth ‘ring, hoop, tyre’, Av raṭa- ‘chariot, wagon’, Skt ráthá- ‘chariot, wagon’; the Tocharian word for ‘army’, e.g. Toch B retke, is probably derived from PIE *róth₁ikos ‘pertaining to chariot’, i.e. the army was originally the ‘chariotsry’. As with ‘go’,
one might also combine the concept of ‘run’ with ‘flow’ as in *dhen-* where Skt dhánáyati ‘runs, sets in motion’ exists alongside dhánvati ‘runs, flows’ (cf. also OPers danuvatiy ‘flows’, Toch AB tsān- ‘flow’); Lat fōns ‘spring’ is another example of the meaning ‘flow’. The root *kers-, on the other hand, seems exclusively to have meant ‘run’, e.g. Lat currō ‘run’, MHG hurren ‘hasten’, Grk epíkouros ‘running for help’; it is also nominalized as in OIr carr ‘vehicle’ (the source of NE car is Lat carrus which was itself a borrowing from Celtic) and perhaps in the family of NE horse.

Several roots served for ‘jump’ in Proto-Indo-European. Both *preu- and an extended form *preug- yield both verbal reflexes, e.g. Skt právate ‘jumps’ and from the extended form we have, e.g., Lith sprūgti ‘leave, escape’, Rus prygnutǐ ‘jump’, Toch B pruk- ‘make a leap’, and agree on giving a nominal form ‘the jumper’ to the ‘frog’, e.g., NE frog, Skt plava-. Semantically less clear is *hleig- ‘jump’ which does retain that meaning in Germanic, e.g. OE lācan ‘leap, fly’ or NPers ālēxtan ‘jump’, but it also means ‘tremble’ (Skt rējate) and ‘whirl around’ (Grk elelizō) or ‘run around wildly’ (Lith laįgyti). The root *lek- can be found in various derived forms to give ‘jump’, e.g. Grk leîkaō ‘dance’, likertiziō ‘jump’, MHG lecken ‘hop’, Latv lēkāju ‘jump about’, or nominalizations such as Lat lūcista ‘locust’ and NE lire that survives in British dialect to refer to the ‘calf of the leg’ (< OE līra). Alongside MIr dar- ‘spring’, Grk thrōiskō ‘leap, spring, attack, assault’, and Skt dhārā ‘flood’, Greek contributes thoroś ‘semen’ (presumably with the emphasis on ejaculation rather than the substance) as part of the cognate set from *dher- ‘leap, spring’. The root *skand- is attested in Celtic (OIr sceinnid ‘leaps’), Lat scandō ‘climb’, and Skt skāndati ‘jumps’. The semantic fields of the various cognates that derive from *skek- are not quite so transparent. Lith skatau (where *skak- has been dissimilated to *skat-) has ‘jump’ and OCS skōčiti ‘jump’, but Germanic, e.g. ON skagi ‘point of land sticking out’, Indic, e.g. Skt khacati ‘projects (of teeth)’, and Toch AB skāk- ‘balcony’ (as something that projects) all suggest a positional nuance to the original semantics.

The basic root for ‘fly’ is *pet(ho)- which is well attested, e.g. NWels hedeg ‘fly’, Lat petō ‘fly at, attack’, Grk πετομαί ‘fly’, Hit peta- ‘fly’, Skt pātati ‘flies’. The precise action found in *dih1- ‘flies, moves swiftly’ is less clear and while we have Skt dīyati ‘flies’ we also have Grk diō ‘run away’ and Latv dīēt ‘dance’ (and dīan ‘fast’ in OIr).

The North-West provides another example of a base meaning ‘run’ that yields derivatives ‘runner, servant’, i.e. *tregh- ‘run’, e.g. Goth pragjan ‘run’ but ON þræll ‘servant’; in Celtic the verbal root has been nominalized to indicate ‘foot’, e.g. OIr traig, NWels troed, both ‘foot’. Related possibly in some way is the similar *dhregh- ‘run’, a West Central word, which yields both verbal meanings, e.g. Latv drāžu ‘run fast’, Grk trēkhō ‘run’, and nominalizations, e.g. OIr droch,
Grk trokhós, Arm durgn, all ‘wheel’. An Italic-Greek isogloss secures *sel- ‘jump’ (Lat salīō, Grk h’allomai, both ‘jump’), which may be a local semantic development of *sel- ‘move quickly’ (see above), while a Baltic-Greek (i.e. Lith šokti ‘jump, dance’: Grk kēkōi ‘jump’) isogloss attests *kēh,k- ‘jump’. For *sker- we attribute some meaning such as ‘hop about’ because we have Grk skairō ‘jump, hop, dance’, OHG seerōn ‘be mischievous’, and words for ‘locust’; in OE scere-gescēre and Lith skērēs. Running to some purpose is suggested by the West Central word *bheug- ‘flee’, e.g. Lat fugiō ‘flee’, Grk pheúgō ‘flee’. Greek and Indo-Iranian yield cognate forms derived from *dheu- ‘run’ (Grk theō ‘run’, MPers dawīdan ‘run’, Skt dha´vate ‘runs’) but the word may be PIE if one accepts possible Germanic cognates such as NE dew. A laryngeal extension on the base root ‘fly’, *pet-, namely *peth₁r-, is seen in Grk petámai ‘fly’ and Skt patiyāti ‘will fly’.

22.14 Crawl, Slide, and Fall

In this section we summarize the small number of words associated with crawling, sliding, and falling (see Table 22.15).

The standard term for to ‘crawl on one’s belly’ (rather than on all fours) would appear to have been *serp- with its textbook series of cognates: Lat serpō, Grk hérpō, Skt sárpati, all ‘crawl’, and the congeries of its nominal derivatives, i.e. Lat serpēns, Alb gjarpēr, Skt sarpā-, all ‘snake’ (see Section 9.3). A second word, *(t)sel- ‘sneak up on, creep, crawl’, generally means precisely this in its various cognates, e.g. Lith selū ‘sneak, prowl, step softly’, Arm solim ‘crawl’, Av srvant- ‘crawling’, Skt tsárati ‘creeps up on, sneaks’; it also has nominal forms that might indicate the ‘snake’, e.g. Alb shligē, but also the ‘turtle’ or ‘snail’ (OIr selige). To ‘slip’ may be at least one of the semantic connotations of *(s)meug- or *meuk- which means ‘slide, slip’ in OE smu¯gan or ‘slip away from’ in Lith munkū; in Lat ē-mungō and Grk apomyssō we have either ‘blow’ or ‘wipe’ one’s nose (and

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Latin</th>
<th>Greek</th>
<th>Sanskrit</th>
</tr>
</thead>
<tbody>
<tr>
<td>*serp-</td>
<td>‘crawl’</td>
<td>Lat serpō</td>
<td>Grk hérpō</td>
<td>Skt sárpati</td>
</tr>
<tr>
<td>*(t)sel-</td>
<td>‘sneak up on, crawl up on’</td>
<td>Skt tsárati</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*(s)meug-</td>
<td>~ ‘slip’</td>
<td>Lat -mungō</td>
<td>Grk apoméussō</td>
<td>Skt mućcāti</td>
</tr>
<tr>
<td>*meuk-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*(s)leidh-</td>
<td>‘slide’</td>
<td>NE slide</td>
<td>Grk olisthainō</td>
<td>Skt srédhati</td>
</tr>
<tr>
<td>*kad-</td>
<td>‘fall’</td>
<td>Lat cadō</td>
<td>Skt šad-</td>
<td></td>
</tr>
<tr>
<td>*pteh₁r-</td>
<td>‘fall’</td>
<td>Grk aptēs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*ped-</td>
<td>‘fall’</td>
<td>Lat pessum</td>
<td>Skt pádyate</td>
<td></td>
</tr>
</tbody>
</table>
compare Lat *mēcus* and the NE borrowing of the same spelling and meaning); Skt *muṅcāti* indicates ‘lets loose, frees’ while OCS *mučati* ‘chase’ and Toch B *māk*- ‘run’ both have reference to swift motion. NE *slide* derives from *(s)leidh*- ‘slide’ which generally means ‘slip’ or ‘slide’ (cf. also Lith *slystu* ‘slide, slip’, OCS *slēdū* ‘track [in the grass]’, Grk *olisthaino* ‘slide’) except Skt *srēdhati*, which is problematic (whether it is a certain cognate), as it means ‘fails, errs’, perhaps from *slides off*.

There are three words for ‘fall’. Four groups (Celtic, Italic, Armenian, and Indic) attest *(k)ad- ‘fall’, e.g. OIr *casar* ‘hail’, Lat *cadō* ‘fall’ and the nominalized *cada¯ver* ‘corpse’, i.e. the ‘fallen’, Arm *c’acnum ‘fall’, Skt *s´ad- ‘fall’. The negative Grk *aptēs* means ‘not-falling’ and the derived Av *tāta* ‘fallen (of rain)’ supports a *p teh₁- ‘fall’ although the possible Hittite cognate *piddāi-‘means ‘flies’. The root for *foot*, *ped-, also serves as a verb *fall’, e.g. Lat *pessum* ‘to the ground’, OE *gefetan* ‘fall’, OCS *pado ˛* ‘fall’, Av *paiyaiti* ‘moves down, plunges down’, Skt *pādyate* ‘falls’.

From the North-West we have *rēp- ‘crawl’, e.g. Lat *rēpō* ‘crawl, go on all fours’, Lith *réplioti* ‘crawl, go on all fours’, whose cognates in both Italic and Baltic indicate crawling on all fours; this word then contrasts semantically with the more widely found root *serp-‘crawl on one’s belly’ (see above), hence we have (via loanwords from Latin), both NE *serpent* and *reptile*. Another possible North-West word (an Italic-Germanic isogloss) is *sleubh- ‘slide’, e.g. Lat *lūbricus* ‘slippery, NE *sleeve*. From the West Central region there is *(ph)ol- (ph,öl-?) ‘fall’, e.g. NE *fall*, Lith *pu¯olu* ‘fall’, Arm *p’ul ‘fall, crush’.

### 22.15 Travel

Here we group all of the other words for motion which are either too vague, e.g. ‘find one’s way’, or too specific, e.g. ‘hunt’, to be placed in the other categories. These are listed in Table 22.16.

The reconstructed meaning of *pent- comes by a logical but curious (and hardly foolproof) route. Only Germanic offers a verbal form, e.g. NE *find*, which must then be combined with its widespread nominal derivative *pōntōh₂s ‘path’, e.g. Lat *pons* ‘bridge’, Grk *patos* ‘path’, Skt *pānthas* ‘path’, hence we have ‘find’ + ‘path’, i.e. ‘find one’s way’. ‘Leave’ in the sense of ‘leave behind’ was expressed with *leik*- ‘crawls’ on one’s belly’ (see above), hence we have (via loanwords from Latin), both NE *serpent* and *reptile*. Another possible North-West word (an Italic-Germanic isogloss) is *sleubh-* ‘slide’, e.g. Lat *lūbricus* ‘slippery, NE *sleeve*. From the West Central region there is *(ph)ol- (ph,öl-?) ‘fall’, e.g. NE *fall*, Lith *pu¯olu* ‘fall’, Arm *p’ul ‘fall, crush’.
‘meet with’, Av zizāmi ‘leave off’, Skt jāhāti ‘leaves’. NE let comes from *leh1d- ‘leave’ which is limited to the Western and Central regions (e.g. also Lith lėidžiu ‘leave’, Alb lē ‘leave, let, abandon, allow’) but has an unextended form in Hit lā(i)- ‘let go’.

The semantics of *nes- ‘return home’ are hardly precise. Grk néomai does mean ‘return home’ and the Iranian cognate Av asta- ‘house’, but in Germanic the word means ‘be saved, heal’, e.g. OE ge-nesan ‘be saved’ and Skt násate means ‘unite with’. The verbal root *h₃el- provides more problems since its reflexes in Lat ambulō ‘take a walk’, Baltic (Latv aluōt(iēs) ‘go astray’), and Grk aléomai ‘go astray’ all suggest ‘wander’ while Greek also offers aleiómai ‘avoid’ and Toch AB ăl- ‘keep off’. Either we have a single verb with divergent semantic histories or two homophonous verbs: ‘wander’ and ‘avoid’.

There are two verbs for ‘lead’. The root *neih₁x- ‘lead’ is limited to Anatolian, e.g. Hit nāi- ‘leads’, and Indo-Iranian, e.g. Skt náyate ‘leads’, while the other form *h₂wed(h₃)- ‘lead’ carries the specific meaning of ‘take a wife’ in the various IE groups except for Anatolian, e.g. Hit huet(iya)- ‘draw, pull’; this word and its meaning is discussed under kinship and marriage in Section 12.2. For ‘follow’ we have *sekʷ-., e.g. OIr sechithir ‘follows’, Lat sequor ‘follow’, Lith sekū ‘follow, keep an eye on’, Grk hépomai, Skt sácate all ‘follow(s)’ as well as a nominal derivative *sókʷh₂ōi ‘follower’, e.g. ON seggr ‘follower’, Skt sákha- ‘friend’. This verb is probably the same as *sekʷ- ‘see’ (Section 20.2), where ‘see’ is a development of ‘follow with the eyes’. ‘Follow’ in the sense of ‘pursue’ is suggested by *weĩ(h₃)- ‘go after’, e.g. Lat vēs ‘thou wantest’, Lith vejū

Table 22.16. Travel

| Root | Meaning | Language
|------|---------|-----------
| *pent-* | ‘find one’s way’ | NE find
| *leikʷ- | ‘leave (behind)’ | Lat linquō, NE loan, Grk leipō, Skt riṃākti
| *deuh₁x- | ‘leave, go far away’ | Grk dēn, Skt dāvati
| *gheh₁x- | ‘leave’ | NE go, Grk kikhānō, Skt jāhāti
| *leh₁d- | ‘leave’ | NE let
| *nes- | ‘return home’ | Grk nēomai, Skt nāsate
| *h₃el- | ‘wander’ | Lat ambulō, Grk aléomai
| *neih₁x- | ‘lead’ | Skt nāyate
| *sekʷ- | ‘follow’ | Lat sequor, Grk hépomai, Skt sācate
| *weĩh₃- | ‘go after’ | Lat vēs, Skt vēti
| *leuh₃- | ‘hunt’ | Lat urgēre, NE wreek
| *wreg- | ‘track, hunt, follow’ | Lat urgēre, NE wreek
| *h₃eɡreh₂r- | ‘hunt’ | Grk ágrā
‘chase, drive, pursue’, Grk *hìemai ‘strive’, Skt *vēti ‘follows, strives’, Toch B wāya¯- ‘will drive, lead’. Words more explicitly suggesting hunting include *leuh, where Slavic retains the verbal meaning, e.g. Rus lov ‘capture, catch’, but the nominal derivative *léuh,ón ‘he of the hunt’ is found in Greek and Tocharian (Grk léon ‘lion’ [< *the hunter’; whence by borrowing the words for ‘lion’ in most European languages, including English], Toch B luwo ‘animal’ [< *the hunted’]). The root *wreg- ‘track, hunt’ is solidly attested with cognates in Lat urgēre ‘press’, Germanic (NE wreak), Anatolian (Hit ārki- ‘track’), and Tocharian (Toch B werke ‘chase, hunt’). The verbal root *h₁erh₁- ‘drive’ provides the basis for *h₁egreh₁- ‘hunt’ which is attested in Celtic, e.g. OIr ar ‘carnage’, Grk ágrā ‘hunt’, and Av azrō¯- ‘hunt’ (see Section 22.18).

## 22.16 Swim

There are a small number of words associated with motion through water, i.e. swimming, diving, and bathing, which have been assembled here in Table 22.17.

A verbal root ‘dive’ is reconstructed for *mesg- which yields Lat mergō ‘dip, dive’ and mergānser ‘duck’ (literally, *diving goose’ or the like), Lith mazgōti ‘wash up’ (i.e. *dip repeatedly’), and Skt màjjati ‘sinks’. Another possible root—if one accepts all the potential cognate forms—is *g₃wadh- (*gweh₄dh-?) ‘dive’: the Celtic correspondences are without much difficulty, e.g. OIr bāiddid ‘dives, drowns’, but the other potential cognates are land forms, i.e. Grk bēssa ‘valley’, Av vi-gāða- ‘ravine’. Another possibility is *g₃wabh- ‘dip’ with ON kafa ‘dive’, and Grk báptō ‘dip in’ (whence by borrowing NE baptism and related words) which some would relate to the Indo-Iranian words for ‘deep’, e.g. Skt gā(m)bhṛā-. Much more convincing is *sneh₂- ‘swim’ with cognates in Celtic (OIr snáid), Italic (Lat nō), Grk nēkhō, Indo-Iranian (Skt snāti), and Tocharian (Toch B nāsk-), all ‘bathe, swim’ (cf. also Av snayeiti ‘washes’). Another word

| *mesg- | ‘dip under water, dive’ |
| *g₃wadh- | ‘dive’ |
| *g₃wabh- | ‘dip’ |
| *sneh₂- | ‘swim’ |
| *pleu- | ‘float, swim; wash’ |
| *geh₂,gh- | ‘± enter water, wade’ |
| *h₁erh₁- | ‘row’ |
| | | Lat mergō, Skt màjjati |
| | | Grk bēssa |
| | | Grk báptō |
| | | Lat nō, Grk nēkhō, Skt snāti |
| | | Lat pluit, NE flow, Grk plé(w)ō, Skt plāvate |
| | | Skt gāhate |
| | | NE row |
for ‘swim’ is *pleu- where the meaning ‘swim’ is retained in Grk πλῶ(w)ῶ and Skt plāvate, but other cognates include OIr laūd ‘moves’, Lat pluit ‘it rains’, NE flow, OCS plôv ‘flow’, Arm luanam ‘wash’, and Toch B plus- ‘float’. A Slavic-Indic isogloss suggests *geh,xgh- ‘wade, enter water’, e.g. Slov gážiti ‘wade’, Skt gâhate ‘wade’. Finally, with respect to propelling a boat, we have *h1erh1- ‘row’ with the verbal meaning confined to the North-West, e.g. OIr ra¯úid ‘rows’, NE row, but the derived noun *h1erh1te´r ‘rower’ also found in Grk eréte¯s and Skt aritár-.

There are two words from the North-West associated with movement in water. A root *swem- ‘swim’ is built on a Celtic-Germanic isogloss where the Germanic cognates, e.g. NE swim, are not problematic but the Celtic words, e.g. OIr do-seinn ‘moves’, are not specifically related to movement within water. Semantically better supported is *wadh- ‘wade’, e.g. Lat vâdō ‘ford a river’, NE wade, and nominal derivatives that indicate ‘ford’ or ‘water’ (e.g. Lat vadum ‘ford’, OE gewæd ‘ford’).

22.17 Convey

Our final selection of verbal roots concerns those that involve setting in one way or another something else in motion, either by conveyance, e.g. ‘carry’, or some other form of propulsion, e.g. ‘push’, ‘pull’. The relevant verbs are indicated in Table 22.18.

Although absent in Anatolian, the root *bher- ‘carry’ is otherwise a textbook root, whose paradigm frequently graces handbooks of Indo-European linguistics (including ours, see Table 1.5). The meaning in the different groups is fairly uniform as ‘carry’, e.g. OIr beirid, Lat ferō, NE bear, Alb bie, Grk φέρω, Arm berem, Skt bhârati, Toch AB pâr-, or ‘take’ (in Slavic, e.g. Rus berû); only Baltic poses a problem where the phonetic equivalent, e.g. Lith berû, means ‘strew’. The root also provides a basis for a series of nominal forms, e.g. *bher-‘load’ (OCS bremę ‘load’, Grk fērna ‘fruit’, Skt bhârman- ‘load’); *bhr̥tis ‘carrying’ (Lat fors ‘luck’, NE birth, Skt *bhṛtī- ‘carrying’). As in English, this word is often used to indicate ‘bear a child’. Also widely attested is *wegh- ‘carry’, e.g. Lat vehō ‘bear’, NE weigh (as in ‘weigh anchor’). Lith vežû ‘drive’, OCS wezę ‘drive’, Alb vjedh ‘steal’, Grk (w)êkhêto ‘he should bring’, Skt vâhâti ‘carries’. The difference between the semantics of this root and *bher- is not entirely clear; however, the verbal cognates in Celtic, Latin, Baltic, and Indo-Iranian can also mean ‘ride/drive (a vehicle)’ and there are nominal derivatives, e.g. *weghîtlom ‘vehicle’ (Lat vehiculum, Skt vahîtram). It is possible that the
original PIE meaning also contained the concept of ‘ride’ or ‘drive’ but we cannot be certain that this meaning was not a secondary development in later Indo-European.

There are at least three roots for ‘pull’. The root *deuk- ‘pull’ is largely confined to the West and Centre regions but with Toch A tkā- ‘will stir, consider’, it can be assigned to Proto-Indo-European. The groups not only retain the basic verbal meaning, e.g. Lat dúcō ‘lead’, NE tow, tie, Alb nduk ‘pull hair out’, but also extended meanings where Lat dúcō may also mean ‘deduce’ while the Greek cognate deuκει means ‘considers’ as it does in Tocharian A. Toch B saλk- ‘pull out’ offers the sole Asian cognate from *selk- ‘pull’, e.g. Lat sulcāre ‘to plough’, Grk ἕλκo ‘pull’, and NE sullow, which survives as a dialect word for ‘plough’. Possibly related to *selk- as a rhyme word is *h4welk- ‘pull’ which is attested in Baltic (e.g. Lith velkū ‘pull’), Slavic (e.g. OCS věků ‘pull’), Alb heq ‘pull [out], remove’, Grk ὀλκα ‘furrow’, and Iranian (Av frāvarcātiti ‘carries off’). Finally, there is *dhregh- ‘glide, pull (something) across’ which is attested in ON drak ‘stripe’, Lith drežōti ‘tear apart’, and Skt dhrajati ‘move’.

Several words served for ‘push’. A root *(s)teud- ‘push’ can be attested from both the West, e.g. OIr do-tuit ‘makes to fall’, Lat tundō ‘push, strike’ and with the s-, studeō ‘strive’ (i.e. ‘push oneself’), studium ‘zeal’ (borrowed into NE as study), Goth stautan ‘push’, Alb shtyj ‘push’, and the East, e.g. Skt tudāti ‘pushes, strikes’. To ‘push back’ seems to have been the underlying meaning of *reudh- seen in NE rid, Skt rudh- ‘check, restrain’, and Toch AB rutk- ‘move,

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Table 22.18. Convey

<table>
<thead>
<tr>
<th>Root</th>
<th>Meaning</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>*ber-</td>
<td>‘carry’</td>
<td>Lat ferō, NE bear, Grk pherō, Skt bhārati</td>
</tr>
<tr>
<td>*wegh-</td>
<td>‘bear, carry also ride’</td>
<td>Lat vehō, NE weigh, Grk (w)ekhēto, Skt vāhati</td>
</tr>
<tr>
<td>*deuk-</td>
<td>‘pull’</td>
<td>Lat dúcō, NE tow, Grk deukei</td>
</tr>
<tr>
<td>*selk-</td>
<td>‘pull’</td>
<td>Lat sulcāre, NE sullow, Grk hēlkō</td>
</tr>
<tr>
<td>*h4welk-</td>
<td>‘pull’</td>
<td>Grk ōlka</td>
</tr>
<tr>
<td>*dhregh-</td>
<td>‘glide, pull (something) across’</td>
<td>Skt dhrajati</td>
</tr>
<tr>
<td>*(s)teud-</td>
<td>‘push, thrust’</td>
<td>Lat tundō, Skt tudiati</td>
</tr>
<tr>
<td>*reudh-</td>
<td>‘push back’</td>
<td>NE rid, Skt rudh-</td>
</tr>
<tr>
<td>*sperh-</td>
<td>‘kick, spur’</td>
<td>Lat spernō, NE spurn, Grk spairō, Skt sphurāti</td>
</tr>
<tr>
<td>*telh-</td>
<td>‘lift, raise’</td>
<td>Lat tollō, NE thole, Grk talāssai, Skt tulā</td>
</tr>
<tr>
<td>*kel(-h₂)</td>
<td>‘lift, raise up’</td>
<td>Lat ante-cellō, Grk keléontes</td>
</tr>
<tr>
<td>*h₄e₂g-</td>
<td>‘drive’</td>
<td>Lat agō, Grk āgō, Skt ájati</td>
</tr>
<tr>
<td>*kel-</td>
<td>‘drive’</td>
<td>Lat celer, Grk kēlō, Skt kalāyati</td>
</tr>
</tbody>
</table>

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remove’. Here we might also include ‘move with the foot’, i.e. ‘kick’, *sperh₁- with derivitives such as Lat spernō ‘separate; spurn’, NE spurn, Latv speŗt ‘kick’, Grk spairō ‘palpitate, give a start’, Skt sphruṭī ‘springs, spurns’, and Hit ispar- ‘tread down, destroy’.

There are two verbs for ‘raising’ or ‘lifting’: *telh₂-, e.g. Lat tollō ‘lift’, NE thole, Grk talāssai ‘bear, suffer’, Arm t’ulow ‘let, permit’, Skt tulā ‘scales’. Both the NE thole (which survives in dialect form to mean ‘suffer, endure’) and Greek suggest that the meaning has been extended to ‘hold up’ in the metaphorical sense; other cognates, e.g. Toch AB tāl- ‘uphold, raise’, preserve the original meaning while MIr tlenaid ‘takes away’ reveals a further semantic shift. The second verb, *kel(h₃)- has cognates such as Lat ante-cellō ‘surpass’, Grk keléontes ‘vertical beams in an upright loom’, augmented by Lith kėlti ‘raise up’ and Toch AB kāl- ‘stand’. There are also nominal derivatives to indicate a raised topographical feature, e.g. NE hill.

Very well attested is the verb *h₂eg- ‘drive’, e.g. Lat agō, Grk ἀγό, Skt ájati, all ‘drive(s)’, also known in Celtic, e.g. OIr ad-aig ‘drive’, Germanic, e.g. ON aka ‘travel’, Arm acem ‘lead’, and Toch AB āk- ‘lead’. The explicit context of the verb often indicates that one of its original meanings was probably ‘drive cattle’ and it occurs in expressions indicating raiding for cattle, e.g. OIr tāin (< *to-ag-no-) bō ‘cattle raid’, Lat bovēs agere ‘to drive or raid for cattle’, Av gām varōtam az- ‘drive off cattle as booty’. A root *kel- is seen in Lat celer ‘swift’, Grk keλλο¯ ‘drive a ship to land’, Skt kālāyati ‘impels’; related are the Germanic words for ‘hold’, e.g. NE hold, which in Gothic is haldan ‘pasture cattle’; an extended form in Tocharian, i.e. Toch B kālts- means ‘press, goad, drive’.

A number of regional words are found in the North-West. A root *dhregh- ‘pull, tear (out)’, is found in Germanic (e.g. NE draw), Baltic (e.g. Latv dragāju ‘tear’), Slavic (e.g. Rus dērgatī ‘pluck, tear’), and possibly in Lat trahō ‘pull’, though the initial t- is problematic; *skeubh- ‘push away, push ahead’ is also found in the same three groups, e.g. NE shove, Lith skūbti ‘hurry’, OCS skubō ‘pluck, tear off’; *telk- ‘push, thrust’ is found in Celtic, Baltic, and Slavic (e.g. OIr tolc ‘blow’, Lith tilmkti ‘be tame’, Rus tolkati ‘push, shove’); Germanic, e.g. NE drive and drove (of cattle), and Baltic (e.g. Lith drimbū ‘slowly drop down’) provide evidence for *dhreibh- ‘drive’; both Old Norse and Lithuanian employ this verb to describe the fall of snow. A Celtic-Germanic isogloss gives us *reidh- ‘ride’, e.g. MIr riādaigid ‘rides’, NE ride. There is one purely Asiatic isogloss: *neud- ‘push (away)’, attested in Skt mūḍati ‘pushes’ and Toch B nāt- ‘thrust, push away’.
Further Reading

The basic assemblage of Indo-European verbs is in (Rix et al. 2001). Other thematic discussions are Vendryès (1932) and Niepokuj (1994); for *sek*- see Baldi (1974), *bher*- see Hamp (1982c), and for a recent interpretation of *dheugh- see Krasukhin (2000).
23
Religion

23.1 Deities

Approaches to the study of Indo-European religion and mythology differ substantially from those of the other semantic categories. There are several reasons for this difference. First, and obvious, is the paucity of terms for the names of deities reconstructable to Proto-Indo-European; with the exception of a few reconstructions that are found in almost any textbook, a number listed in Table 23.1 are of uncertain or, frankly, doubtful validity. Second, given the very nature of the subject—the ideological content of an ancient culture (here substituting 'culture' for 'reconstructed proto-language')—it has attracted far more attention than many other semantic categories. Finally, unlike most other semantic categories, there exists an entire academic field devoted to the study of comparative religion or mythology that has devised techniques other than strictly philological to reconstruct the deities and ideological content of Proto-Indo-European mythology. This chapter will briefly review the linguistic evidence while other approaches to Indo-European religion will be surveyed in Chapter 25.

The basic word for ‘god’ in Proto-Indo-European appears to have been *deiwós, itself an o-stem derivative of *dyeu- ‘sky, day’ < *dei- ‘shine, be bright’ and it is widely attested across the Indo-European groups, e.g. OIr dīa, Lat deus, Lith diėvas, Hit sīus, Skt devā-, all ‘god’ in turn; in both Slavic and Iranian, e.g. Av daēva-, the word means ‘demon’, a result of a religious
reformation that degraded prior deities to demons to make way for the new religion preached by Zarathustra. (The change, which began in Iranian, presumably spread to Slavic during the long period of prehistoric cultural exchange, centered on the south Russian steppes, between Iranian and Slavic.) In Germanic, the word for ‘god’ survives as the name of the god Tyr, a Germanic war god, e.g. OE *tíw and NE Tuesday, Lat *dyeus pater ‘sky father’. There are both exact cognates of this form, e.g. Lat Ju¯piter, Grk Ze¯us pater, Skt dyáus pitá.

We also have some evidence for a feminine deity as well, i.e. *dhugha¯te¯r diwós ‘sky daughter’, whose name is preserved in Lith die¯vo dukté ‘Saulyte’ who was represented as the ‘daughter of the sky’, Grk thugátēr Diós, Skt duhitā divāh. This epithet is specifically applied to the ‘dawn goddess’, *h_e¯séus in Baltic, Greek, and Indic tradition. The cognate set is Lat Aurōra, Grk Ēōs, Skt Us¯as-. The celestial nature of the Proto-Indo-European gods is also supported by the two etymologically unrelated words for ‘god’ in Germanic and Tocharian. NE god and its congener (e.g. NHG Gott) is from Proto-Indo-European *ghutom ‘that which is called/invoked’ while in Toch B we have ņakte (Toch
někai) from Proto-Indo-European *ni-ghanos ‘he who is invoked downwards (i.e. from the sky)

Another word for ‘god’ is supplied by *dhēh₁s where the meaning ‘god’ survives in Grk theos and Arm dîk ‘the gods’ but is attested otherwise in the remaining cognate forms, e.g. Lat fēriae ‘festival day’, Skt dhiṣāna- (epithet of various gods) and dhiṣa ‘with impetuosity’; the latter’s semantic development might be compared with NE enthusiasm, ultimately borrowed from Greek and meaning ‘(having) a god inside’. There is also *h₁,ênsus ‘god, spirit’ which is based on a Germanic-Indo-Iranian isogloss. The Germanic forms include ON oðs ‘god’ (in the nominative plural we have the famous Æsir of Norse mythology) while in Iranian we have ahura- ‘god, lord’ and Ahura-mazdâh, the highest of the gods in the pantheon of Zarathustra, and in Indic there is Skt âstu- ‘powerful spirit’ and the Asura-, a special class of Indic deities.

The remaining names of the “special-purpose” deities all pose special problems. One may, for example, propose a *bhghnutih₁ ‘high one’ where Celtic offers the name of a goddess, e.g. OBrit Brigantia, Germanic offers a female personal name, e.g. OHG Burgunt and Indic provides a cognate adjective, Skt bŷhâṭr ‘high, lofty’, but no corresponding deity or myth, leaving it likely that, as a divine name, it is a Celtic innovation. Some propose a *neptonos or *h₂epom nepōts ‘grandson/nephew of waters’. The latter is solidly reconstructed to Indo-Iranian, e.g. Skt Ap ām Nâpā, but both of the putative Western reflexes, OIr Nechtain and Lat Neptūnus, have been challenged, in terms of their relationship both with the Indo-Iranian deity and with each other. A PIE *wlkānos/*wlkeh₁nos ‘smith god’ is also insecure and based on the proposed correspondence between the Roman smith god, Lat Volcānus (which is otherwise derived from Etruscan or some Aegean language), and Oss wergon, a smith god. In this case the proposed cognates are desperately few (and the proposed equation suffers by not being attested in an ancient Iranian language), but the phonological relationship would be perfect. The divine nature of a deified *bhagos ‘apportioner’ is secure only in Indo-Iranian (Skt bhāga-, Av baga-, the latter of which was borrowed into Slavic to provide the standard word for ‘god’, bogû); it also serves as an epithet of Zeus in Phrygian Bagatos but retains its purely etymological meaning (< *bhag- ‘apportion’) in Tocharian, e.g. Toch B pāke ‘share, part’ (see Section 17.3). A ‘thunder god’ is indicated by *perkʷunos which is attested in Germanic, e.g. Fjørgyn, mother of the Norse thunder god Thor, the Lithuanian thunder god Perkūnas, and the Old Russian thunder god Perun; his identification as a Proto-Indo-European deity, rather than a specifically North-Western Indo-European one, depends on whether one accepts that Skt Parjanya (presupposing a Proto-Indo-European *pergʷenyo-), a weather god, is also cognate. Even more dubious are attempts to postulate a ‘war god’, *mawort-, on the basis of Lat Mârs and Skt
Marutás, the companions of the Vedic war god Indra. In these last two cases, and more particularly in the last one, the amount of irregular sound change one has to assume, in the absence of an exact semantic equation, is more than most historical linguists are prepared to accept.

If the individual deities do not fare well (at least in terms of reconstruction), there is more widespread acceptance of the ancestor of humans, *manu- based on Germanic Mannus, the mythological ancestor of the Germans, and the Indo-Iranian ancestor of humanity, e.g. Skt Mánu. Another possible reconstruction is *h₂(e)ībh- which is attested in Germanic, e.g. NE elf, and Skt ībhú- ‘an artisan deity’. Finally, a ‘phantom’, *dhroughós, is suggested on the basis of Celtic (OIr airdrech ‘phantom’, Germanic, e.g. ON draugr); as a personalized form it is limited to the North-West but it is cognate with Skt drógha- ‘deceiving’ and derives from *dhreugh- ‘deceive’ (see Section 20.6).

Regionally reconstructed deities are neither numerous nor always secure. From the North-West we have a possible *dhwes- ‘spirit’ from the verb *dhwes- ‘breathe’ found in Celtic (Gaul dusios ‘type of demon’), MHG getwās ‘fantom’, and Baltic (Lith dvasiá ‘spirit’). For the West Central region there is OIr tríath ‘sea’ which is phonetically close to and semantically not too distant from the name of the Greek sea god Tríṭon, the son of Poseidon, but a proto-form *triḥaṭōn ‘watery (one?)’ remains highly speculative. Perhaps more probably related are Lat lemurēs ‘nocturnal spirits who devour the dead’ and Grk lámía ‘a female flesh-eating monster used to scare children with’ which might derive from *lem- ‘(nocturnal) spirit’. Greek-Indo-Iranian isoglosses comprise several potential cognate deities (and their names). An Indo-European pēh₂usōn ‘pastoral god’ is predicated on Grk Pάn and Skt Pūsā; the suggested underlying root, pēh₂- ‘protect, feed cattle’, is congruent with the fact that both deities are depicted as pastoral gods within their respective pantheons. Similarly, the word Kérberos ‘spotted’ would seem to underlie the names of both the Greek hound of Hades Kérberos and the epithet (sárvara-) of one of the dogs of Yama, the Indic god of the dead. There are fewer semantic reasons to link the Greek fury Erínās with the Indic goddess Saranyā, wife of the Sun, although the phonological correspondence of both their names (*seren(y)uh₃s) does seem sound enough.

### 23.2 The Sacred

The vocabulary of the sacred (Table 23.2) challenges us to understand the underlying connotations of each of the terms we can reconstruct. On a comparative basis the idea of the sacred is often associated with some form of rite
by which something or someone is separated apart from the secular world. Alternatively, the sacred may be associated with being complete, infused with a special power. PIE *sakros, for example, exhibits cognates in Lat sacer ‘sacred’ and sacerdös ‘priest’ and Tocharian, e.g. Toch B sakre- ‘happy’, with a more distant connection with Hit sakla¯i- ‘rite, custom’; one might then envisage a rite by which something is made sacred and some would derive this form from the verbal root *sek- ‘cut’, i.e. cut off from the world. The cognates of *weik- ‘consecrate’ can be both nominal, e.g. Lat victima ‘sacrificial victim’ and NE witch, and verbal where Indo-Iranian suggests that the act of consecration involves setting something or someone apart, e.g. Goth weihan ‘consecrate’ (and weihis ‘holy’; cf. NHG Weihnachten ‘Christmas Eve’) but Skt vinākti ‘select out’. Similarly, the Western cognates of *wōtis ‘god-inspired’ are nominal, usually names of priests such as OIr faith ‘prophet’ or gods, e.g. ON Óðinn ‘Odin’, while the verbal forms are found in Indo-Iranian, e.g. Skt api-vat- ‘consecrate’ (and api- ‘inspires’ (see Sections 20.2, 21.2). A verbal origin probably underlies both *kwen(to)- ‘holy’ (e.g. Lith švėtis ‘holy’, OCS svět ‘holy’, Av śponti ‘holy’) which is derived from *kēu(h)i- ‘swell’, hence, ‘swollen (with some form of sacred force)’ and *noibhos ‘holy’ (OIr noib, OPers naiba-, both ‘holy’) from *nei- ‘be excited’, again some form of sacred animation. The first root also provides the basis for *kουρhos ‘powerful (i.e. swollen)’, although in its derivatives it generally refers to a powerful human, a hero, as in OIr cora(i)d, Skt śāra-; it is also a proper name in Thracian Soura-.. A division between physical and spiritual strength, however, is far less clear in *h₁euges- ‘strength’, where Skt ējas- can refer both to the physical might of a warrior and also

Table 23.2. The sacred and sacrifice

<table>
<thead>
<tr>
<th>Cognate</th>
<th>Meaning</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>*sakros</td>
<td>‘holy’</td>
<td>Lat sacer</td>
</tr>
<tr>
<td>*weik-</td>
<td>‘consecrate’</td>
<td>Lat victima, NE witch, Skt vinākti</td>
</tr>
<tr>
<td>*kwen(to)-</td>
<td>‘holy’</td>
<td></td>
</tr>
<tr>
<td>*noibhos</td>
<td>‘holy’</td>
<td></td>
</tr>
<tr>
<td>*seup-</td>
<td>‘pure’</td>
<td></td>
</tr>
<tr>
<td>*wōtis</td>
<td>‘god-inspired’</td>
<td>NE Wednesday, Skt api-vat-</td>
</tr>
<tr>
<td>*kουρhos</td>
<td>‘powerful’</td>
<td>Grk kários, Skt śāra-</td>
</tr>
<tr>
<td>*h₁euges-</td>
<td>‘strength’</td>
<td>Lat augustus, Skt ējas-</td>
</tr>
<tr>
<td>*kουρ(e)s</td>
<td>‘priest’</td>
<td>Grk kōs, Skt kavi-</td>
</tr>
<tr>
<td>*bhlagghmēn</td>
<td>‘priest’</td>
<td>Lat flāmen, Skt brahmān-</td>
</tr>
<tr>
<td>*pēnt- + *dheh₁-/*k“er-</td>
<td>‘priest’</td>
<td>Lat pontifex, Skt pathi-kt-</td>
</tr>
<tr>
<td>*bhertōr</td>
<td>‘priest’</td>
<td></td>
</tr>
<tr>
<td>*h₁,ed-bher-</td>
<td>‘sacrifice’</td>
<td>cf. Skt prá-bhartar-</td>
</tr>
<tr>
<td>*d(h₁)eu-</td>
<td>‘be favourable to’</td>
<td>Lat bonus, Skt dīvas-</td>
</tr>
<tr>
<td>*h₁,olu-</td>
<td>‘spell’</td>
<td></td>
</tr>
</tbody>
</table>
the spiritual potential of a deity, and in Latin the semantic sphere is purely sacred, e.g. Lat *augustus* ‘sacred’ and the related *augur* ‘priest, seer’. Only Umb *supa* and Hit *suppa*- provide evidence of a PIE *seup- ‘pure’ but both indicate the ‘viscera of a sacrificed animal’, i.e. something tabu for humans, while Hit *supp-* renders ‘pure’. Despite the fewness of cognates, the perfect semantic and phonological correspondences would seem to make this a certain Proto-Indo-European word.

Reconstructed words for a Proto-Indo-European ‘priest’ are insecure but there are at least three candidates. A word for priest, *(s)kouh₁e¯i*(s), is found in Grk *kōës* ‘priest’, Lyd *kawes’ ‘priest’, and Skt *kavī ‘seer’, from *(s)keuh₁- ‘perceive’. A Latin-Messapic-Indo-Iranian isogloss (Lat *flāmen* ‘priest’, Messapic *blamini* ‘priest’, OPers *brazman- ‘appropriate form, appearance’, Skt *brahmān- ‘priest’) indicates a (remote) possibility for *bhlaghmēn ‘priest’ which is primarily challenged because the -*gh-* of the reconstructed form is nowhere evident in the Latin word nor can one find any further evidence of a root *bhlagʰh- in any of the other Indo-European languages. Even more remote is *pent- + *dheh₁-/*kʷ*-er-, a compound of *pent- ‘path’ and either *dheh₁- ‘put, establish’ (in Lat *ponti-fex*) or *kʷ*-er- ‘make’ in Skt *pathi-kṛt- ‘path-maker’, also a religious title applied to priests. Both suggest the concept of a ‘path-maker’ which in Latin is exclusively employed in a religious context, i.e. ‘one who makes a path to the gods’ while the Indic form can be applied to priests. The root *bher- ‘carry’ provides the basis for another weakly attested word for ‘priest’, i.e. *bhertör ‘one who bears (offerings)’ which is found in Umb *ars-fetur ‘priest’ and Av *fra-bhṛtar- ‘priest’ which could certainly be the result of independent creation. The same root is found in the compound *ḥ₁-ḥi-bher- ‘sacrifice’, literally ‘brings to’, that is ‘make an offering’, which is attested in Celtic (OIr *ad-opair ‘sacrifice’), Italian (Umb *arsfetur ‘priest’), and Indo-Iranian, e.g. Skt *prābhartar- ‘one who brings’; again assignment to Proto-Indo-European is uncertain as the Indo-Iranian cognates employ a different preposition (*pro-*) from the Western languages.

The semantic sphere of *d(h₁)eu- ‘be favourable to’ (probably from *deh₂- ‘give’) may extend to the religious idea of ‘worship’, e.g. the cognate Skt *diivas- ‘worship’, *duvasyāti ‘honours’, although its Western cognates may mean ‘strong’ (OIr *de(i)n*) or ‘good’, Lat *bonus* from OLat *duenos*). Finally, we have a Germanic-Hittite isogloss to support a vaguely understood *ḥ₂-olu- or *alu- ‘spell’; the Hit *alwanzatar* means ‘witchcraft, spell’ while the Germanic forms, e.g. Runic *alu*, may mean ‘spell’ and are more certainly associated with the supernatural.

We have a Celtic-Germanic isogloss that yields *(s)oi̯to/eh₂*- ‘sorcery’ (NWels *hud ‘magic’, ON *seið ‘magic’) and a Slavic (OCS *čudo ‘wonder’)-Greek (*kūdos ‘renown’), both from *(s)keudes- ‘magic force’. There are several
Greek-Indo-Iranian isoglosses. A root *yaǵ- ‘honour, worship’ is attested by Grk házomai ‘dread’ (and hágios ‘holy’) and Skt yájati ‘worships’; here the Greek denotes the fear one feels in the presence of the deities while both the Greek and Indic reflexes of *tyegʷ- ‘give way, pull oneself back (in awe)’ suggest such negative connotations (Grk sébomai ‘worship, honour’, sobeō ‘frighten off, drive away’, Skt tyájati ‘stands back from something’). ‘Sacred power’, *isʰ₁ros, is indicated by a series of cognates in both Greek, e.g. hierós ‘sacred, powerful’, and Skt isirá- ‘powerful’, cf. the cognate expression Grk hierón ménos: Skt iṣiréna mánasā ‘sacred strength’.

Further Reading

24

Grammatical Elements

24.0 Pronouns

Generally, along with numerals and some kinship and body terms, the most persistent elements in any language tend to be basic grammatical forms such as pronouns and conjunctions. Indo-European is no exception here and we can reconstruct on a fairly broad basis the various pronouns of Proto-Indo-European.

24.1 Personal and Reflexive Pronouns

Although most modern European-derived languages recognize three personal pronouns, i.e. first person I and we, second person you, and third person he/she/it and they, there is no evidence for a third person in Proto-Indo-European. Instead, we find well-supported evidence for demonstrative pronouns, e.g. this or that. Of the first two persons, we find, as we might expect, that these words were in such frequent use in any language that there are variable forms depending on whether the pronoun was merely stated, e.g. *h₁eǵ ‘I’, emphasized, e.g. *h₁eǵom ‘I myself’, or an enclitic, i.e. placed as a particle at the end of another word, e.g. *h₁me. The emphatic forms involve the addition of a suffix *-om to the base form. Also, in addition to the singular and plural forms, each of the pronouns also attests the existence of a dual form to express pairs,
i.e. ‘we two’, ‘you two’. The primary personal pronouns are indicated in Table 24.1.

The nominative form of the first person pronoun in the various IE groups might be derived from the PIE first person or from the emphatic form or from the accusative. Those drawing directly on the PIE nominative (*h₁eg̣) include Italic (e.g. Lat ego ‘I’), Germanic (e.g. OE ic ‘I’ (> NE I), Baltic (e.g. Lith aš ‘I’), Arm es ‘I’; the emphatic form (*h₁eg̣óm) supplied Slavic (e.g. OCS *(j)azú (< *h₁eg̣óm), Alb unë, Grk egō(n); and Indo-Iranian (e.g. Skt ahám ‘I’); the accusative (*h₁me) is found as the base form for Celtic (OIr mé ‘I’), Anatolian (e.g. Lyc amu ~ ēmu ‘I, me’), and Tocharian (Toch B ṇas [ < h₁mé-ğe]). The first person dual is less widely attested but found in Germanic (e.g. OE wit ‘we two’), Baltic (Lith mūdu ‘we two, us two’), Slavic (e.g. OCS vě ‘we two’), Grk nò ‘we two, us two’, Indo-Iranian (e.g. Skt ávām ‘we two, us two’), and Toch B wene ‘we two, us two’. More widespread is the plural form *wéi ‘we’ (emphatic *weyóm) that is found in Celtic (e.g. OIr ní ‘we, us’), Italian (e.g. Lat nò ‘we, us’), Germanic (e.g. OE wé ‘we’), Baltic (e.g. Lith mēs ‘we’), Slavic (e.g. OCS my ‘we’), Alb ne (< *nōs) ‘we, us’, Grk hēméis ‘we’, Arm mek ‘we’, Hit wēs ‘we’, Skt vayám ‘we’, and Tocharian (e.g. Toch B wes ‘we, us’). Here again there have been shifts from other forms and influences from different numbers seen, for example, in the tendency of Baltic, Slavic, and Armenian to replace the initial *n- by m-, either influenced by the first person singular pronoun or because of the influence of the first person plural verbal endings in *-m-, or both.

The second personal pronoun also possessed a nominative *tūhx ‘thou’, emphatic *tuḥxóm, accusative *tēwe, and enclitic *te although these were better differentiated in the different IE groups than was the case of the first person. Cognates are found in Celtic (e.g. OIr tū ‘thou, thee’), Italian (e.g. Lat tū ‘thou’, tē ‘thee’), Germanic, e.g. OE þū ‘thou’ [NE thou], þē [NE thee]), Baltic (e.g. Lith tū ‘thou, tavē ‘thee’), Slavic (e.g. OCS ty ‘thou’, tē ‘thee’), Alb ti ‘thou’, ty ‘thee’ (enclitic tē), Doric Grk τū ‘thou’, Arm du ‘thou’, z-k’ez (< *twe-) ‘thee’, Anatolian (e.g. Hit zīg ‘thou’ (with a -g from the first person)), Indo-Iranian

<table>
<thead>
<tr>
<th>Personal and reflexive pronouns</th>
<th>Lat</th>
<th>NE</th>
<th>Skt</th>
</tr>
</thead>
<tbody>
<tr>
<td>*h₁eg̣</td>
<td>‘I’</td>
<td>Lat ego, NE I, Grk egō, Skt ahám</td>
<td></td>
</tr>
<tr>
<td>*nōh₁</td>
<td>‘we two’</td>
<td>Grk nò, Skt ávām</td>
<td></td>
</tr>
<tr>
<td>*wēi</td>
<td>‘we’</td>
<td>Lat nōs, NE we, Grk hēméis, Skt vayám</td>
<td></td>
</tr>
<tr>
<td>*tūhx</td>
<td>‘thou’</td>
<td>Lat tū, NE thou, Grk sū, Skt tvām</td>
<td></td>
</tr>
<tr>
<td>*wōh₁</td>
<td>‘you two’</td>
<td>Skt yuvām</td>
<td></td>
</tr>
<tr>
<td>*yuhs₃, *uswē ~ *swē</td>
<td>‘ye’</td>
<td>Lat vōs, NE ye, Grk humeis, Skt yūyām</td>
<td></td>
</tr>
<tr>
<td>*sēwe</td>
<td>‘-self’</td>
<td>Lat sē, Grk heē’, Skt svā-</td>
<td></td>
</tr>
</tbody>
</table>
(e.g. Skt tvám thou’, tvám ‘thee’), and Tocharian (e.g. Toch B tuwe ‘thou’, ci ‘thee’). There were two forms for the dual: nominative *wóh₁ ‘ye two, you two’ and accusative *uh₁we ‘you two’ with cognates in Germanic (e.g. OE git ‘ye two’, inc ~ incit ‘you two’), Baltic (e.g. Lith jūdu ‘ye/you two’), Slavic (e.g. OCS va ‘ye/you two’), Indo-Iranian (e.g. Skt yuvām ‘ye/you two’), and Tocharian (e.g. Toch B yene ‘ye/you two’. The second person plural has seen massive rebuilding of its forms, i.e. *yuh₁xs ‘ye’, *uswe’ ‘you’, and enclitic *wos, e.g. the accusative serves as the nominative form for Celtic, Italic, Slavic, Albanian, Greek, and Anatolian. The plural forms include Celtic (e.g. OIr sí¯ ‘him-/her-/itself’), Germanic (e.g. OHG sīh ‘him-/her-/itself’), Baltic (e.g. Lith sav¯ ‘self’), Slavic (e.g. se¯ ‘self’), Alb ju ‘him-/her-/itself’, Grk he¯/C24 hee¯ ‘him-/her-/itself’, Indo-Iranian (e.g. Skt svá¯ ‘one’s own’), and Tocharian (e.g. Toch B ṣañ ‘one’s own’).

The reflexive pronoun (*séwe) is well attested across most IE groups such as Italic (e.g. Lat sé ‘him-/her-/itself’), Germanic (e.g. OHG sih ‘him-/her-/itself’), Baltic (e.g. Lith sav¯ ‘self’), Slavic (e.g. se¯ ‘self’), Alb u ‘him-/her-/itself’, Grk hé ~ hee ‘him-/her-/itself’, Indo-Iranian (e.g. Skt svá¯ ‘one’s own’), and Tocharian (e.g. Toch B ṣañ ‘one’s own’)

24. GRAMMATICAL ELEMENTS

24.2 Demonstrative Pronouns

To complete the basic paradigm of our modern personal pronoun, PIE employed three genders of one of the demonstrative pronouns. There were two that could have served. The most likely was built on *h₁ei- ‘this (one)’, i.e. *h₁ēī (with an emphatic *h₁eyo̊m) ‘he, this (one)’, *h₁ih₂- ‘she, this (one)’, *h₁id (emphatic *h₁idóm ~ *h₁idého) ‘it’. Alternatively, Proto-Indo-European also offered a pronoun indicating ‘that (one)’, i.e. *so ‘that one, he’, *sëh₂ ‘that one, she’, *tód ‘that one, it’. Most of the other demonstrative pronouns may be derived from these two with the addition of suffixes that will reappear when we examine the interrogative and relative pronouns. The main demonstrative forms are listed in Table 24.2.

The demonstrative pronouns are spottily attested across the entire IE world. The pronoun ‘this one’, i.e. *h₁ēī / *h₁ih₂- / *h₁id, designates all three genders (he/she/it) as can be seen in the list of cognates: Lat is ~ īs/eīd ‘he/she/it’, Germanic (e.g. OHG ir ~ er/iz ~ ez ‘he/it’), Baltic (e.g. Lith jis/ji ‘he/she’), Cypriot Grk in ‘him, her’, Anatolian (e.g. HierLuv is ‘this’), and Indo-Iranian (e.g. Skt ayām/iyām/idām ‘he/she/it;this’). Its corresponding ‘that one’, *so/*sëh₂ / *tód, is also widely attested in Celtic (e.g. OIr -so/-d ‘this one’), Lat is-te/is-ta/is-tud ‘this (one)’, Germanic (e.g. OE sē/sëo/pet (> NE that) ‘the’,
Table 24.2. Demonstrative pronouns

<table>
<thead>
<tr>
<th></th>
<th>Lat</th>
<th>Grk</th>
<th>Skt</th>
</tr>
</thead>
<tbody>
<tr>
<td>*h₁eːi / *h₁h₁r / *h₁id</td>
<td>‘this one’</td>
<td>‘this one’</td>
<td>‘this one’</td>
</tr>
<tr>
<td>*so / *seh₁ / *tôd</td>
<td>‘that one’</td>
<td>‘that one’</td>
<td>‘that one’</td>
</tr>
<tr>
<td>*kîs</td>
<td>‘this (one)’</td>
<td>‘this (one)’</td>
<td>‘this (one)’</td>
</tr>
<tr>
<td>*h₁iteros</td>
<td>‘(an)other’</td>
<td>‘(an)other’</td>
<td>‘(an)other’</td>
</tr>
<tr>
<td>*h₁itha</td>
<td>‘thus’</td>
<td>‘thus’</td>
<td>‘thus’</td>
</tr>
<tr>
<td>*h₁idh₁a</td>
<td>‘here’</td>
<td>‘here’</td>
<td>‘here’</td>
</tr>
<tr>
<td>*tôr</td>
<td>‘there’</td>
<td>‘there’</td>
<td>‘there’</td>
</tr>
<tr>
<td>*tôdēh₁</td>
<td>‘then’</td>
<td>‘then’</td>
<td>‘then’</td>
</tr>
<tr>
<td>*teh₁, wot(s)</td>
<td>‘so many, so long’</td>
<td>‘so many, so long’</td>
<td>‘so many, so long’</td>
</tr>
</tbody>
</table>

OHG der/die/daz ‘the’, Goth sa/sō/pata ‘that (one)’, Baltic (Lith tās/tā ‘that [one]’), Slavic (e.g. OCS tā/tā/to ‘that [one]’), Alb ajo ‘he/she’, Grk ho/hē/tō ‘the’, Arm ay-d ‘that’, Hit ta ‘and, then’, Indo-Iranian (e.g. Skt sā/sā/tāt ‘that [one]’), and Toch B se/sā/te ‘such (a one)’. This pronoun supplies the definite article in Germanic and Greek. Another word for ‘this (one)’ was *kîs with cognates in Celtic (e.g. OIr cē ‘here, on this side’, Lat cis ‘on this side of’, Germanic (e.g. OE hē ‘he’ [> NE he]), Baltic (e.g. Lith sˇįs ‘this [one]’), OCS sǐ ‘this (one)’, Alb sot (< *kˇyeh-a-dih-tei) ‘today’, Grk seˇtes (< *kˇyeh-a-wetes) ‘in this year’, and Hit kî ‘this’.

The pronoun *h₁iteros ‘(an)other’ is based on a Latin-Sanskrit isogloss (Lat iterum ‘again’, Skt itara- ‘the other, another’). Somewhat more widespread is *h₁itha ‘thus’ with cognates in Celtic (e.g. MWels yt- (verbal particle), Lat item ‘also, likewise’, ita ‘so, thus, in this manner’, Baltic (e.g. Lith [dial.] it ‘as’), and Indo-Iranian (e.g. Skt iti ‘thus, in this manner’). The pronoun *h₁idh₁a ‘here’ is attested in Celtic (e.g. OIr -id- [infixed particle]), Lat ibī ‘there’, Grk ithubanēs ‘here born’, and Indo-Iranian (e.g. Skt ihā ‘here’). ‘There’, *tôr, is limited to cognates in Germanic and Indic, i.e. OE þær ‘there’ (> NE there), Skt tār-hi ‘at the time, then’. The temporal pronoun *tôdēh₁ ‘then’ is also limited to two main groups, Baltic (Lith tādā ‘then’) and Indo-Iranian (Av tāda ‘then’, Skt tādā ‘then’). A pronoun *teh₁, wot(s) ‘so many, so long’ is found in Grk téōs ‘so long, meanwhile’, Indo-Iranian (e.g. Skt (e-)tāvat ‘so much, so many; so great, so far’), and Tocharian (e.g. Toch B tot ‘so much, so many; so great; so far’).

Demonstrative pronouns were relatively productive in the different IE regional groups and we have several isoglosses. From the West Central region we have *tōti ‘so much, many’ (Lat tot and Grk tōsos both ‘so many’); *tēh₁,di ‘of that sort or size’ (Lat rālis ‘of that sort’, Lith tōlei ‘so long’, Grk tēlikos ‘so old’); *teh₁, mot(s) ‘then, at that place’ (Latv nūo tām ‘from there’, OCS tamo ‘thither’,
Grk tēmos ‘then’); and *h₁en- ‘that’ (OIr an-d ‘here’, Lat an ‘or; whether’, Lith aĩs ‘yon’, OCS onû ‘he; yon’, Alb a ‘whether’, and Grk án ‘possibly’).

24.3 Interrogative Pronouns

Proto-Indo-European interrogative pronouns are built on the stem *kʷo- after which we will often find the same form of extensions, temporal or spatial, that we have encountered in the demonstrative pronouns. This form is well represented across most of the IE groups, e.g. this is the NE wh- group (who, what, which, why?) which was phonetically more transparent in OE hw- or the Latin qu- words. The interrogatives formed part of a systemic relationship with the relatives and demonstratives so that many of the terms can be placed into a set, e.g. *kʷóteros ‘which (of two)’: *yoteros ‘which of the two’, *kʷodēh₂, ‘when’: *todeh₂ ‘then’, *kʷór ‘where’: *tór ‘there’. The main interrogatives reconstructed for PIE are given in Table 24.3.

There is evidence from the various IE groups for the relatively extensive list of interrogative pronouns. PIE *kʷó’s ‘who’ is found in Celtic (e.g. OIr nech [< *ne-kʷos] ‘someone, anyone’), Germanic (e.g. OE hwā ‘who’ [> NE who]), Baltic (e.g. Lith kās ‘who, what’), Slavic (e.g. OCS česo ‘whose’), Alb kē ‘whom’, Grk toû ‘whose’, Arm ov (< *kʷos/kʷom) ‘who’, Indo-Iranian (e.g. Skt kās [masc.] ‘who’, [fem.] kā ‘who’, kāṣya ‘whose’). There is also a form *kʷís ‘who’ which is confined to Lat quis ‘who, which one’, Grk tís ‘who’, Hit kuis ‘who’, and Av ēis ‘who’. PIE *kʷód ‘what’ is found in Celtic (OWels pa ‘what’), Lat quod ‘in respect to which; that, in that’ (conj.), Germanic

| *kʷós  | ‘who’ | NE who, Grk toû, Skt kās |
| *kʷís  | ‘who’ | Lat quis, Grk tís |
| *kʷód  | ‘what’ | Lat quod, NE what, Skt kād |
| *kʷíd  | ‘what, what one’ | Lat quīd |
| *kʷóteros | ‘which (of two)’ | Lat uter, NE whether, Grk póteros, Skt katarā- |
| *kʷóm | ‘when’ | Lat cum |
| *kʷodēh₂ | ‘when’ | Skt kadā |
| *kʷór | ‘where’ | Lat quōr, NE where, Skt kārhi |
| *kʷůu ~ *kʷů | ‘where’ | Lat ubi, Grk pu-, Skt ků |
| *kʷóti ~ *kʷéti | ‘how much/many’ | Lat quot, Grk póso, Skt kāti |
| *kʷoih₂os | ‘pertaining to whom/what’ | Lat cāius, Grk poĩos |
(e.g. OE *hwæt ‘what’ [> NE *what]), Anatolian (e.g. Pal *kuwat [generalizing particle]), and Indo-Iranian (e.g. Skt kâd ‘what’). A PIE *kʷid ‘what, what one’ is attested in Lat quid ‘what, what one’, Slavic (e.g. OCS čito ‘what’), Arm in-će ‘some’, Hit kuit ‘what’ (interrogative), and Iranian (e.g. Av čit [generalizing particle]).

To express ‘which (of two)’, PIE utilized *kʷo´teros which is found in Lat uter ‘which’, Germanic (e.g. OE hwæder ‘which’ [> NE whether]), Baltic (e.g. Lith kataras ~ katars ‘which’), OCS koteryjı˘ ‘which’, Grk póteros ‘which’, and Indo-Iranian (e.g. Skt katará ‘which’). The initial labiovelar exhibits the expected different treatment in Greek where we find *kʷi- > Grk ti- but *kʷo- or *kʷu- > Grk po-/pu-.

The temporal interrogative *kʷóm ‘when’, which was a special development of the masculine accusative of *kʷós, is found as a relative pronoun in Lat cum ‘when’, but as interrogatives in Goth han ‘when’, Baltic (e.g. OPrus kan ‘when’), OCS ko-gda ‘when’, Alb kē ‘when’, and Av kám ‘how’. Another expression for ‘when’ was *kʷodéha which can be found in Baltic (Lith kadà ‘when’) and Indo-Iranian (Av kása ‘when’, Skt kâdâ ‘when’).

The spatial interrogative *kʷór ‘where’ is attested in OLat quo¯r ‘why, wherefore’, Germanic (e.g. OE hwær ‘where’ [> NE where]), and Skt kārhi ‘when, at what time’. There is also *kʷu ~ *kʷū ‘where’ seen in Celtic (e.g. OIr co ‘how; where’), Lat ubi ‘where’ (the unexpected loss of the labiovelar in Latin for PIE *kʷu is explained by false analysis, i.e. old compounds such as nē-cubi ‘so that nowhere’ were falsely split nēc-ubi [negation – where]), Baltic (e.g. OPrus quei ‘where’), OCS ku˘de ‘where’, Alb kush ‘who’, Grk pu- ‘where’, Hit kuwapi ‘where’, Indo-Iranian (e.g. Skt kū ‘where’), and Tocharian (e.g. Toch B kùše ‘who’); from an extended form *kʷûr we have Lith kur~‘where’, Alb kur ‘where’, and Arm ur ‘where’.

There are variable forms attesting a PIE *kʷóti ~ *kʷéti ‘how much/many’. The first underlies Lat quor ‘how many’, Grk pósos ‘how much, how many’, and Skt káti ‘how much, how many’ while the latter gives us Bret pet der ‘how many days’ and Av čaiti ‘how many’. Finally, *kʷoih,os ‘pertaining to whom/what’ is limited to Lat cūius ‘whose’, and Grk poivos ‘of what kind’.

There are a few regional terms. From the North-West we may have *kʷehe,lk- ‘of what sort’ seen in Celtic (OIr cách ‘everyone’), Baltic (Lith kók(i)s ‘of what sort; any, some; whatever [relative]’), and Slavic (OCS kaká ‘of what sort’). From the West Central region we have *kʷehéli ‘of what sort, of what size’ seen in Lat quális ‘of what sort, of what kind’, Baltic (Lith kôlei ‘how long’), Grk pêlikos ‘how old, how large’, and from a form *kʷoli we have OCS kolikú ‘how large’, kolí ‘how much’. There is also a Latin (quam ‘how, in what way; as’) ~ Armenian (Arm k’an ‘as’, k’cani ‘how many?’) isogloss (*kʷeh,m).
24.4 Relative Pronouns

Although interrogative pronouns could develop a relative meaning in the later Indo-European languages (e.g. *Who ate the apple? It was John who ate the apple*), the PIE relative was formed on *yo- with the same suffixes we have already seen in the demonstrative and interrogative pronouns. There are fewer true relatives reconstructable than interrogatives and a number are solely attested in Greek and Indo-Iranian. These are listed in Table 24.4.

The set *yós/*yéh₁/*yód is also attested in Celtic (e.g. Gaul dugiōnti-iog ‘who serve’) and as a suffix in Baltic (e.g. Lith ģerās-īs ‘good’) and Slavic (e.g. OCS dobrū-jī ‘kind, good’). The other *yo- examples are represented solely by Greek (hòs/hē/hó ‘who, what, that’) and Indo-Iranian (e.g. Skt yās/yā́yād ‘who, what, that’), although their correlative interrogatives and demonstratives may be better attested, e.g. although *yōtī ‘as much’ lacks any other European examples than Greek, both *kʷōtī ‘how much’ and *tōtī ‘so much’ are also preserved in Latin. Outside this ‘system’ is another interrogative or relative particle, *me/o-, which is attested in Celtic (Bret ma ~ may ‘that’), Anatolian (Hit masi ‘how much’), and Tocharian (Toch A mānt ‘how’).

All other relatives, although clearly part of the same system of suffixes found elsewhere, only survive (or were created?) in Greek and Indo-Iranian. They include *yoteros ‘which of the two’ seen in Doric Grk óteros ‘which of the two’, Av yatāra- ‘which of the two’, Skt yatarā- ‘which of the two’; *yōtī ‘as much, as many’: Grk hōsos ‘as many’, Skt yāti ‘as many as, as often as’; and *yēh₁,wot(s) ‘as many, as long’ seen in Grk hēōs ‘as long as’, and Skt yāvat ‘as much, as many; as great, as large; as often, as far’.

24.5 Conjunctions

Such frequent particles of speech as conjunctions have survived reasonably well in the IE languages and are listed below in Table 24.5.

PIE ‘and’ is attested primarily as an enclitic, i.e. a word attached to or following another word, e.g. the familiar (to any student who survived their first day of Vergil) Latin arma virumque ‘arms man-and’, i.e. ‘the arms and the man’. This pattern is evident in both the use of *-kʷe ‘and’ seen in Celtic (e.g.

<table>
<thead>
<tr>
<th>Table 24.4. Relative pronouns</th>
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<tbody>
<tr>
<td>*yós/*yéh₁/*yód</td>
</tr>
<tr>
<td>*me/o-</td>
</tr>
<tr>
<td>Grk hōs/hē/hō, Skt yās/yā́yād</td>
</tr>
</tbody>
</table>
Table 24.5. Conjunctions

<table>
<thead>
<tr>
<th>Conjunction</th>
<th>Simplified</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>*kʷe</td>
<td>‘and’</td>
<td>Lat -que, Grk te, Hit -ki, Skt ca</td>
</tr>
<tr>
<td>*-yo</td>
<td>‘and’</td>
<td>Hit -ya-</td>
</tr>
<tr>
<td>*h₁et₁</td>
<td>‘and, in addition’</td>
<td>Lat et, Grk hēti, Skt āti</td>
</tr>
<tr>
<td>*ar</td>
<td>‘and, thus’</td>
<td>Grk āra</td>
</tr>
<tr>
<td>*it₁</td>
<td>‘thus’</td>
<td>Lat ita, Skt iti</td>
</tr>
<tr>
<td>*ne</td>
<td>‘not’</td>
<td>Lat ne-fās, NE no, Hit natta, Skt nā</td>
</tr>
<tr>
<td>*mē</td>
<td>‘not’</td>
<td>Grk mē, Skt mā</td>
</tr>
</tbody>
</table>

OIr na-ch ‘not’), Lat -que ‘and’, Germanic (Goth -h), Mycenaean Grk -qe (Grk te ‘and’), Arm -k ‘and’, Hit -ki ‘and’, and Indo-Iranian (e.g. Skt ca ‘and’) and *
- yo ‘and’ seen in Myc jo- ‘and’, Hit -ya- ‘and’, and Toch A -yo ‘with’. There is, however, also the word *h₁et₁ that might convey ‘and’ as well as ‘further, yet’ (Gaulish eti ‘also, further’, Lat et ‘and also’, Goth iþ ‘but’, Grk éti ‘yet, further’) or, in Indo-Iranian, ‘over’ (Skt áti ‘over, towards’), and *ar which can indicate ‘and, also’ in Baltic (e.g. OPrus ir ‘and, also’) and Prākrit (ira ‘and’) but ‘now, thus’ in Greek ára. Other words for ‘thus’ are found as *it₁ with cognates in Celtic (MWels yt- [preverb]), Lat ita ‘thus’, Baltic (Lith it ‘very’), and Skt iti ‘thus’, and nē which can mean ‘as, thus’ in Baltic (e.g. Lith ne), Slavic (e.g. OCS neže), Grk tōne, ‘like’ in Skt nā, and appears as an interrogative particle in both Latin (nē) and Germanic (e.g. OHG ne). The meaning ‘or’ is universal across the descendants of *-wē in Celtic (OIr nō), Lat -ve, Grk ē-(w)ē, Indo-Iranian (e.g. Skt vā), and Tocharian (Toch B wāt).

There are two negatives, *ne and *mē. The first, which is very widely attested in a variety of negative forms, e.g. both ‘no, not’ and ‘un-’, appears to be the usual form for expressing negation (e.g. Lat nōn, OE ne, Lith ne, OCS ne, Hit natta, Skt nā), and in a phonologically reduced form *y-, it appears as the ubiquitous Indo-European prefix of negation (e.g. Lat in-, Gmc un-, Grk-Av-Skt a-). On the other hand, *mē, which does not appear in the North-West, appears to have been employed in marking a prohibition and is attested in Alb mos, Grk mē, Arm mī, Skt mā, Toch B mā, all ‘not’.

Further Reading

The Indo-European pronouns have been surveyed in Schmidt (1978) and Katz (2003).
25.0 Reconstructing Mythologies

As we have seen in Chapter 23, the reconstructed vocabulary pertaining to religion is somewhat limited, certainly when compared with various other semantic categories such as flora, fauna, and material culture. The problems of reconstructing the names of the deities and other mythological concepts are several.

First, there is the problem of recovering the proper names of deities in the proto-language as they would appear to be highly susceptible to attrition and innovation, as anyone who has ever compared lists of popular given names through time can observe. Moreover, deities, by their very nature, frequently attract numerous epithets or by-names, e.g. ‘lord’, ‘deliverer’, ‘all-mighty’; as these will suffer differential survival among sister groups or replace existing names, references to what were once the same deity may well be lost over time.

Second, we have the problematical context of our sources. Most of the evidence from European traditions, e.g. Celtic, Germanic, Baltic, Slavic, provides us evidence only after it has been ‘sieved’ through a Christian
filter (or, in the case of Gaulish, a Roman filter). Other traditions such as Anatolian have clearly crossed with local religious traditions, e.g. Hattic, Hurrian, or in the case of Greek religion, we suspect major interference from an unknown substrate and Near Eastern adstrates. Greek mythology then impacted heavily on Roman myth which, some would argue, went underground into early Roman history. Excluding those traditions which are poorly known or obviously intermixed with non-Indo-European traditions, this leaves only Indo-Iranian mythology, and yet we know that Iranian religion passed through a major religious restructuring under Zarathustra. The assumption that Indo-Aryan mythology as espoused in the Vedas is ‘pure’ is just that—an assumption—and we might recall that the three main deities worshipped by Hindus, Vishnu, Śiva, and Śākti, were very much minor deities of the Rigveda where most hymns are dedicated to Indra, Agni, and Soma. So there is no assurance that even the earliest Indic religious traditions that we can recover in the Vedas represent something that can be projected back into distant antiquity.

All previous reconstruction of Indo-European semantic categories has relied exclusively on the actual evidence of language. We have not attempted (nor regarded it as a valid approach) to compare, for example, weapons across the Indo-European world to ‘reconstruct’ the armament of the Proto-Indo-Europeans. Nor would we feel on particularly solid ground examining the comparative evidence for political systems, settlement patterns, or economic strategies as a route to the Proto-Indo-European past. All of these are so heavily influenced by their contemporary environments that it would be nearly impossible to distinguish between what was old and inherited and what was the product of the existing state of technology or the natural environment. Yet the desire to compare mythological systems, irrespective of whether they offer comparable lexical matches between different Indo-European groups, has been sufficient to generate an entire academic discipline—comparative mythology.

The premisses and purposes of comparative mythology vary considerably. Already by the early eighteenth century it was possible to discern striking similarities between some Greek myths and those of some Native American tribes. The reasons for such similarities vary from one school of thought to the next and none is mutually exclusive, i.e. there is no single ‘right way’ to examine mythology and each approach has something to recommend itself. We will briefly review the major approaches to Indo-European mythology below but first it is useful to describe the three types of results that scholars may uncover when comparing the mythologies of different traditions or languages.
25.0.1 Search for Universals

Some examine mythological systems for universal motifs that might develop independently in different regions throughout the world, e.g. the widespread human tendency to distinguish between four directions and attribute to each a different symbolism, colour, or role in their society or the tendency to associate a cluster of social or gender concepts with the distinction between left and right, e.g. right = male, strong while left = female, weak. Warrior and fertility deities can be found in Europe, Asia, Africa, and the New World. If there is a highly developed metallurgical technology, we often find smith gods. In reviewing the mythologies of the various Indo-European traditions there will always remain a problem in discerning between that which is generic (the tendency for war gods to also double as weather gods, employing bolts of lightning as their weapon) and what may be evidence for a historical connection. Indo-European is just as much (or little) a repository of such widespread beliefs as any other tradition and is often mined for elucidating universal motifs.

25.0.2 Search for Historical Origins

While some myths may well reflect universals, sometimes the correspondence strikes researchers as so close that it seems to require a historical explanation. For example, the Greek myth that a widowed husband (Orpheus) journeys to the Otherworld to retrieve his dead wife can also be found in North America. If one believes that this correspondence is too close and too unusual to be a product of some ‘universal’, then some form of historical connection is sought. Folklorists have sought and traced the origins of many folktales that have travelled widely across the globe, and mythology, especially when repackaged (some would say ‘debased’) to a folk narrative, can make the same journey. In some cases, we must be particularly on our guard since we know of historical connections, either between different traditions in general or between the class of society that was likely to preserve and reshape the mythological record. The Romans obviously appreciated, adopted, and reworked Greek mythology, and the Greeks in turn were exposed to the mythologies of non-IE Near East civilizations, and also that of their perennial enemies but linguistic cousins, the Iranians. And for those whose mythology has come through a Christian prism, we may find examples where native tradition has been restructured to satisfy a biblical framework, e.g. in Irish learned tradition the first settler in Ireland was the granddaughter of Noah while the Germans sought their ancestor in Ashkenaz, the grandson of Noah.
25.0.3 Search for Genetic Connections

If the similarities are so great that one is forced to assume some connection between two traditions, then we may be dealing with a common genetic origin rather than some historical contact. In this case, the family tree of a linguistic group provides a rough proxy of the group’s mythological evolution as well. If the names of the deities can be reconstructed to Proto-Indo-European, then surely there may also be traces of the mythology, the sacred narratives, surrounding the deities. The problem here is that the hard lexical evidence, the names of Proto-Indo-European deities that we have reviewed in Chapter 23, is not particularly abundant nor do they provide much in the way of comparable narratives. From the standpoint of a comparative mythologist, we should not be limited to studying only those deities that offer a lexical correspondence but also examine the broad pattern of characteristics associated with the different deities and narratives concerning them to recover what we can of the ancestral Proto-Indo-European myth from which they are derived. In the end, we may not know the name of the deities but we will be able to recover something of their career, their abilities and function within Proto-Indo-European mythology. This approach is not unique to Indo-European and can be undertaken with any language family.

Finally, the actual sources to reconstruct a Proto-Indo-European mythology vary greatly among the different Indo-European traditions. India offers a vast literature and its hymns and rituals as described in the Vedas provide one of the fundamental sources of Indo-European mythology. In addition, its major epic literature, especially the Mahābhārata, provides abundant reworking of mythic elements, and offers further evidence of Indo-Aryan mythology. The reconstruction of Proto-Indo-Iranian religion is hampered by the much smaller residue of Iranian mythology and the fact that it has largely passed through Zarathustra’s religious revolution before our earliest texts. It still provides us with some lexical and thematic evidence of the Indo-Iranian pantheon in either different guises (names) or altered characters, e.g. there was a systematic demonization of a number of earlier Indo-Iranian divinities.

Although Greek mythology is often regarded as ‘The Mythology’, it does not serve this function in Indo-European comparative studies. There appear to be far too many aspects that are more easily explained as the product of extraneous influences, either substrates or adstrates, e.g. the goddess Aphrodite was ‘borrowed’ from the Near East, and far too little that is directly comparable with other Indo-European mythologies. Here again, epic literature, particularly the works of Homer, can be pressed into comparative service. Although Greek mythology was adopted by the Romans and reworked in primarily
literary creations of Virgil and Ovid, original Roman mythology was reinterpreted by the Romans as history and comparativists have been able to use that ‘history’ as a mainstream of inherited Indo-European mythology. This history, coupled with Roman ritual, provides one of the major props of Indo-European comparative mythology.

In western Europe, Germanic, more specifically Norse, mythology provides a third major source of comparanda. Here we have both works that are explicitly of a mythological nature (the Norse Eddas) and material which probably houses mythic residues (the sagas). To a lesser extent, Celtic offers similar evidence in its tales of the Irish mythological cycle and in the heroic literature of both Ireland and Wales.

The sources of mythology for eastern Europe are much poorer. Much of it consists of the accounts of Christians who wrote of the customs of their pagan neighbours, or snippets that have survived in native folk poetry, e.g. Lithuanian folk songs, or early historical sources, e.g. Russian chronicles. Recent work has also exploited the Armenian epic literature for its mythological residue. Among the poorest sources are Anatolian which has derived so much of its mythology and ritual from its non-Indo-European neighbours and Tocharian whose attested religious content is essentially limited to Buddhism.

25.1 Approaches to Mythology

How one approaches the sacred narrative itself that comprises mythology has varied through time, and from which discipline one comes from to study mythology. The following approaches are the main ones that have been employed to unravel the ‘meaning’ of Indo-European myths.

25.1.1 Meteorological School

The meteorological (also naturist or solar) school emphasizes natural phenomena as a key to understanding mythology. We have already seen that PIE *deiwós ‘god’ derives from the same root (*dyeu-) that gives us ‘sky, day’. To this we can add the similarly derived *dyêus phê,têr ‘father sky’ (at the apex of both Greek and Roman mythology and present in Indic) as well as a *dhughatêr divós ‘sky daughter’ which appears to be an ancient epithet for the ‘dawn’ (hē,ēusós), who is deified (we have cognates in India, Greece, Italy, and the Baltic). A solar (female) deity may also be tentatively reconstructed. Some would accept a PIE *perkunos as a ‘thunder god’. A ‘mother earth’ is confined
to east European languages (Baltic, Slavic, Thracian, Phrygian). To these we might add *h₁elbh- ‘elf’ on the basis of Germanic and Sanskrit, a word which apparently derives from *h₁elbhós ‘white’, hence the ‘shining ones’ who, in Vedic tradition, are associated with the New Year. Clearly there is some evidence then for the deification of natural phenomena but the associated narratives that we might expect concerning such deities are extremely meagre and largely limited to their cosmic function. The Dawn, for example, is portrayed in several traditions as a reluctant bringer of day who was punished for her delay in bringing light. The major recent attempts to employ a largely meteorological approach to Indo-European mythology can be found in the works of Jean Haudry who suggests that the Proto-Indo-European cosmos consisted of three ‘heavens’ along the lines indicated in Table 25.1.

<table>
<thead>
<tr>
<th>Day</th>
<th>Celestial</th>
<th>white</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dawn/twilight</td>
<td>Bridging</td>
<td>red</td>
</tr>
<tr>
<td>Night</td>
<td>Night spirits</td>
<td>dark</td>
</tr>
</tbody>
</table>

The problem with the meteorological approach is that it is extremely limited: if we get little enough narrative out of the nature divinities that we can reconstruct lexically, it is extremely unlikely that we are going to be able to do much with the vast amount of mythic narrative where meteorological divinities are not apparent. For some, any god that was described as ‘shining’ or ‘bright’ was a manifestation of the sun god and every action undertaken by the deity could then be interpreted as the course of the sun through the day or the year. The meteorological school has largely been replaced by other approaches that do not attempt to reduce all deities into natural phenomena.

### 25.1.2 Ritual School

This school argues that myths are best understood in the context of the rituals which they are employed to explain. If one accepts that the ancient Indo-Europeans made sacrifice to their deities to maintain fertility, order, or to deliver specific services such as wealth or protection, then we may expect a body of mythology to explain how such rituals came into being or what the specific acts of the ritual are meant to represent. For example, Bruce Lincoln has written on the fundamental relationship between the sacrifice of animals in early Indo-European society and the cosmogonic myth that explains the
creation of the world from a single sacrifice (see below). In this way, every sacrifice is a re-enactment of the original sacrifice (cf. the Christian concept of communion as a re-enactment of the Last Supper and subsequent sacrifice).

25.1.3 Functionalist School

From the perspective of a functionalist, such as the great anthropologist Emile Durkheim (1858–1917), religion was ‘society personified’ and the various deities were collective representations of the different classes of society. When one considers the various pantheons of the different Indo-European traditions, we find an assortment of deities who broadly fill out the social roles of the (archaic) societies that worshipped them. The palace intrigues of Near Eastern and Aegean pantheons mirror the social structure of the palace society that created them; these may be contrasted with the Norse pantheon which reflects the warband mentality of the early Germanic peoples. The Christian tradition with its ‘Good Shepherd’, ‘Lamb of God’, and church pastors (< Lat pastor ‘shepherd’) provides useful hints of its roots in the pastoral culture of the ancient Jews.

A comparison of social institutions among the different Indo-European traditions from India to western Europe reveals a recurrent pattern of three social ‘estates’: priests, warriors, and herder-cultivators (Table 25.2), a socio-ideological system that continued into the Middle Ages where we find the same system of oratores, bellatores, and laboratores, and if one wishes to push it to extreme lengths, to the ideology of the American government which has a judiciary (priests), executive (warriors, e.g. ‘Commander-in-chief’), and a Congress ([the representatives of the] assembled masses).

Can these three culturally widespread ‘estates’ be reconstructed to Proto-Indo-European society? Certainly not, at least on the basis of purely lexical evidence, and even if we could show broad sets of cognates for each ‘estate’, we would still be hard pressed to define what precisely these different ‘estates’ actually represented in Proto-Indo-European society. Given what we might

<table>
<thead>
<tr>
<th>Classes</th>
<th>India (castes)</th>
<th>Iran</th>
<th>Greece (Athens)</th>
<th>Gaul (from Caesar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>priest</td>
<td>brahman</td>
<td>ādravan-</td>
<td>hieropoioi</td>
<td>druides</td>
</tr>
<tr>
<td>warrior</td>
<td>ksatriya</td>
<td>rakhēśtar</td>
<td>phulakes</td>
<td>equites</td>
</tr>
<tr>
<td>herder-cult.</td>
<td>vaišya</td>
<td>vastryō fšuyant-</td>
<td>georgoi</td>
<td>plēbēs</td>
</tr>
</tbody>
</table>
expect from their level of socio-economic complexity, it is unlikely that the Proto-Indo-Europeans would have had hard and fast ‘classes’ such as are found in historical India into which one was born and remained through one’s life. Rather, we might expect that these represented general organizing principles or, as Georges Dumézil (1898-1986), the leading exponent of the functional approach to Indo-European mythology, described them, *fonctions*.

Dumézil argued that an analysis of the mythology of the different Indo-European traditions revealed an underlying tripartite structure that constantly replicated or emphasized the three Indo-European ‘functions’. This structure could be revealed by the sequence in which the appropriate deities might be mentioned, e.g. the Mitanni treaty lists the Indo-Aryan gods Mitra and Varuna (often joined together in the *Rgveda* and associated with priests), Indra (the war god), and the Nasatya (twins associated with the lower orders). In Greek tradition we find three deities, each associated with a different divine sphere, offering bribes to Paris: Hera offered kingship, Athena offered military victory, and Aphrodite promised the love of the most beautiful woman, arguably a reference to fertility. As Dumézil argued, the Roman equivalents were reinterpreted as history rather than mythology. This is reflected in Livy’s account of the first Roman kings where Romulus and Numa appear to fill the function of priests, Tullus Hostilius excelled as a warrior, and Ancus Martius undertook the type of public works projects that might assign him to the third function.

Over decades of research, Dumézil’s system was refined by both himself and others. The first function, rulership, was divided into two different aspects which, according to Dumézil, tended to be represented by two different deities in various Indo-European traditions. In Vedic tradition sovereignty is held by two deities, Varuna and Mitra, which reflected the priestly and juridical aspects of kingship (Mitra was ‘contract’ personified). Other ‘Varunaic’ deities include the Roman Jüpiter (revealing that the lexical reflex of the sky god may have a specific function), and Germanic Oðinn while the Mitraic equivalents are Dius Fidius and Tyr respectively.

A number of scholars have proposed an additional fourth function. In some cases this is motivated by explicit statements that indicate an ancient fourth or artisan class division of early Indo-European societies; in other cases a fourth element derives from the practice of quartering mythic landscapes, each of the cardinal directions serving to indicate a single social function, as was the case in early Ireland. For N. Allen, the Fourth Function is the one set outside the other three, an alien otherness that must be incorporated into the mythic scheme, while E. Lyle suggests that an essentially female function was juxtaposed against the other three primarily male-oriented functions.
25.1.4 Structuralist School

The structuralist approach analyses mythology (and phenomena in general) in terms of binary oppositions, e.g. left–right, male–female, black–white. Derived from the structural school in linguistics, this approach was developed by Claude Lévi-Strauss (1908–) for anthropology. It fundamentally argues that the organization of binary opposites is a basic property of the human mind and how we view the world around us. Its application to mythology, which is itself a product of the human attempt to understand our universe, is understandable although its product tends to reflect an approach to mythology that emphasizes universals rather than genetic connections. Nevertheless, refinements of the Dumezilian system which distinguish between opposites within the same function, e.g. the protective but also destructive aspects of the Second Function, indicate where a structural approach may also be useful.

25.2 Deities

Below are summarized the names or types of deities that have generally been reconstructed to Proto-Indo-European as we have seen in Section 23.1. It should be emphasized that the proto-categories are perhaps more abstract that their single name might suggest, i.e. what is meant by a war god may have actually included a number of different deities within the earlier system. In some cases we may find the same individual under two different names, e.g. ‘sky daughter’ and ‘dawn’ would appear to be the same deity. In other cases, a single deity from one of the Indo-European traditions may be included under a number of different headings. Just as a screenwriter when working from a literary source will routinely collapse different characters into a single individual to have a manageable cast for his script, so also did the different Indo-European groups juggle with their deities to fill out sometimes multiple roles, e.g. the use of the sky god in Greece and Rome to fulfil roles of the thunder god, war god, and others.

Sky god (*dyēus ph₂tēr). The sky god or ‘father sky’ is lexically the most secure deity and heads the pantheons of Greece and Rome but apparently receded in importance in Indic tradition to a vague ancestral figure. Here the equivalencies involve either lexical cognates: Skt (Vedic) dyāus pita = Grk Zeús patēr = Lat Jūpiter = Illyrian Dei-pátrous or semantic cognates where there has been replacement of the lexical elements but a retention of the underlying meaning, e.g. Hit attas Isanus ‘father sun god’, Latv Dievs, Debess tēvs ‘god, father of heaven’, and possibly Russian Stribogū ‘father god’. Other than ruling
in respective pantheons, and serving as father to several other Indo-European deities, the sky god is also seen (at least in some traditions) to unite with ‘mother earth’. A potential functional (though not lexical) correspondence includes the Norse ancestral deity *Heimdalr*.

**Sky daughter** (*dhughaṯe r divōs*). The existence of a ‘sky daughter’, who is also identified as the ‘dawn’, is supported by the lexical correspondences of Skt *duhitā divāh*, Grk *thugātēr Diōs*, and Lith *dievo duktē*.

**Dawn goddess** (*haeusōs*). Identified with the ‘sky daughter’, the Proto-Indo-European word for ‘dawn’ is deified in a number of Indo-European traditions: Skt *Uṣās* = Grk *Eōs = Lat *Aurōra = Lith *Aušrīne*.

**Divine twins.** There is no convincing lexical set for these ‘sons of the sky god’ but they are abundantly represented at every level (myth, history, folklore) in the various Indo-European traditions. Here we find the regular association between the two sons of the sky god, depicted as young men and closely associated with horses (or in some case they are represented as horses, e.g. the Greek Kastōr and Polydeukēs, possibly the Anglo-Saxon Hengist and Horsa, the Welsh Bran and Manywydan), who share a sister or consort (Greek Helenēs, Welsh Branwen) who is the daughter of the sun or sky god. Their origin has been sought in a meteorological explanation: the divine twins are the steeds who pull the sun across the sky and by the Bronze Age we find representations of solar chariots. The twin brothers are often differentiated: one is represented as a young warrior while the other is seen as a healer or concerned with domestic duties. Collectively, they are identified as follows: Skt *Aśvin ~ Nasatya = Av Nāghaithya ~ Grk Dioskuri ~ Latv Dievo suneliai*.

**First Function (juridical).** This marks a deity type who fills out the first (sovereign) function in its juridical aspect, i.e. a deity that oversees the relations between humans and guarantees pacts. Within the various Indo-European pantheons the standard equivalencies are given as: Skt (Vedic) *Mitra ~ Skt (Mahābhārata) Yudhiṣṭhirā ~ Av Mithra ~ Lat Dius Fidius ~ Lat (Livy’s history of Rome) Numa Pompilius ~ Lat (Livy) Mucius Scaevola ~ ON Tyr ~ OIr Nuádú. The Sanskrit and Iranian evidence indicates a Proto-Indo-Iranian *Mitra*. There is evidence from the Roman and Germanic traditions of a critical false-swearers by this deity who protects oaths with a consequent loss of the left arm. Irish tradition does not overt the motif of a false oath but the equivalent character (Nuádú) does lose his arm in battle.

**First Function (sacred).** This deity is primarily in charge of the relationship between humans and sacred order. The equivalencies are Skt (Vedic) *Varuna ~ Skt (Mahābhārata) Pāṇḍu ~ Av Ahura Mazdāh ~ Lat (Livy) Romulus ~ Lat (Livy) Horatio Cocles ~ ON Oðinn ~ OIr Esus ~ Lith Velinas. Both the Roman Horatio Cocles and the Norse Oðinn are closely associated with the loss of one eye.
Second Function (warfare). One cannot retrieve a single name of a Proto-Indo-European war god. A proposed lexical correspondence (that would yield a PIE *mâwort-) between the names of the Latin war god Mārs and the Skt Marutās is doubtful; the latter are companions of the war god Indra. Rather we have, with the exception of Indo-Iranian, a series of differently named war gods: Skt Indra ~ Skt (Mahābhārata) Arjuna ~ Av Indara ~ Lat Mārs ~ Lat (Livy) Tullus ~ ON Th Outreach ~ Gaul Taranis ~ OIr Ogma.

The second function can also be viewed in terms of two aspectually contrasting warrior functions—: defensive (good) and offensive (wild, destructive to the community itself)—and this opposition is seen to be played out among some of the pantheons. The more destructive manifestations are seen in the following correspondences: Skt (Vedic) Vāyu (a storm god) ~ Skt (Mahābhārata) Bhīma ~ Av Vayu.

Thunder god (*perkʷunos). The lexical set consists of ON Fjǫrðyn, Lith Perkūnas, ORus Perun, and perhaps Skt Parjanya. The underlying root is probably *per- ‘strike’ with different extensions built in different groups. The North-West European set is relatively coherent with associations with the thunder god (Fjǫrðyn was the mother of the Norse thunder god Thorr), hurling lightning, use of the club both in battle but also as a fertility symbol at weddings. The association of the North-Western deities with the Sanskrit deity is not so clear, although the latter is depicted as a rain god in the Vedas.

Third Function. No lexical correspondence here but rather a series of gods who find themselves third in canonical order of deities and who are associated with fertility. These may especially include the divine twins but also single deities such as Lat Quirinus or ON Freyr, Gaul Teutates and OIr Bres.

Transfunctional goddess. There is no lexical evidence for such a deity but the different Indo-European traditions are replete with examples of goddesses whose qualities either comprise or dispense the three functional categories. Such goddesses may be provided with a trifunctional epithet, e.g. the name of the Iranian goddess Aράdvī Sūra Anāhitā may be rendered ‘moist, strong, and pure’ just as Athena is showered with the epithets pólias, nikē, and hugia ‘protectress, victory, well-being’ and Juno is Seispes Māter Regīna ‘safe, mother, queen’, in all cases—although not necessarily in canonical order—words suggesting the three Dumézilian functions. We have already seen how the three functions may also be split among three associated goddesses, e.g. the Greek judgement of Paris where Hera promises rulership, Athena military victory and Aphrodite offers the love of the most beautiful woman, or the three semi-divine Machas of early Irish literature.

Aryan god (*hieros). A deity in charge of welfare is indicated by a number of lexical correspondences (Skt Aryaman, Av airyaman, Gaul Ariomanus, OIr Eremo, and non-cognate functional correspondences, e.g. Vidura in the
Mahābhārata. The Aryaman-type deity is associated with the building and maintenance of roads or pathways, with healing, especially involving a ritual where cattle urine or milk is poured in a furrow, and the institution of marriage. In this sense he is seen as a ‘helper’ to the First Function deity of the Mitra type.

In addition to these there are a number of deities that have been proposed either on the basis of limited isoglosses (Greek-Sanskrit) or on questionable linguistic evidence.

Pastoral god (*pēh₂usōn). Primarily a Greek (Pān)-Sanskrit (Pūsā) correspondence, possibly from *pēh₂ ‘protect, feed (cattle)’. Both deities are pastoral gods and are closely associated with goats. In Greek mythology some of Pan’s original characteristics may also have been assimilated by his father Hermes.

Medical god. Both the Indic god Rudra and Greek Apollo inflict disease from afar by their bows and are also known as healers; both are also associated specifically with rodents, Rudra’s animal being the ‘(rat) mole’ and Apollo was also known as Smintheus ‘rat god’.

Decay goddess. This is based on an Indic-Latin isogloss where both traditions indicate a goddess (Skt Nīṛtī-, Lat Lūa Mater) whose names derive from verbal roots ‘decay, rot’ and are associated with the decomposition of the human body.

Wild god (*rudlos). The only certain deity by this name is the Skt Rudrā-although there is an ORus Rūglū (name of a deity) that might be cognate. Problematic is whether the name derives from *reud- ‘rend, tear apart’ as Lat rullus ‘rustic’ or from the root for ‘howl’.

River goddess (*deh₂nu-). This is largely a lexical correspondence, e.g. Skt Daṇu, whose son holds back the heavenly waters, and Irish Danu, Wels Dön, both ancestor figures. The same root underlies the names of many of Europe’s larger rivers, including the Danube, Don, Dnieper, and Dniester (the latter three as Iranian loans). Other than the deification of the concept of ‘river’ in Indic tradition, there is really no evidence for a specific river goddess.

Sea god (*triḥ₂tōn). Even more doubtful is the Celtic-Greek possible correspondence between OIr triāth ‘sea’ and the Greek sea god Trítoñ, the son of Poseidōn. The lexical correspondence is only just possible and with no evidence of a cognate sea god in Irish (there are other sea deities but these are not lexically cognate), there is really no certain evidence of a god of the sea.

Smith god (*ẉlkānōs/*ẉlkeh₂nos). This is based on a linguistically doubtful comparison of the name of the Latin smith god Volcānus and the Ossetic smith god wargon. The problem here lies in the etymology of the Latin name which
may be derived from Etruscan or an Aegean loanword. There are no mythological elements, other than those generic to most smith gods, that might unite the Latin and Iranian deities.

25.3 Creation

Although the various Indo-European groups exhibit different creation myths, there appear to be elements of a Proto-Indo-European creation myth preserved either explicitly or as much altered resonances in the traditions of the Celts, Germans, Slavs, Iranians, and Indo-Aryans. These traditions all indicate a proto-myth whereby the universe is created from a primeval giant—either a cow such as the Norse Ymir or a ‘man’ such as the Vedic Puruṣa—who is sacrificed and dismembered, the various parts of his anatomy serving to provide a different element of nature. The usual associations are that his flesh becomes the earth, his hair grass, his bone yields stone, his blood water, his eyes the sun, his mind the moon, his brain the clouds, his breath the wind, and his head becomes the heavens. This body not only fills out the material world but the dismemberment also provides the social tiers with the head associated with the First (ruling) Function, the arms being equivalent with the warrior function, and the lower torso, with its sexual organs, the fertility function.

As to the identity of the sacrificer we have hints in a related sacrifice that serves as the foundation myth for the Indo-Iranians, Germans, and Romans (with a possible resonance in Celtic). Here we find two beings, twins, one known as ‘Man’ (with a lexical cognate between Germanic Mannus and Skt Manu) and his ‘Twin’ (Germanic Twisto, Skt Yama with a possible Latin cognate if Remus, the brother of Romulus, is derived from *Yemonos ‘twin’). In this myth ‘Man’, the ancestor of humankind, sacrifices his ‘Twin’. The two myths, creation and foundation of a people, find a lexical overlap in the Norse myth where the giant Ymir is cognate with Skt Yama and also means ‘Twin’.

The dismemberment of the primeval giant of the creation myth can be reversed to explain the origins of humans and we find various traditions that derive the various aspects of the human anatomy from the results of the original dismemberment, e.g. grass becomes hair, wind becomes breath.

The creation myth is then essentially a sacrifice that brought about the different elements of the world. Conversely, as Bruce Lincoln has suggested, the act of sacrifice itself is a re-enactment of the original creation. There is evidence in various Indo-European traditions, e.g. Rome, India, that the parts
of the sacrificed animal were dispersed according to the prevailing social patterns and, therefore, we may view the act of sacrifice as an attempt to restore the balance of the world. This same notion may be carried also into the burial ritual of at least some of the Indo-European traditions where it was imagined that the deceased disintegrated back into its constituent parts, e.g. in the *Rgveda*, the eye of the deceased goes back to the sun, his breath to the wind. In a sense then, after the initial creation, life is essentially recycled.

### 25.4 War of the Foundation

This myth is attested primarily on the basis of Germanic (Norse) and Roman sources but elements of it have also been claimed for Greek and Sanskrit. The myth depicts the forceful incorporation of Dumézil’s Third (fertility) Function into a social world run by the first two functions. In Norse mythology, the myth is expressed as a war between the Æsir, the gods of the first two functions, led by Oðinn and Thórr, against the Vanir who were led by the fertility gods Freyr, his sister Freya, and Njörðr. After a period of warfare the two sides conclude a pact of peace with the three fertility deities coming to live among the Æsir, thus providing representatives of all three functions within a single social group. The Roman parallel is found in the legend of Romulus who, finding Rome lacking in women (fecundity), wars with the Sabines. The Sabine women intercede and bring about peace between the two sides and, again, the incorporation of the Third Function into society. The Trojan War has also been interpreted in such light (the Greeks as the first two functions and the Trojans with Helen as the third). In Indic mythology, the Aśvins, representatives of the Third Function, find their way into the world of the other gods blocked by Indra until he is tricked into letting them in, thus securing a three-function society.

### 25.5 Hero and Serpent

One of the central myths of the Indo-Europeans involves the slaying of a serpent, often three-headed, by the archetypal hero, either deity or human. Calvert Watkins has argued that this deed has left some lexical evidence in the frozen expression *(h₁)*gwʰént h₁ogʰim ‘he killed the serpent’, preserved as such in Indo-Iranian with lexical substitutions in Hittite, Greek, and Germanic. The association with three heads or some aspect of triplicity is indicated either by descriptions of the monster, e.g. the three-headed dog...
Kérberos who guards the Greek Underworld, the name of the hero, e.g. the Skt Trīta Āptya, or in some other aspect of triplicity, e.g. Horatio Cocles’ defeat of three opponents in early Roman history. Bruce Lincoln has suggested that the context of this slaying is during the first cattle-raid where a monster runs off with the cattle of a hero whom he designates *Tritos ‘the third’ who then sets off in pursuit, accompanied by *Hunēr ‘Man’, kills the serpent, and recovers his cattle. Traces of this myth are seen in Indo-Iranian, Hittite, Greek, and Norse traditions.

25.6 Horse Sacrifice

It is largely the residue of ritual rather than explicit myths that points to the existence of a specific association between the assumption of kingship and the ritual mating with and sacrifice of a horse. The Indic aśvamedha, an inauguration ceremony, and the Roman Equus October both involve the sacrifice of a horse either to a warrior deity or on behalf of the warrior class; the victim was a stallion that excelled on the right side of the chariot, and the victim was dismembered, different parts of the anatomy going to either different locations or functionally different deities. The medieval inauguration of an Irish king in County Donegal which involved the king-designate bathing in a cauldron with the dismembered pieces of a horse may also be a reflex. The underlying myth, particularly in Indic, suggests some form of mating between the king and the horse (mare), the latter of which behaves as a transfunctional goddess and passes to the king the gifts of the three functions that make up the totality of society.

25.7 King and Virgin

A recurrent theme, though not without considerable modifications (if genetically inherited) or differences, is that of a virgin rescuing a king which is found in Indic, Roman, Scandinavian, and Celtic sources. The basic structure involves a king whose future (including his descendants) is endangered because of his immediate male relatives (sons, uncle, etc.) but is allowed to prevail because of a virgin (often his daughter) who provides the offspring necessary to the king’s survival. In the Indic tale, for example, King Yayāti is rescued by four sons born to his daughter (who mated with three kings and a teacher); in Roman tradition King Numitor’s line is ensured by the birth of Romulus and Remus because his virgin daughter, Rhea Silvia, was made pregnant by Mārs.
25.8 Fire in Water

This mythic element is postulated on the basis of several disputed divine names and some general mythic elements found in several Indo-European traditions (Celtic, Italic, and Iranian). The lexical argument (Section 23.1) posits a PIE *neptonos or *h₂epōm nepōts ‘grandson/nephew of waters’ on the basis of Skt Apām Nāpāt, Av Apām Napāt, and much less securely OIr Nechtain and Lat Neptūnus. The myth itself depicts a divine being associated with fire who inhabits water (in the Celtic myth there is a sacred well of Nechtain whose fire burns out the eyes of those who approach it, in the Avesta the fiery power is the xvarṇah, the burning essence of kingship, which was placed in Lake Vourusaka) and who can only be approached by someone especially designated for the task. Although there is no corresponding mythic evidence from Germanic, the ON kenning sævar niðr ‘son of the sea’, i.e. ‘fire’, may provide some linguistic support for the equation.

25.9 Functional Patterns

There are a number of patterns in Indo-European narratives that reproduce the three functions. Among the more striking are the motifs known as the ‘the sins of the warrior’ and the ‘threethfold death’. The first motif deals with a representative of the Second Function whose downfall involves sins against all three functions, e.g. the Germanic Starkaðr slays a king (violation of the First Function), flees in battle as a coward (violating his Second Function as a warrior), and kills for money (a violation here taken to be against the third estate). Traces of this motif also occur in other Indo-European traditions, e.g. Greek where Hēraklēs manages three comparable sins or the Mahābhārata where Śiśupāla commits three similar sins.

The ‘threethfold death’ associates a particular type of death with a particular function or functional deity. For example, classical sources indicate that among the Gauls victims dedicated to the First Function figure (Esus) were hanged; the Second Function (Taranis) received victims who had been burnt; and victims dedicated to the Third Function (Teutates) were drowned. The motif is also found in Germanic where the First Function deity, Oðinn, is known as the ‘hanged god’ while victims to the fertility (Third Function) deity Nerthus were drowned. These patterns are replicated in the heroic literatures of the Celtic and Germanic peoples although the motif is believed to have been more widespread. Essentially, it establishes a pattern of death which is directly associated with the three functions where the First receives hanging, the Second
burning or bloodshed (by sword or other appropriately military weapon), and the Third Function victim is drowned.

### 25.10 Death and the Otherworld

There is an abundance of evidence for various beliefs concerning death and the afterlife in the different Indo-European traditions but ferreting out an original belief is difficult. Many Indo-European traditions portray death as a journey and in the case of Celtic, Germanic, and Greek, and to a lesser extent Slavic and Indic, this may involve a journey across a river where the deceased is ferried by a *gerh₂ont- ‘old man’. On this journey they may also encounter a dog who serves either as a guardian of the Otherworld or as a guide. Here we have some linguistic evidence in the cognate names of Greek *Kérberos*, the three-headed dog of Hades, and the Indic *Śárvara*, one of Yima’s dogs, both deriving from a PIE *kʰêrberos* ‘spotted’. Both Greek and Indic traditions also have a river ‘washing away’ either memories or sins while Germanic and Celtic traditions attest a belief of wisdom-imparting waters; Bruce Lincoln has suggested that these two may be joined together where the memories of the deceased are washed away into a river but others, lucky enough, may drink of such water and gain inspiration. The actual afterlife is attested in so many different ways—as a pleasant meadow, a place of darkness, island, house, walled enclosure—that it is difficult to ascribe any particular belief to Proto-Indo-European. The ruler of the dead, however, may well be the sacrificed twin of the creation myth as suggested by Indo-Iranian tradition and to a lesser degree by Germanic.

### 25.11 Final Battle

Celtic, Italic, Germanic, Indo-Iranian, Armenian, and Greek all reveal traces of an Indo-European eschatological myth, i.e. a myth that describes the end of the world in terms of a cataclysmic battle, e.g. the Battle of Kurukshetra from the *Mahābhārata*, the Second Battle of Mag Tured in Irish tradition, Ragnarök in Norse tradition, the Battle of Lake Regillus in Roman history, Hesiod’s *Titanomachy*, and the Plain of Ervandavan in Armenian history. In all these traditions the end comes in the form of a major battle in which gods (Norse, Greek), demi-gods (Irish), or major heroes (Roman, Indo-Aryan, Armenian) are slain. The story begins when the major foe, usually depicted as coming from a different (and inimical) paternal line, assumes the position of authority among the host of gods or heroes, e.g. Norse Loki, Roman Tarquin, Irish
Bres. In this position he exploits the labour of the protagonists until he is driven out and returns to his own people. A new leader then springs up among the protagonists (e.g. Irish Lug, Greek Zeus) often the *nepōt- ‘grandson’ or ‘nephew’ of the deposed leader. The two sides then prepare for a major war (in Germanic and Iranian myth there is also a great winter) and the two forces come together and annihilate each other in a cataclysmic battle. Since a new order is called into existence after the battle, the myth may not be eschatological in the strict sense but rather represent a mythic encounter that brought a past golden age to an end.

**25.12 Current Trends**

Current trends in Indo-European comparative mythology are taking several directions. The evidence for trifunctional (or quadri-functional) patterns is continually being augmented by further examples both from well-researched sources, e.g. Indic, Roman, Norse, and from other traditions such as Greek and Armenian that have seen far less attention. Moreover, an increasing number of scholars have been examining the narrative structure of the earliest literary traditions of the various Indo-European groups to reveal striking parallels between different traditions. For example, N. B. Allen has shown how much of the career of the Greek Odysseus is paralleled by distinct incidents in the lives of Arjuna in the *Mahābhārata*, the Buddha in the earliest Buddhist texts, and CúChulainn in early Irish heroic literature. Other scholars such as Claude Sterckx, Stepan Ahyan, and Armen Petrosyan have uncovered detailed correspondences in other early Indo-European traditions. According to Allen, the close coincidences go beyond both the type of random generic parallels that one might expect between different literary traditions and beyond what we might ascribe to some form of distant diffusion. He argues that such comparisons provides us with at least some of the detritus of the Proto-Indo-European narrative tradition.

**Further Reading**

The best general treatise is Puhvel (1987a); for the core of Dumézil see Dumézil (1968–73) and Littleton (1973); cases for a ‘Fourth Function’ can be found in Allen (1987), Lyle (1990); the mythic structure of IE medicine is to be found in Benveniste (1945); the “three sins of the warrior” are the subject of Dumézil (1970); representative new approaches within the Dumézilian tradition that seek new patterns of underlying Indo-European narratives include Ahyan (1998), Allen (2000a, 2000b, 2002), Miller
Sir William Jones had hardly postulated the existence of what we now term the Indo-European language family before he set future Indo-European studies its longest and most frustrating problem. In the same lecture (see Section 1.1) in which he described the relationship between the various ancient languages, he also remarked that in a future discourse he would attempt to follow them back to ‘some central country’. In his later lectures he argued that the homeland lay in greater Iran. This assertion set off a legacy of debate in which homelands have been set anywhere from the North to the South Poles, from the Atlantic to the Pacific. Before we briefly review the different approaches and solutions to the homeland problem, we should ask ourselves whether this is even a legitimate problem.

Why must the Indo-European languages be derived from a smaller geographical area than that in which we find them when they begin to enter the historical record? Why couldn’t they have always been there, at least since the time of *Homo sapiens sapiens*? This is indeed an argument made by a several scholars who locate the Indo-Europeans right across Europe from the beginning of the Upper Palaeolithic onwards, i.e. c. 40,000 years ago. The reasons for not making such an assumption are several.
First, from our initial historical records onwards we can see Indo-Europeans expanding centrifugally, at least beyond the periphery of their historical distribution (Maps 1.1, 1.3). Iberia maintains evidence of both prehistoric and current non-Indo-European populations, e.g. Basques, as does Italy (Etruscans). The Iranian language expanded south to absorb the earlier Elamite language of southern Iran and Indo-Aryan languages spread southwards and eastwards to absorb, at least partially, Munda and Dravidian languages. The Anatolian languages are so laced with loanwords from their non-Indo-European neighbours that languages such as Hittite are often seen as having been superimposed on a Hattic substrate.

Second, the reconstructed lexicon, no matter how narrow or broadly we interpret it, makes it abundantly clear that the proto-language possessed a mixed arable agriculture-stockbreeding economy, some metals, ceramic technology, and wheeled transport. As agriculture did not exist in either Europe or India prior to the seventh millennium, it is difficult to sustain an argument that the Indo-Europeans were scattered across Eurasia from the fortieth millennium BC onwards. As a cultural phenomenon, Proto-Indo-European cannot have begun disintegrating until it had already adopted a Neolithic economy and technology.

Third, the greater an area that we assign to a language (whatever continuum of dialects that we might imagine for Proto-Indo-European), the greater the opportunity for language divergence over time. In concrete terms, the larger the area that we imagine for the speakers of what we notionally reconstruct as a proto-language, the more rivers, mountains, seas, variation in economic strategies, social systems, contacts with non-Indo-European substrates, we must imagine contributing to linguistic diversity. While we cannot assign a one-to-one relationship between language change, time, and area, we do know that all of these features are factors. Conversely, if we find a single language over a large area we tend to presume a short period of time for its spread.

There have been periods of broad consensus, e.g. an Asian homeland was the favourite for much of the nineteenth century but a European homeland (where in Europe was another question altogether) has been the primary choice of most scholars since the early twentieth century. Now, the consensus is still probably European but there are a number of scholars who would support Anatolia (Turkey) or other areas of Asia. With so much dispute and with everyone working with the same general body of evidence, we are clearly dealing with profound methodological differences. How do we determine the centre of the spread of a language? Are there universal principles that we can employ to determine the prehistoric location of a language?

The most obvious approach to finding the Indo-European homeland, i.e. selecting a geographical location in time and convincing the rest of the world
that one is right, is examining the distribution of languages from their centres in many historically controlled situations so that we can observe the processes and principles involved. The problem with this approach is that there is really nothing suitable. Where we can observe the expansion of a major language group, e.g. Romance or Germanic, it is under historical circumstances that are hardly likely to have obtained at the time of Indo-European expansions. Where we find language families that more closely approximate the social conditions of Proto-Indo-European, e.g. Chinese, Uralic, Algonquian, we find ourselves dealing with other unresolved homeland problems. In short, no language family has provided a suitable laboratory to work out confidently the rules of the game. That is not to say that many solutions do not try to argue from what are posited to be well-established principles, but few if any of such principles can be regarded as wholly compelling from an empirical standpoint.

26.2 Homeland Approaches

The search for the Indo-European homeland is an exercise in logic and the diversity of solutions is primarily due to the variety of approaches that have been taken. Below follows a brief compendium of the type of more serious arguments that have been adduced to locate the original location of the Indo-Europeans.

26.2.1 External Language Relations

Just as adjacent languages may mutually influence each other when in contact so also do adjacent language families. Linguists have discerned loanwords or grammatical loans (or mutual inheritances) between Indo-European on the one hand and Uralic, Afro-Asiatic (here Semitic), and Kartvelian. These presumed contacts have supported homelands set in the steppelands of Eurasia (with the Uralics in the forest zone to the north), in eastern Anatolia (to accommodate an interface between Kartvelian and Semitic), and in central Asia (distant Semitic relations and again with Uralics to the north). The problems with such an approach have been discerning the time depth of the ‘contacts’, i.e. what have been interpreted as Uralic-Proto-Indo-European loans by some have been seen to be much later contacts between Iranians or Indo-Iranians and Uralics. The nature of the contacts may also be disputed, i.e. where we may find apparent loanwords between two language families, it is presumptive that these must have been in direct contact with one another when the language groups could
still have been geographically distant and the lexical connections are *Wanderwörter*, i.e. far-travelled cultural loanwords. Third, it may be disputed whether the relationship reflects a contact relationship between two different language families or whether the evidence points to the retention of shared terms from genetically related language families which share a common origin, i.e. the similarities go back to a time long prior to the formation of the two proto-languages involved. It should also be emphasized that language families are not synchronic, i.e. there is no reason to postulate the same time depths to every language family. Some uniform proto-language may have been spoken over a geographically compact area at the same time when their neighbours had already differentiated into different language groups of an already expanded family.

**26.2.2 Centre of Gravity**

The distribution of the different language groups, it is argued, should provide important clues as to their origin. In the biological sciences, for example, a map of the different genera and species of a plant or animal often indicates the probable area of origin. This argument generally involves an appeal to maximum diversity to indicate the centre of a language dispersal. The English language is most uniform in areas where it has expanded most recently (Australia, New Zealand) and shows more evidence of regional dialects in areas settled somewhat earlier (North America) and greatest diversity in areas where it has existed longest (England). If we continue this approach, we would argue that as there are far more Germanic languages in north-west Europe it is far more likely that English derived from there rather than the reverse, i.e. that the other Germanic languages spread from England to the Continent. This approach has been a staple of homeland solutions everywhere in the world. It also has a converse principle: where we find the greatest homogeneity of languages, that area is likely to have been most recently occupied. In general, these principles have selected for homelands in or adjacent to the Balkans. Here we can list a series of language groups, e.g. Greek, Albanian, Illyrian, Thracian, Dacian, Slavic, which are portrayed as a central core while on the periphery we find large areas occupied by single language groups (Indo-Iranians in the east and Celtic (here seen in terms of its broad Iron Age distribution) in western and central Europe).

The problem with this approach is that it is extremely difficult to apply at a consistent date or with a suitable control of the actual diversity of the languages involved. We may be able to pack our putative Balkan core with Illyrian, Thracian, and Dacian but we have no idea how different they were from each
other or from neighbouring Indo-European groups. Moreover, we have no absolute measure of difference in the first place. Although we tend to use languages as the common unit of measurement, the diversity between languages of the same family is hardly uniform. For example, the major Scandi-navian languages of Norwegian, Swedish, and Danish are very broadly mutually intelligible as also are the Eastern Slavic languages of Russian and Byelorussian, more distantly Ukrainian. If we simply count the number of early languages we know and their diversity in specific locations, it is probable that Italy would be judged the winner with its numerous, poorly attested Iron Age languages that shared the peninsula along with Latin. In Italy the linguistic diversity attested by our earliest linguistic records has been replaced with relative linguistic uniformity by the spread of Latin. In Anatolia the linguistic diversity of our earliest records was replaced by the spread of Greek and then, later, by the spread of Turkish. How many other areas where our earliest knowledge is of linguistic uniformity are the products of exactly the same process?

26.2.3 Cladistic Correlation

The family tree of the Indo-European languages has often been seen as a partial proxy to the geographical relationships between the different languages. For example, many if not most linguists would see the separation between Anatolian and the other Indo-European languages as among the earliest ‘splits’. For this reason, homeland solutions are devised to accommodate these intrafamily relationships, generally by having the homeland not too distant from the historical seats of the Anatolian languages. Following this line of reasoning, the Proto-Indo-European homeland is placed in Anatolia, requiring all the other Indo-European languages to separate off from Anatolia (either to the east or to the west), or the homeland is placed somewhere not too distant from Anatolia, e.g. the steppelands, so that the future Anatolians might be accounted for by the initial Indo-European expansions. The problems involved with this method are several. First, there are competing family trees to explain the Indo-European languages and the differences will govern the nature of the geographical relationships proposed. Second, it is presumptuous to read geographical co-ordinates into a linguistic relationship. For example, although many trees will suggest reasons for placing the Indo-Iranians linguistically close to the Greeks and Armenians (see Figs. 5.1, 5.2, and 5.3), how do we translate this relationship into a geographical expression of where they may have shared this mutual development (or contact)? It may have been in India, Iran, the steppes, Anatolia, the Balkans, Greece itself, or somewhere outside this broad band.
26.2.4 Onomastics

This approach presumes that the proto-language itself might have left identifiable traces on the named landscape. The primary use of such an approach has been in the area of river names on the assumption that these represent the oldest and lexically least altered component of the landscape. Hence, if one can discern Proto-Indo-European names for rivers, we can presume that we have found an area in which the Proto-Indo-Europeans once lived. Such an approach has thrown up homelands in the Baltic or central and eastern Europe. These hydronymic solutions run into very serious problems. Many would dispute the interpretation of the empirical evidence, i.e. that one can confidently etymologize the names of rivers beyond an existing language system. The systems of ancient river names require appeals not to specific Indo-European languages but to derivations from Proto-Indo-European roots, and there is no way of checking the credibility of assigning river names like ‘the bright’, ‘the runner’, etc. One linguist’s Indo-European names become another’s proto-Basque, or Caucasian or anything else.

There are several other onomastic approaches although these play little part in more recent research. Iranian tradition spoke of an Airyana vaeja ‘seed of the Aryans’ as a particular (but unspecified) geographical location and that tradition set many scholars off to localize it in some particular place. Moreover, it was often assumed by such scholars that the homeland of the ‘Aryans’ could be assumed, without much further ado, to be the homeland of their ancestors, the Proto-Indo-Europeans, as well. In actuality the Airyana vaeja would have been the homeland of (a major branch of) the Iranians alone.

26.2.5 Conservation Principle

One of the recurrent arguments employed to determine the Indo-European homeland on the basis of purely linguistic evidence is the assumption that the homeland is most likely in the area where we find the least altered Indo-European language. This presumption is based on the logic that, if a language has not moved, it will have experienced far less impetus to change, e.g. impact of substrates or contacts with other languages, than those languages that have spread through more distant migration. This principle was initially applied in the nineteenth century when it was assumed that Sanskrit was the closest to the proto-language, but over the course of the next century two other contenders appeared. The archaic nature claimed for Anatolian made it possible to suggest that it was the least moved language, but this conclusion was mitigated by the
clear evidence of loanwords from a variety of its neighbours (Semitic, Hattic, Hurrian) and the internal evidence that indicated that Hittite had been adopted by a non-Indo-European substrate. Alternatively, the Baltic languages, particularly Lithuanian, were seen to be remarkably conservative, especially in light of their late attestation. This conservatism provided one of the cornerstones for those who sought an Indo-European homeland on the shores of the Baltic Sea.

The conservation principle suffers from several serious defects. Its application requires one to measure how conservative were the various Indo-European languages, but this comparison cannot be done on a level playing field because the various languages entered the historical record at different times. To compare Sanskrit with a putative date of c.1200 BC with Lithuanian at AD 1800 is patently unfair (and assessing the state of Lithuanian at 1200 BC requires a time machine). As it is impossible to compare any more than three language groups at c. 1000 BC (Indo-Iranian, Greek, and late Anatolian) one is not comparing the full range of Indo-European languages. If one applies the principle by a time when all the languages can be brought into play, we then find ourselves comparing the modern languages of India (Hindi-Urdu, Bengali, etc.) with the Romance languages (French, Italian, etc.) and we will have to ignore all earlier evidence, including whole language groups (Anatolian, Tocharian) or well-attested earlier stages of the language groups (Sanskrit, Latin). Secondly, there is no empirical measuring device to ascertain in any reliable quantitative manner how conservative or how innovative the Indo-European languages are. There is no commonly agreed scale by which one could compare each language group against a standard (reconstructed Proto-Indo-European). Third, the underlying logic of the exercise is largely based on the assumption that language change is a product of language contact, i.e. the reason that a language spread through migration is likely to experience more change is that it has undergone imperfect learning by substrate populations (or come into contact with foreign languages). While these may influence language change, they are hardly the only reasons for it. Finally, if conservation did indicate lack of movement from a putative homeland we would expect that there would be a corresponding gradient of conservatism running from the homeland to the most travelled language group; in fact, there is no such evidence of a graduated abandonment of the ‘mother tongue’ over distance.

26.2.6 Linguistic Palaeontology

The analysis of the reconstructed proto-lexicon for clues as to the location of a proto-language is a widely employed technique although many prefer a different term, e.g. lexico-cultural analysis, from the original nineteenth-century term,
linguistic palaeontology, that led to discredited results. The underlying premiss is that if we can reconstruct the environment and technology known to the Proto-Indo-Europeans, we should be able to determine their location. The main areas of interest are the words for trees, animals, and material culture, all of which may have had restricted distributions in the past. The technique requires an appeal to archaeological and palaeo-environmental evidence to set broad limits on where the proto-language may have been spoken. This exercise is often only intelligible when we also have some idea of when Proto-Indo-European was spoken (see Chapter 6) because the distribution of plants, animals, and most especially material culture has varied greatly through time. If one accepts the broad dates provided earlier, i.e. c. 4500-2500 BC, for Proto-Indo-European, the lexico-cultural evidence does little to confine the potential area of the homeland. The difficulty is that the more geographically specific the reconstructed item, the less likely it is for the word to have survived once the Indo-Europeans expanded beyond a region where it existed. Or, the word might then be applied to a new species of plant or animal and we will be left with critical uncertainty as to what the proto-lexeme actually meant. We have already seen this in three of the classic Indo-European homeland arguments which required us to determine whether *lóks meant ‘Atlantic salmon’ or ‘salmon trout’, *bheháós meant the common beech (Fagus silvatica) or some other species of beech (Fagus taurica or Fagus orientalis) or some other tree altogether, and whether *hókwos referred to the ‘domestic horse’ or the ‘wild horse’ (or both)? There is no cultural item that clinches a homeland in any specific location but it should not be imagined that the lexical cultural evidence is altogether useless. It does provide us with a fairly consistent impression of the time of Proto-Indo-European (Late Neolithic/ Eneolithic) and it provides us with evidence that renders some potential homelands much less likely than others, e.g. the absence of the evidence of the horse altogether from both Greece and Italy before the Bronze Age makes it less likely that these were the earliest seats of the Indo-Europeans.

26.2.7 Physical Anthropology

The use of physical anthropological evidence (now the term ‘bio-archaeological’ is often preferred) emerged as a major technique of the latter nineteenth century but after the excesses of twentieth-century racists it has few supporters, at least within the sphere of Indo-European studies, as this area is precisely where the excesses were inflicted. The assumption here is that human physical type may serve as proxy evidence for the speakers of a language family. There were several approaches. One depended on phenotypic differences, i.e. the outward appearance of different peoples. Scholars mined historical records
and literature for descriptions of the earliest Indo-Europeans and then argued whether they were blond or brunette (given the range of meanings of colour terms in ancient literatures this is not always an easy task) and employed such evidence to determine the likely homeland. This method produced arguments of truly staggering illogic as pseudo-scientists sought the epicentre of European blondness under the assumption that only there could one have acquired light hair and only there could have been the homeland. As cloning techniques were unlikely to have been present during the period 4500–2500 BC, it is difficult to see why the phenotype of the original population of so physically disparate speakers as the Indo-Europeans had to be uniformly blond, brunette, or whatever colour one might imagine.

A second approach involved the analysis of skeletal anatomy, primarily the human skull, which was divided into certain ‘subracial’ categories, e.g. Nordic, Armenian, Mediterranean, or into the broader categories of skull length to breadth ratio, i.e. brachycephalics (brachycranials if it was your skull and not your living head) who had wide heads and dolichocephalics (dolichocranials) with long heads. The problem here is that if children of dolichocephalics could turn out brachycephalic, how could one seriously regard such broad distinctions as meaningful? It has proven difficult to sort out which measurements of the human skull are measuring something that is entirely genetic, i.e. inherited, versus those which may differ either randomly or because of the environment, especially the diet. Those who still measure skulls generally do so within the context of multivariate analysis where a number of different, and presumably more reliable, measurements are analysed statistically in order to determine the direction of gene flow from one population to another. Even this technique is not widely employed simply because many, perhaps most, physical anthropologists have abandoned such analysis.

A third approach is genetic, i.e. either the analysis of the genetic composition of modern populations or the extraction of genetic data (ancient DNA) from skeletal material. This method has proved to be a growth industry in language studies (there is grant money out there to be gained) but the results are still far from reliable. Analysis of modern populations as proxy evidence for past migrations, especially migrations that should have occurred thousands of years earlier, have yielded quite conflicting interpretations. One of the earliest and still discussed is the work of Luca Cavalli-Sforza and his colleagues on the distribution of human genes in European populations where the first principal component, indicated by a genetic path from South-West Asia westwards across Europe, has been interpreted as the result of the expansion of the first farmers in the seventh millennium BC or, alternatively and in no way in association with the spread of Indo-European speech, that of modern Homo sapiens sapiens populations c. 40,000 BC. The temptation to read every cline on a map of genetic features
as a migration and tie it to a putative linguistic movement has led to ostensibly circular reasoning. As for the use of ancient DNA, actually establishing gene flow among ancient populations where there is control for the date of the gene flow, the techniques involved are of a far higher magnitude of difficulty. Ancient DNA is often very poorly preserved, expensive to recover, and without analysis of a large area, valid conclusions cannot be made. The technique may in time become a useful tool but that day is some way off.

Finally, the problem with both genetic and phenetic approaches is that there is an assumed correlation between language and human physical type. Studies of current language boundaries do reveal some correlations but many of these involve natural barriers (seas, mountains) and none can be reliably factored for time, i.e. there is no way to distinguish whether a currently observable border between, say, Romanian (Italic) and Bulgarian (Slavic) is a modern feature or reflective of an earlier border between Dacian and Thracian or a still earlier border. The requirement of a genetic trail could only be accepted if one required that for language shift to occur there must be a constant human vector involved so that there was major directional gene flow. Given the fact that in most cases we are probably speaking of language shift between neighbouring peoples, there is no requirement whatsoever that the trail of language shift should also leave a clearly defined genetic trail as well. Nor for that matter can we assume that if we do find a genetic trail, this necessarily resulted in a language shift favourable for those carrying the gene rather than their absorption by local populations.

26.2.8 Retrospective Archaeology

We have already seen archaeological involvement in the use of linguistic palaeontology but it may be employed in a number of other ways as well. The most obvious is the retrospective method where one examines those archaeological cultures that must have been associated with different Indo-European language groups and attempts to work backwards to the ‘proto-culture’. The unit of analysis here is the so-called ‘archaeological culture’, a classification device employed by archaeologists to deal with similar and geographically confined material culture and behaviour. This method fails to convince for at least two major reasons.

The retrospective technique presumes that one can employ cladistic techniques to provide an archaeological family tree much like a linguistic tree. But this is not at all what one actually does because the archaeologically defined cultures show constant mutual contact in terms of ornamental styles, architecture, metallurgy, or any other phenomenon of cultural life, i.e. there is no single line of ‘gene flow’ within a continuum of archaeological cultures. Moreover, the
definition of the individual units may well vary through time, e.g. in the Neolithic ceramics tend to be critical for distinguishing one culture from another but by the Bronze Age, metallurgical tradition and mortuary practice become more critical elements.

Secondly, even if one were convinced of the underlying logic of the retrospective method, it still falls apart on empirical grounds once one has worked back to c.3000 BC (in some cases the retrospective method disappears altogether). Many of the language groups of Europe, i.e. Celtic, Germanic, Baltic, and Slavic, may possibly be traced back to the Corded Ware horizon of northern, central, and eastern Europe that flourished c.3200–2300 BC. Some would say that the Iron Age cultures of Italy might also be derived from this cultural tradition. For this reason the Corded Ware culture is frequently discussed as a prime candidate for early Indo-European; in the past it was even suggested as the Proto-Indo-European culture. However, the Corded Ware cannot even remotely explain the Indo-European groups of the Balkans, Greece, Anatolia, nor those of Asia. For the steppeland regions of Eurasia, the retrospective method takes us back through the Bronze Age Andronovo and Timber-grave cultures of the Eurasian steppe to the underlying Yamna culture of c.3600–2200 BC. This method can supply us with an archaeological proxy for the Eastern Iranians but that is about all the retrospective method gets us. We may argue that the Yamna culture should minimally reflect the proto-Indo-Iranians if not more; however, we cannot do this by the retrospective method since there is no ancestral culture that territorially underlies the Iranians or Indo-Aryans, i.e. there is no specific culture X that both embraces the historical seats of the Indo-Iranians and can also be traced back to the Yamna culture. Similarly, there is really no solid evidence in the retrospective method in Greece that takes us anywhere that we can confidently tie to one of the other two ‘ancestral cultures’; nor Anatolia. Sooner or later the retrospective method leads us to a series of what seem to appear to be independent cultural phenomena that somehow must be associated with one another. In that lies most of the archaeological debate concerning Indo-European origins.

26.2.9 Prospective Archaeology

The opposite method to a retrospective approach is a prospective approach where one starts with a given archaeological phenomenon and tracks its expansion. This approach is largely driven by a theory connected with the mechanism by which the Indo-European languages must have expanded. Here the trajectory need not be the type of family tree that an archaeologist might draw up but rather some other major social phenomenon that can move
between cultures. For example, in both the nineteenth century and then again in the later twentieth century, it was proposed that Indo-European expansions were associated with the spread of agriculture. The underlying assumption here is that only the expansion of a new more productive economy and attendant population expansion can explain the widespread expansion of a language family the size of the Indo-European. This theory is most closely associated with a model that derives the Indo-Europeans from Anatolia about the seventh millennium BC from whence they spread into south-eastern Europe and then across Europe in a Neolithic ‘wave of advance’. A later alternative mechanism is the spread of more pastoral societies who exploited the horse (and later the chariot) and carried a new language across Europe and Asia from the fourth millennium BC onwards. The underlying assumption here is that the vector of Indo-European language spread depended on a new, more aggressive social organization coupled with a more mobile economy and superior transportation technology. As this theory sets the homeland in the steppelands north of the Black and Caspian seas among different cultures that employed barrows for their burials (Russian *kurgan*), it is generally termed the Kurgan theory.

Although the difference between the Wave of Advance and Kurgan theories is quite marked, they both share the same explanation for the expansion of the Indo-Iranians in Asia (and there are no fundamental differences in either of their difficulties in explaining the Tocharians), i.e. the expansion of mobile pastoralists eastwards and then southwards into Iran and India. Moreover, there is recognition by supporters of the Neolithic theory that the ‘wave of advance’ did not reach the peripheries of Europe (central and western Mediterranean, Atlantic and northern Europe) but that these regions adopted agriculture from their neighbours rather than being replaced by them.

In short, there is no easy way to locating the Indo-European homeland; there is no certain solution.

### 26.3 What Does the Homeland Look Like?

One of the problems of homeland research is that often those searching for it are not clear what they are looking for or likely to find. If we consider the problem from first principles, then there is absolutely no reason to imagine that Proto-Indo-European began with the origins of human speech. Once that is accepted, then obviously Proto-Indo-European must have had ancestral stages that pre-date its appearance. In some cases, linguists have attempted to reconstruct Pre-Proto-Indo-European, generally through internal reconstruction. Often the ancestry is traced to earlier proposed linguistic stages, e.g. Proto-Indo-Uralic or Nostratic, but even here one is seldom proposing a language stage earlier than
c.15,000–10,000 BC. Moreover, as we trace Indo-European along the developmental line of a still longer language tree, our control of time and space becomes increasingly weaker. If one, for example, wished to derive Proto-Indo-European from Nostratic, there is an overwhelming temptation to locate a Nostratic homeland and use this as a proxy homeland for Proto-Indo-European. But once this is done, we exclude from the equation vast tracts of Eurasia whose cultures will then remain linguistically anonymous for they fall outside the geographical area of anyone’s Nostratic (generally localized to somewhere in South-West Asia). We are accumulating unknowables at an alarming rate.

The result is that Proto-Indo-European defines that stage in a linguistic continuum retrievable by the comparative method. It was not an ‘instant’ in the life of a language nor was it a recognizable event to those who spoke it (occasionally in the nineteenth century scholars provided explicit scenarios where the Proto-Indo-Europeans resided in some confined, possibly isolated, territory where they ‘perfected’ their language). If we must accept that the temporal boundaries of our definition are blurred over many centuries, perhaps on the order of one or two thousand years, then it follows that the territorial boundaries of the proto-language are also very blurred. It is almost inconceivable that the linguistic borders of Proto-Indo-European could have remained static for a millennium or two. The best we can hope for is a dead reckoning of an area at a particular range of time in the hope that it encompasses much of what we believe to have been the ancestral speech of the Indo-Europeans.

26.4 Evaluating Homeland Theories

In a world with so many competing theories, how can we evaluate which are the most probable? Many homeland solutions depend on the reiteration (often in tones of vastly greater confidence than is warranted) of one or two pieces of evidence and selective amnesia concerning all the objections to the theory. Although there is not a single solution that may not be regarded as damaged goods, there are some that seem beyond repair, but we need some explicit guidelines to separate these from the real contenders. The following comprises a partial arsenal of criteria by which one might assess a potential solution.

26.4.1 Temporal Relationship

A solution cannot date after 2000 BC by which time we may expect to find an already differentiated Anatolian as well as Indo-Iranian and probably Greek.
How early a solution is admitted depends on individual decisions regarding the temporally most diagnostic vocabulary. That the vocabulary is clearly one reflecting at least a Neolithic economy and technology, i.e. domesticated plants and animals, ceramics, means that it cannot be set anywhere on this planet prior to c. 8000 BC. Although there are still those who propose solutions dating back to the Palaeolithic, these cannot be reconciled with the cultural vocabulary of the Indo-European languages. The later vocabulary of Proto-Indo-European hinges on such items as wheeled vehicles, the plough, wool, which are attested in Proto-Indo-European, including Anatolian. It is unlikely then that words for these items entered the Proto-Indo-European lexicon prior to about 4000 BC. This is not necessarily a date for the expansion of Indo-European since the area of Proto-Indo-European speech could have already been in motion by then and new items with their words might still have passed through the continuum undetected, i.e. treated as inheritances rather than borrowings. All that can be concluded is that if one wishes to propose a homeland earlier than about 4000 BC, the harder it is to explain these items of vocabulary.

26.4.2. Linguistic Relationship

Any solution should accommodate the broad requirements of whatever family tree is being proposed. In general, there is probably some broad although not universal consensus that would see a separation between Anatolian and the other Indo-European languages (see Figs. 5.3 and 5.4). Many have argued that Greek, Armenian, and Indo-Iranian share a number of innovations that suggest that there should have been some form of linguistic continuum between their predecessors. This line of thinking then presupposes various peripheries such as Germanic, Baltic, and Slavic in some form of relationship and possibly Celtic and Italic in another, still related to the north European languages. The position of Tocharian still remains beyond solid consensus other than the fact that it cannot be brought into the same continuum as Indo-Iranian. If a solution to the homeland can avoid totally contradicting these relationships, it can be regarded as a potential model.

26.4.3 External Relationship

There is evidence for loanwords and possibly genetic connections between Proto-Indo-European and other language families, most particularly Uralic
and Semitic. The interpretation of the empirical evidence here is not now (nor ever has been) the subject of much consensus and attempts to dead reckon the Proto-Indo-European homeland on a notional idea of its relationship with these other language families have plenty of problems. At best a solution should be able to devise a way by which Proto-Indo-European could have borrowed from and loaned words to these two major groups. It would, however, be a mistake to imagine that these relations can be translated into specific geographic co-ordinates, especially when we do not know the prehistoric location of the other language families any better than Indo-European.

26.4.4 Total Distribution Principle

The correct solution to the Indo-European homeland problem explains the origins and distribution of all the Indo-European languages. All too often a solution proceeds from some form of argument for the local continuity of a language in a particular area and then extrapolates this back to the homeland itself. In the nineteenth and first half of the twentieth century, the model of continuity helped drive a north European solution to the homeland problem, i.e. if there is no evidence that anyone brought a new language into northern Europe, then there must have been local continuity in this region and all the other Indo-European languages derive from northern Europe. Today there is an entire school that makes a similar argument for local continuity in northern India and argues that there lies the homeland. In both cases—or any other case for regional continuity—a solution is made for one area and the rest of the Indo-European world is forced to accommodate it, generally without the slightest credible evidence. No solution is valid if it only rests on local continuity; it must provide a viable model for the spread of all the Indo-European languages.

26.4.5 Plausible Vector Principle

The expansion of the Indo-European languages was a social phenomenon or many individual phenomena that spanned much of Eurasia. This expansion could not have taken place without a social vector that should have left some trace in the archaeological record (ancient DNA may eventually have some role to play here). Generally, all solutions can be divided into two main models: demographic replacement and language shift. In the first, the primary vector will be a new population speaking some form of Indo-European that
swamps or replaces an earlier non-Indo-European-speaking population. The most popular model for demographic replacement is the ‘wave of advance’ that sees the greater productivity of the farming economy as the factor that drove both farming populations and their expansion through Europe where they carried the Indo-European speech. One might also suggest that there may have been regional migrations where an influx of Indo-European speakers settled an area after a major socio-economic collapse (e.g. there is major cultural change and relocation in the Balkans in the fourth millennium BC, or the collapse of the Indus Valley Civilization in the second millennium BC).

Alternatively, there are language shift models that do not require population replacement but rather the spread of a language, perhaps through a minimum number of individuals, due to a variety of social processes that encouraged local non-Indo-European peoples to shift their language. Identifying the social processes is a major challenge. Generally, language shift models have employed some form of ‘elite dominance’, i.e. postulated that the Indo-Europeans expanded through military aggression and superimposed themselves on substrates who eventually adopted Indo-European speech. One of the most popular theories, that of Marija Gimbutas, emphasized the role of the horse and horse riding as a key element in the expansion of Indo-European populations off the steppe into south-eastern and central Europe.

**26.4.6 Exclusion Principle**

Although this is not a hard and fast principle, where we find very early in the historical record evidence for non-Indo-European populations, it is unlikely that we would have reason to set the Proto-Indo-European homeland in the same place. We have written records from the third millennium BC onwards that provide either direct or reasonable inferential evidence as to the location of the Egyptian, Semitic, Sumerian, Hattic, Hurrian, Elamite, and other lesser-known non-Indo-European languages. It is not impossible for the Indo-European homeland to have been located in an area later occupied by a non-Indo-European language, but the earlier our evidence for a non-Indo-European language, the more difficult it becomes to place Indo-Europeans in the same place. Moreover, unless one wishes to explain Indo-European migrations in terms of a refugee model, i.e. the Indo-Europeans were pushed out of their homeland by a more powerful people (and somehow then went on to dominate much of Eurasia), it is difficult to imagine what economic or social process might have given the Indo-Europeans the edge in their expansions. A corollary of this principle is the expectation that if one wishes to place the homeland in the
same area or adjacent to a non-Indo-European language (family), one might expect evidence of linguistic contacts between the two.

26.5 Processes of Expansion

A language, certainly a prehistoric language, cannot spread on its own but requires a vector. Essentially there are two vectors: human beings and their social institutions. The most obvious vector is the human vector, i.e. the migration of a population speaking a particular language who carry it beyond its former territory. For much of the history of the Indo-European homeland problem, human vectors have been the most popular. In the nineteenth and early twentieth centuries, one often read of a Proto-Indo-European people who spilled out from their homeland to cover (often conquer) much of Eurasia. Currently, the most popular human vector is that associated with an Anatolian homeland which links the spread of the Indo-Europeans with the expansion of the earliest farmers. The hunter-gatherer economies of Eurasia may be generally characterized as small and occupying certain ecological niches while the introduction of farming permitted larger families, greater population increase, and density and promoted the expansion of farming populations at the expense of local Mesolithic hunter-gatherers. Population movement is also invoked for a number of the Later Bronze Age and Iron Age cultures which may be seen to adumbrate the later mass ‘folk wanderings’ of the Celts, Germans, and other peoples of early historic Europe.

The second vector is a social one where a language spreads because it is associated with particular social institutions. This is not to deny that there may also be some population movement but the vector most responsible for the spread of a language is seen to be social rather than strictly biological. For a language to spread over previous populations who have not been deliberately exterminated (unlikely in prehistory) or been entirely swamped by a much more fertile immigrant population, this requires some form of language shift. The rules for language shift are not hard and fast, and generalizing from a handful of cases, often drawn from modern societies or population groups vastly different in technologies, may be an unsuitable model for Proto-Indo-European. But there are certain obvious principles that we may expect operated in the time of early Indo-European expansions. The first is that societies do not immediately shift their language but rather experience a period of societal bilingualism before they acquiesce to the full adoption of a new language.

Societal bilingualism requires some form of social impetus. There must be some reason for people to make the effort to learn a new language in addition to their own, and an equally compelling reason for them to ultimately abandon
their former language for the new one. A social perspective on language use indicates that it is employed in different social domains. For example, there is the domestic domain, the language spoken at home; there is a religious domain, the language spoken when talking to one’s deities or in ceremonial precincts; a domain of exchange, the language of the marketplace. If Indo-European spread through language shift, then we might expect that when its speakers came into contact with non-Indo-European-speaking populations, there was some attraction for them to enter one or more of the social domains of the Indo-Europeans: to do this, they had to learn Indo-European. As time progressed, and we may not be talking about more than two generations for any individual group, the local population came to think of themselves more and more as Indo-European speakers and began abandoning their original language in its other social domains. Generally, the last to go will be the domestic domain where, in the most extreme cases, we are left with the poignant image of a grandparent who cannot converse with his or her grandchildren.

So what might have attracted non-Indo-European speakers to enter the social domains of the Indo-Europeans? As fundamentally logical as this question might seem, answers are remarkably few and conclusions even scarcer. One of the obvious and most frequent models was that of a very brusque elite dominance, i.e. the Indo-European speakers conquered local populations and somehow forced them to adopt the new language. Other models focus on Indo-European religion and perhaps religious institutions that may have attracted local populations. There have certainly been enough examples where religion and the military worked hand in hand, e.g. the expansion of Spanish Catholicism in the Americas, Arabic Islam in North Africa and the Middle East. Exchange systems have also been invoked on occasion with the suggestion that Indo-European was a lingua franca, a trade language that was adopted among many different peoples. Warrior sodalities (war-bands) have also been invoked—not because they in themselves subjected new populations but rather because they would have attracted young males into an acculturizing institution that offered room for advancement in the new system. Finally, we might invoke the Indo-European social system itself with its admittedly limited evidence for kings and tribes which may have attracted new members, especially if their own political systems were in a state of collapse or lacked centralized institutions.

We should avoid a false dichotomy between the population and social vector as if the spread of the Indo-European languages was due purely to one or the other means. It may well have fluctuated from one instance to the next and it is easy to see how populations who have experienced language shift might be the next population to migrate and carry it into a new territory. A number of the cultures most closely associated with current theories of Indo-European
expansions, e.g. the Corded Ware culture of northern and central Europe, the BMAC of central Asia and the Indian borderlands, can be variously interpreted as the result of population movements or primarily social phenomena (cults). From an archaeological point of view, it may well be worth distinguishing the two phenomena, but from the standpoint of linguists, either phenomenon may have served as a vector for language shift.

26.6. Where Do They Put it Now?

All too often surveys of the Indo-Europeans eventually conclude with something on the order of ‘scholars have concluded that the most likely area of the homeland is . . . X’ with a brief defence of one particular solution (this type of scholarship has been going on since the late nineteenth century). In fact, we not only lack total consensus but where we seem to find something of a major school it is often formed by deference rather than conviction, i.e. linguists or archaeologists indicate agreement with a particular theory that they have not themselves investigated in any depth. This situation means that a small number of advocates—at times, very vigorous advocates—provide an assortment of homeland theories for the rest of their colleagues to comply with passively. The homeland is an interesting question but it is so difficult to resolve (we have over two centuries of dispute to prove that) and requires the application of so many less than robust means of argument that most archaeologists and historical linguists do not find it a worthwhile enterprise, at least for themselves. The last word is, therefore, far from written and in this remaining section we only attempt to prepare the reader to engage the current state of argument critically.

Currently, there are two types of models that enjoy significant international currency (Map 26.1).

There is the Neolithic model that involves a wave of advance from Anatolia c. 7000 BC and, at least for south-eastern and central Europe, argues primarily for the importation of a new language by an ever growing population of farmers. This part of the model has reasonable archaeological support in that there is a fair amount of archaeologically informed consensus that derives the earliest farming communities in the Balkans from somewhat earlier farming communities in Anatolia. For the periphery of Europe the means of explanation become less clear, and rather than a language expansion driven primarily by Early Neolithic population expansion, this model now seems to admit of later (Late Neolithic, Bronze, or Iron Age) movements into Mediterranean, Atlantic, and northern Europe. For the steppelands, it envisages the spread of an agricultural economy from the Balkans to the steppes where it was then carried, in the Bronze Age, beyond the Urals and then south into the territories
of the historic Indo-Iranians and Tocharians. Some opponents of this solution admit that the initial archaeological scenario may be true but suggest that the Early Neolithic farmers spoke an unknown non-Indo-European language, possibly related to the historically attested non-Indo-European languages of Anatolia (e.g. Hattic, or possibly one of the Caucasian languages).

Alternatively, there is the steppe or kurgan model which sees the Proto-Indo-Europeans emerging out of local communities in the forest-steppe of the Ukraine and south Russia. Expansion westwards is initiated c. 4000 BC by the spread from the forest-steppe of mobile communities who employed the horse and, within the same millennium, wheeled vehicles. These intruded into south-eastern Europe at a time when there was major restructuring of local societies (variously attributed to climatic change, local social evolution, or intrusive steppe populations or a combination of the three). The hard archaeological evidence, i.e. the recurrence of the classic steppe burial type in the Balkans, is reasonably solid as far as the river Tisza. Beyond Hungary, this model relies on far less stringent archaeological evidence. A central component is that it requires some form of genetic derivation of the Corded Ware culture of the north European plain from the steppe cultures (one can talk either of direct derivation or the spread of a symbolic and social system that was initiated in the steppe). As for the Asiatic Indo-Europeans, it offers the model that was
adopted later by those who support the Neolithic model. Opponents of this theory would tend to see the steppe cultures as the ancestors of the Indo-Iranians and possibly the Tocharians but not of the entire Indo-European family.

The dispute here is thus one of degree, both temporal and spatial. The Neolithic model implicitly suggests that separation should have begun in the seventh millennium while the steppe theory would set a terminal date for Proto-Indo-European in about the end of the fifth or fourth millennium BC. For those who believe that the most recent technological items reconstructed to Proto-Indo-European, e.g. wheeled vehicles, wool, plough, provide a broadly congruent terminal date, then the Neolithic model is too early unless it is modified to suggest that the Proto-Indo-European territory during the seventh to fifth millennia was still so relatively confined that loanwords of the fourth millennium could pass through it indistinguishable from the inherited vocabulary. In terms of spatial differences, the Neolithic model subsumes the steppe by arguing that the steppe cultures expanded westwards from the south-west corner of the Black Sea. This is an area where there is considerable archaeological dispute as there is also evidence that the Neolithic economy may have entered the steppe region via the Caucasus, which would provide a markedly different origin not only for livestock and cereals but also for the Neolithic vocabulary reconstructed to Proto-Indo-European. In any event, there is really no case for a ‘wave of advance’ across the Ukraine and south Russia from the Balkans. Another critical spatial issue is raised if we position the Proto-Indo-Europeans in Anatolia and derive the Anatolians from local Neolithic populations (4,000 years earlier). One must reconcile this with the consensus that Anatolian was a superstrate on local non-Indo-European language families. To avoid this issue, either the Proto-Indo-Europeans must be moved to the far west of Anatolia during the Neolithic or the non-Indo-European Hatti must be introduced later to the story, not as the indigenous population but themselves as intrusive.

As both theories explain the Asian Indo-Europeans in the same manner, there is no dispute there although it does militate against one of the most attractive aspects of the “wave of advance”. The archaeological evidence for an expansion from the steppelands across historical Iran and India varies from the extremely meagre to total absence: both the Anatolian and the Kurgan theory find it extraordinarily difficult to explain the expansion of the Indo-European languages over a vast area of urbanized Asian populations, approximately the same area as that of Europe. To assert, as some supporters of the ‘Wave of Advance’ theory do, that only a major change such as agriculture could explain the distribution of the Indo-European languages does seem to be contradicted even by their own models. In terms of the Europeans west
of the Black Sea, the Neolithic model provides a larger area for the initial Indo-Europeanization, i.e. both south-east and central Europe. The steppe model is not nearly so secure for explaining central Europe. As for the peripheries of Europe, both confront analogous problems of language shift.

We can speculate what the future might hold for homeland studies. Although much now appears about the relationship between DNA and language, it will remain to be seen how appropriate the techniques of genetics are in unravelling linguistic phenomena. From historical linguistics we may look for greater attention to that part of the vocabulary of various Indo-European groups that is not easily assignable to Proto-Indo-European. This is the area of substrate studies which has often lain on the periphery of Indo-European studies, at least when the substrate was a wholly unknown language, but which may see some useful and credible developments that could suggest what parts of the vocabulary of the different Indo-European groups were absorbed outside the inherited vocabulary. From archaeology we might hope for greater attention to social models that bridge the gap between the phenomenon of language and the material remains and patterns that constitute the archaeological record.

Further Reading

## Appendix 1

### Basic Sound Correspondences between PIE and the Major IE Groups

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*a Only what might be called the ‘major’ outcomes are listed here. All languages show other outcomes of some of these Proto-Indo-European sounds that are conditioned by special environments. Outcomes enclosed in square brackets are those resulting from palatalization, i.e. when the sound was (originally) followed by a front vowel (i, ë).
Appendix 2 Proto-Indo-European to English Wordlist

*a
*ālu- ‘± esculent root’
*ānos ‘circle, ring’
*ar ‘and, thus’
*at- ‘father’

*b
*baba- ‘babble’
badyos (NW) ‘(yellow) brown’
baitēh, (WC) ‘cloak’
bak- (WC) ‘club’
balba- ~ barbar- ‘± stammer’
baub- (WC) ‘bark, low’
bélos ‘strong’
b(e)u- ‘owl’
bukk- ‘howl’
bulis ‘± rump’

*bh
*bhabheh, (WC) ‘bean’
bhag- ‘divide, distribute’
bhagos [*bhag- ‘divide’] ‘apportion(er)’
bhāghus ‘(fore)arm, foreleg’
bhāko/ch, (WC) ‘bean’
bhar- (NW) ‘projection’
bhardheh, (NW) [*bhar- ‘project’] ‘beard’
bhares- (NW) [*bhar- ‘project’] ‘barley’
bharko- (NW) [*bhar- ‘project’] ‘pointed object’
bhārs (WC?) [*bhar- ‘project’] ‘barley’
bhēbhrus [*bher- ‘brown’] ‘beaver’
bhedh- ‘bend (one’s body)’
bhedh- ‘dig, burrow’
bheg- ‘break’
b(h)egh ‘without’
*bheg*′ - 'run'
*bheg₂* - 'shine'
*bhēh_2(e)s* (GA) - 'light'
*bhēh₂tis* (GA) - 'light'
*bhēh₂₉* (WC) - 'speak'
*bhēh₂₉gōs* (WC) - 'beech'
*bhēh₂₉mēh₉* (WC) [*bhēh₂₉* - 'speak'] - 'saying'
*bheid* - 'split'
*bheidh* - 'bend'
*bheidh* - (WC) - 'persuade, compel, confide'
*bhei(h₉)* - 'strike'
*bhel* - (WC) - 'bloom, blossom'
*bhel* - 'shine'
*bhel* - (NW) - 'henbane'
*bhel* - (NW) - 'wildcat; ± marten'
*bhel* - (WC) - 'coot'
*bhelγ₉* [*bhel* - 'blow'] - 'swell'
*bhelγ₉* - [*bhel* - 'shine'] - 'white'
*bhelg₉₉s* (WC) - 'plank, beam'
*bhel₉s* - 'yelp, howl'
*bheldh* - 'bind'
*bhendhr₉₉₉₉* [*bhendh* - 'bind'] - '± relation'
*bhēnγ₉* - 'draw together, be thick'
*bhēnγ₉₉s* [*bhēnγ₉* - 'draw together'] - 'thick, abundant'
*bher* - 'brown'
*bher* - 'weave, twine'
*bher* - 'seethe, bubble; roast'
*bher* - 'strike (through), split, cut'
*bher* - 'carry'
*bher* - (WC?) - '± cure with spells and/or herbs'
*bhēr/₀* [*bher* - 'carry'] - 'bear (a child)'
*bherγ₉* - (NW) - '± bark, growl'
*bherγ₉₉* - (NW) - 'keep, protect'
*bherγ₉* - 'high; hill'
*bherγ₉₉* (WC) [*bherγ₉* - 'high'] - 'height = fort'
*bherγ₉₉* - 'shine, gleam'
*bherγ₉₉gōs* [*bherγ₉₉* - 'shine'] - 'birch'
*bhert₉₉r* [*bher* - 'carry'] - 'priest'
*bherg*₉γ₉ - (WC) - 'gullet'
*bhes* - 'blow'
*bhes* - 'rub'
*bheud* - (NW) - 'strike, beat'
*bheudh* - 'pay attention, be observant’
*bheug- *bheug- *bheug- (WC) *bheu(h)_- *bhdbhói_e *bhíd_ (NW?) *bhik"-ó- (NW) [*bheihǝ- 'strike'] *bhla gå- (NW) *bhlağa̱hmèn *bhleg- *bhlèh₁- (NW) *bhlèi- (WC) [*bhel- 'blow'] *bhlendh- (NW) *bhlèu- *bhlh₀d- [*bhel- 'bloom'] *bhlh₂g- (WC) *bhlöh_dho- (NW) [*bhel- 'bloom'] *bhodh_ròs *bhoğ- (WC) *bhólghis - [*bhel- 'blow'] *bhóliom- (WC) [*bhel- 'bloom'] *bhòlom - [*bhel- 'shine'] *b(h)o(mß)(h)- (WC) *bhorg"o- (WC) *bhosòs (WC) *bhou *bhoudhéye/o- [*bhuedh- 'pay attention'] *bhraκ- *bhreg₃- (NW) *bhreχ₁vr (WC) *bhréh₃₄ter-* *bhréh₃₄triyom [*bhréh₃₄ter- 'brother'] *bhrèh₃₄i- *bhrem-* *bhrentòs (WC) *bhrëu-* [*bher- 'seethe'] *bhrëu-* [*bher- 'strike'] *bhrëu- (WC) *bhrëus- (WC) [*bher- 'strike'] *bhrëus- (NW) *bhrëus- [*bher- 'strike'] *bhry₃g₃-* [*bher- 'seethe'] *bhry₃g₃mtih₃- [*bherg₃- 'high'] *bhry₃g₃h₃s ~ *bhry₃g₃h₃nt- [*bherg₃- 'high'] *bhry₃s ~ *bhères- (NW) *bhry₃s ~ *bhères- (NW)

'bend (an object)'
'is afraid'
'come into being, be; grow'
'large pot'
'bee, stinging insect'
'strike'
'priest'
'burn, shine'
'bleat'
'+ become inflated'
'be/make cloudy'
'swell, overflow'
'leaf'
'strike'
'flower'
'deaf'
'bake, roast'
'(skin) bag; bolster'
'leaf'
'forehead'
'+ muffled noise'
'angry, violent'
'bare, naked'
'both'
'waken, point out'
'squeeze together'
'break'
'spring'
'+ brother'
'brotherhood'
'destroy, cut to pieces'
'+ make a noise (of animals)'
'stag'
'seethe'
'cut, break up'
'boil, brew'
'break, smash to pieces'
'swell'
'roast'
'high one'
'high'
'fast'
*bhrodnos '± pale'
*bhrystis 'point'
*bhruih, 'eyebrow'
*bhrw- (WC) [*bher- 'weave'] '(bolt of) cloth'
*bhudhmno- 'bottom'
*bhuugos 'buck, he-goat'

*d
*daih,wër 'husband’s brother'
*dap- 'apportion'
*dapnom [*dap- ‘apportion’] 'sacrificial meal'
*das- 'lack'
*de ~ do 'toward'
*dē (NW) [*de ~ do ‘toward’] 'away (from)'
*dedrús [*der- ‘tear off’] 'tetter, skin eruption, leprosy'
*deg- 'touch'
*deh₁- 'bind'
*dēh₃my (GA) [*deh₁- ‘bind’] 'band'
*dēh₃- 'give'
*dēh₃r/n- [*deh₃- ‘give’] 'gift'
*dēh₃(i)- 'cut up; divide'
*dēh₃mos (WC) [*deh₃(i)- ‘cut up’] '(segment of) people'
*dēh₃nů- 'river'
*dēh₃t- 'kindle, burn'
*dei- 'shine, be bright'
*deik- 'rule, canon, measure'
*dei- 'show'
*deino- [*dei- ‘shine’] 'day'
*deiwos [*dei- ‘shine’] 'god'
*dek- 'thread, hair'
*dekn- 'take, accept'
*dekē- 'honour'
*dek(t) 'ten'
*dek(t)os [*dek(t) ‘ten’] 'tenth'
*dek BSONOS 'right'
*del- 'carve, split, cut'
*del- (WC) 'flow'
*del- (WC) [*del- ‘carve’] 'aim, compute'
*demelis (C) 'wug'
*dem(h₃)- 'build (up)'
*demh₃- 'tame, subdue'
*lems-pot- (GA) [*dem(h₃)- ‘build’ + *pōtis ‘husband’] 'master of the house'
*denk*- ‘bite’  
*dens*- (GA) ‘teach, inculcate a skill’  
*deph*- (WC) ‘strike’  
*der*- ‘tear off, flay’  
*derbh*- ‘turn, twist’  
*dergh*- (WC) ‘grasp’  
*derhe*- (WC) ‘work’  
*derk*- ‘glance at, see’  
*derketos* (GA) [*derk*- ‘see’] ‘visible’  
*des*- (GA) ‘enemy’  
*deuh*- ‘leave, go far away’  
*deuk*- ‘pull’  
*deuk(s)- ‘be lacking’  
*(d)h2ekru* ‘tear’  
*d(h)eu- ‘be favourable to’  
*dh2ghmos* (GA) ‘aslan’  
*dibhra- ~ *dibhra* (WC) ‘(sacrificial) animal’  
*di(h)* (WC) ‘fly; move swiftly’  
*dihs- ‘goat’  
*dis*- (WC) [*dwéh₂(u) ‘two’] ‘apart, asunder’  
*dh₂ghos* ‘long’  
*dlonghos* ‘long’  
*dnepedom* (WC) [*dem(h₂)- ‘build’ + *póds ‘foot’] ‘floor’  
*dnghh₃₃- ‘tongue’  
*do- ~ *de* ‘to, toward’  
*dóm* [*dem(h₂)- ‘build’] ‘house’  
*dóm* (GA) [*dem(h₂)- ‘build’] ‘house(hold), nuclear family’  
*dóm(h₂)os* [*dem(h₂)- ‘build’] ‘house(hold)’  
*dom(h₂)unos* [*dem(h₂)- ‘build’] ‘master’  
*domh₂yos* ‘one to be tamed; young bull’  
*don*- (WC) ‘reed’  
*dórk”om* (WC) ‘evening meal’  
*dóru* ‘wood, tree’  
*dous*- ‘(upper) arm, shoulder’  
*drop- ~ *drop*- [*der*- ‘tear off’] ‘clothes, cloak’  
*dreh₂- ‘run’  
*drem*- ‘run’  
*drep*- [*der*- ‘tear off’] ‘scratch, tear, split off’  
*dreu- ‘run’  
*drewenth₂- [*dreu- ‘run’] (river name)


*drₜₜ,wehₜₜ- ‘± grain’
*drkₜ- (WC) [*derkₜ- ‘see’] ‘dragon’
*duhₜₜ,ros ‘long (of time/space)’
*duₜ- ‘bad’ (as prefix).

*dusmenenès (GA)
[*dus- ‘bad’ + *men- ‘think’] ‘hostile’, literally ‘bad-thought’
*dwēhₜₜ(u) ‘two’
*dwₜₜ- [*dwēhₜₜ(u) ‘two’] ‘fear’
*dwₜₜ- [*dwēhₜₜ(u) ‘two’] ‘double, twofold’
*dwₜₜ- [*dwēhₜₜ(u) ‘two’] ‘two’
*dwₜₜ- [*dwēhₜₜ(u) ‘two’] ‘bi’
*dwₜₜ- [*dwēhₜₜ(u) ‘two’] ‘twice’
*dwₜₜ- [*dwēhₜₜ(u) ‘two’] ‘second’
*dwₜₜ- [*dwēhₜₜ(u) ‘two’] ‘twelve’
*dwₜₜ- [*dwēhₜₜ(u) ‘two’] ‘two, group of two’
*dwₜₜ- [*dwēhₜₜ(u) ‘two’] ‘double(d), twofold’
*dyₜₜ(u) [*dei- ‘shine’] ‘day’
*dyₜₜus phₜₜₜₜ- [*dei- ‘shine’] ‘sky-father’

*dhₜₜ

*dhabh- ‘put together’
*dhabhros (WC) [*dhabh- ‘put together’] ‘craftsmen’
*dhal- (WC)
*dheb- ‘thick, packed’
*dhebh- ‘harm’
*dhehdhₜₜ₁₁- [*dheh₁₁- ‘suck(le)’] ‘± coagulated (sour) milk’
*dheghₜₜₘₜₜₘₜₜ ‘earth’
*dheₜₜₚₜₜ ‘burn’
*dheh₁₁- ‘suck(le)’
*dheh₁₁- ‘put, place’
*dheh₁₁- (WC) ‘uncle’
*dheh₁₁₁ₜₜₜₜ- (WC) [*dheh₁₁- ‘suck(le)’] ‘nourishing, suckling’
*dheh₁₁₁ₜₜₜₜ- [*dheh₁₁- ‘put’] ‘what is established, law’
*dheh₁₁- ‘god’
*dheh₁₁ₚₜₜₜₜ- [*dheh₁₁- ‘suck’] ‘what is established, law’
*dheigₜₜ- (NW) ‘work clay; build up’
*dheigₜₜ- (NW) ‘stick, set up’
*dₜₜₜₜₜₜₜₜₜₜₜₜ ‘show’
*dₜₜₜₜₜₜₜₜₜₜₜₜ ‘dig’
*dhelbh- (NW) ‘sting, pierce’
*dhelbh- (NW) ‘pin’
*dhe₁₁₁ₜₜₜₜ- (NW) [*dhelg- ‘sting’] ‘run, flow’
*dhe₁₁₁ₜₜₜₜ- (WC) ‘be immobile; support’
*dher-  ‘leap, spring’
*dher- (NW)  ‘shit’
*dherg̯h-  ‘bind fast’
*dhers-  ‘venture, be bold, brave; undertake’
*dheu- (GA/PIE?)  ‘run’
*dheu- (WC)  ‘die, breathe one’s last’
*dheub-  ‘be useful, produce something useful’
*dheug̯h-  ‘be in (com)motion’
*dheub-  ‘deep’
*dheu- (h₂)  ‘be in (com)motion’
*dheu- (h₂)  ‘be in (com)motion’
*dhgeh(om)-en  ‘on(to) the ground’
*dhgeh- (NW)  ‘man’
*dhgeh- (h₂)-  ‘be useful, produce something useful’
*dhgeh- (h₂)-  ‘be in (com)motion’
*(dh)ghyes  ‘yesterday’
*dhgg”heii-  ‘destroy, perish’
*dhgg”her- (GA)  ‘flow (away)’
*dhh₁ileh₂- [*dheh₁- ‘suck(le)’]  ‘teat, breast’
*dhīghs  [*dheigh- ‘work clay’]  ‘wall, fortification’
*dhígh- (NW)  ‘debt’
*dhōh₂,us (WC)  ‘± wolf’
*dhōh₂,nēhw₂-  ‘(harvested) grain’
*dhōh₂,p₂os  ‘valley; vault’
*dh(om)ngu-  ‘dark’
*dhounu-  ‘fir’
*dhreg-  ‘rain/snow lightly’
*dhreg-  ‘pull, pull (something) across’
*dhregh- (NW)  ‘pull, tear (out)’
*dhregh- (WC)  ‘run’
*dhreghes- (NW)  ‘berry’
*dhreibh- (NW)  ‘drive’
*dhren- (WC)  ‘drone’ (<‘buzz’)‘
*dhreigh-  ‘deceive’
*dhreigh-  ‘± a (coarse) hair’
*dhrogh- (WC)  ‘dregs’
*dhrogh₂os (WC)  ‘wheel’
*dhroughos  ‘phantom’
*dhroughos (NW)  ‘companion, comrade’
*dhūbh₂os (WC)  ‘wedge, peg’
*duh₂(h₂)t₂ér  ‘daughter’
*duh₂(t₂)ér divw₂os  ‘sky-daughter’
*duh₂m₂ós  [*dheu(h₂)-]  ‘be in (com)motion’
*dhūn₂os (NW)  ‘fort’
*dhwen-  ‘sound’
*dhwenh₂- (GA)  [*dheu(h₂)-]  ‘be in (com)motion’
*dhwer-  ‘cover over, darken’
*dhwer-  ‘pierce’
<table>
<thead>
<tr>
<th>Proto-Indo-European</th>
<th>English Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>*dhwerh₂-</td>
<td>*dhwer- ‘pierce’</td>
</tr>
<tr>
<td>*dhwerh₁-</td>
<td>*dhwer- ‘yoke’</td>
</tr>
<tr>
<td>*dhwes-</td>
<td>*dhwes- ‘breathe’</td>
</tr>
<tr>
<td>*dhwes- (NW)</td>
<td>*dhwes- ‘spirit’</td>
</tr>
<tr>
<td>*dhwésmi</td>
<td>*dhwésmi ‘breathe’, be full of (wild) spirits</td>
</tr>
<tr>
<td>*dhwóř</td>
<td>*dhwóř ‘door, gate’</td>
</tr>
<tr>
<td>*e</td>
<td>*e ‘alas’</td>
</tr>
<tr>
<td>*g</td>
<td>*g ‘cackle’</td>
</tr>
<tr>
<td>*gag- (WC)</td>
<td>*gag- (WC) ‘cackle’</td>
</tr>
<tr>
<td>*gal-</td>
<td>*gal- ‘call out, speak’</td>
</tr>
<tr>
<td>*gal- (NW)</td>
<td>*gal- (NW) ‘be physically able’</td>
</tr>
<tr>
<td>*ga/ondh-</td>
<td>*ga/ondh- ‘wheat’</td>
</tr>
<tr>
<td>*gargós (WC)</td>
<td>*gargós (WC) ‘frightening, threatening’</td>
</tr>
<tr>
<td>*geh₁(i)-</td>
<td>*geh₁(i)- ‘sing’</td>
</tr>
<tr>
<td>*geh₉α-</td>
<td>*geh₉α- ‘rejoice’</td>
</tr>
<tr>
<td>*geh₉dh- [geh₉α- ‘rejoice’]</td>
<td>*geh₉dh- [geh₉α- ‘rejoice’] ‘rejoice’</td>
</tr>
<tr>
<td>*geh₉u- [geh₉α- ‘rejoice’]</td>
<td>*geh₉u- [geh₉α- ‘rejoice’] ‘rejoice’</td>
</tr>
<tr>
<td>*geh₉gh-</td>
<td>*geh₉gh- ‘± enter water, wade’</td>
</tr>
<tr>
<td>*geid- (WC)</td>
<td>*geid- (WC) ‘tickle’</td>
</tr>
<tr>
<td>*gel- (NW)</td>
<td>*gel- (NW) ‘cold, to freeze’</td>
</tr>
<tr>
<td>*gem- (WC)</td>
<td>*gem- (WC) ‘press, squeeze together, squeeze’</td>
</tr>
<tr>
<td>*gen- (WC)</td>
<td>*gen- (WC) ‘± compress’</td>
</tr>
<tr>
<td>*ger-</td>
<td>*ger- ‘crane’</td>
</tr>
<tr>
<td>*ger- (WC)</td>
<td>*ger- (WC) ‘gather; herd, crowd’</td>
</tr>
<tr>
<td>*ger- (WC)</td>
<td>*ger- (WC) ‘± hiss, howl’</td>
</tr>
<tr>
<td>*gerg-</td>
<td>*gerg- ‘± crack, resound’</td>
</tr>
<tr>
<td>*geu – *geh₉u-</td>
<td>*geu – *geh₉u- ‘curve’</td>
</tr>
<tr>
<td>*geu₂(g)ulo-</td>
<td>*geu₂(g)ulo- ‘fire, glowing coal’</td>
</tr>
<tr>
<td>*glağh-</td>
<td>*glağh- ‘cry out, lament’</td>
</tr>
<tr>
<td>*gleubh- (WC)</td>
<td>*gleubh- (WC) ‘cut off, cut out’</td>
</tr>
<tr>
<td>*gleu²h₁is</td>
<td>*gleu²h₁is ‘dormouse!’</td>
</tr>
<tr>
<td>*gloğh- (WC)</td>
<td>*gloğh- (WC) ‘thorn’</td>
</tr>
<tr>
<td>*gloïwos (WC)</td>
<td>*gloïwos (WC) ‘clay’</td>
</tr>
<tr>
<td>*gol- (WC)</td>
<td>*gol- (WC) ‘branch’</td>
</tr>
<tr>
<td>*gol₂(h₁)wos (NW/WC?)</td>
<td>*gol₂(h₁)wos (NW/WC?) ‘bare, bald’</td>
</tr>
<tr>
<td>*gordebhóς (E)</td>
<td>*gordebhóς (E) ‘wild ass’</td>
</tr>
<tr>
<td>*gowt [geu- ‘curve’]</td>
<td>*gowt [geu- ‘curve’] ‘(animal) body hair’</td>
</tr>
<tr>
<td>*gras-</td>
<td>*gras- ‘eat, graze’</td>
</tr>
<tr>
<td>*græu- (NW)</td>
<td>*græu- (NW) ‘± compress’</td>
</tr>
<tr>
<td>*gródo- (WC)</td>
<td>*gródo- (WC) ‘hail’</td>
</tr>
<tr>
<td>*grúgs (WC)</td>
<td>*grúgs (WC) ‘dirt’</td>
</tr>
</tbody>
</table>
*gubho*/ch<r> [*geu- *curve*] *(store-)room, alcove*
*godom* [*geu- *curve*] *intestines*
*goxt* *gullet, throat*
*gwèsdos (WC)* *branch*

*ĝ*

*ĝar-* *shout, call*
*ĝelu-* *leech*
*ĝem- (WC) *weep, lament, moan*
*ĝemh<r>* *marry*
*ĝ(e)m(h,)ros [*ĝemh<r> *marry*] *sister’s husband*
*ĝenh<r>* *beget a child; be born*
*ĝenh<s>es* [â*ghenh<r>* *beget*] *family*
*ĝenh<t>ör* [â*ghenh<r>* *beget*] *father; procreator*
*ĝenh<tr>h<r>* [â*ghenh<r>* *beget*] *mother, procreatrix*
*ĝenu-* *jaw*
*ĝeP-* *± eat, masticate*
*ĝerh<r>* *grow, age, mature*
*ĝerh<r>ont-* *old man*
*ĝerh<r>os* *old man*
*ĝeus-* *taste, enjoy*
*ĝlh<s>uros-* *husband’s sister*
*ĝ{l}ákt* *milk*
*ĝmh<s>ros (WC) [*ĝemh<r>* *marry*] *son-in-law*
*ĝneh<r>* *know, be(come) acquainted with*
*ĝneh<s>my* (WC) [*ĝneh<s>* *know*] *sign*
*ĝómhos* *tooth, set/row of teeth*
*ĝomh<r>ter-* [*ĝemh<r>* *marry*] *son-in-law*
*ĝonh<d>hos (WC) *jaw*
*ĝonu* *knee*
*ĝrh<n>óm* *grain*
*ĝwelh<r>* *burn, glow*
*ĝyeuh<r>* *chew*

*gh*

*ghabh-* *take, seize*
*ghabhlo*/ch<r> (NW) *fork, branch of tree*
*ghaidos (NW) *goat*
*ghait(so)-* *hair, mane*
*ghebhöl* *head*
*ghedh-* *join, fit together*
*ghéh dúmp* (NW) *interior of mouth (gums, palate)*
*ghéigh-* *protect, hide*
*ghel-* *shine*
*ghel- (WC) ‘cry out, sing’
*gheldh- ‘desire’
*ghelgörh₁a (WC) ‘gland’
*ghel(hₗ)₂d- ‘hail’
*gheluₜ₈s (WC) ‘tortoise’
*ghelunehₜ₈a (WC) ‘lip’
*ghen(n)dh- (WC) ‘seize, take in’
*gher- ‘± cry (of animals or birds)’
*gherdh- ‘gird, surround’
*ghérsos ‘asp; pikeperch’?
*ghêŭgh- ‘protect, hide’
*ghlehₙ₄dh₉₉ro- (WC) [*ghel- ‘shine’] ‘smooth’
*ghleu- (WC) ‘revel’
*ghör₉₈dhos [*gherdh- ‘gird’] ‘fence, hedge; enclosure, pen, fold’
*ghostis (NW) ‘guest; stranger, enemy’
*ghouₙ- (NW) ‘perceive, pay heed to’
*ghrebh- ‘grasp, take, enclose’
*ghrebh- (NW) ‘dig’
*ghredh- ‘step, go’
*ghrei- (WC) ‘touch lightly’
*ghreich- (NW) ‘grip, grasp’
*ghrem- ‘rumble’
*ghrendh- (WC) ‘grind’
*ghres- ‘± threaten, torment’
*ghromos (WC) [*ghrem- ‘rumble’] ‘thunder, groan’
*ghrö₉₉u₅₉n(d)₉₉- (WC) ‘grunt’

*gh *ghaisós [*ghi- ‘throw’] ‘throwing spear’
*ghalgheh₉₈a (WC) ‘pole, stake’
*ghal₉₈h₉₈ros ‘evil, unpleasant, unhealthy’
*ghan-s ‘goose’
*ghadas₉₈hos (NW) ‘staff’
*ghedye₉₈a- ‘defecate’
*gh₁₉₈eh₁- ‘leave’
*gheh₉₈₉₉w- ‘gape, yawn’
*ghéi- ‘impels’
*ghéim- ‘winter, snow’
*ghéis- ‘frighten’
*ghél- ‘plough’
*ghel- ~ *ghel- ‘yellow’
*ghengh- ‘step, walk’
*gher- (NW) ‘shine, glow’
*g̱èr (WC) [*g̱hers- ‘stiffen of hair’]  
*g̱hers-  
*g̱hesl(ï)yos (GA)  
*g̱hèsr-  
*g̱heu- 
*g̱heud- (NW) [*g̱heu- ‘pour’]  
*g̱heu(h₁)-  
*g̱heumn- [*g̱heu- ‘pour’]  
*g̱h(e)utre(h₁) (C) [*g̱heu ‘pour’]  
*g̱héyos [*g̱hei- ‘impels’]  
*g̱h(h₁)iye(h₁)  
*g̱h₁wos  
*g̱hi-  
*g̱ghéhén(e)h₁r (GA)  
*g̱hō- (WC)  
*g̱hō₁ros  
*g̱hōln- ~ *g̱hōlos [*g̱hel- ‘yellow’]  
*g̱hor- (C) [*g̱hers- ‘stiffen of hair’]  
*g̱hor(h₁)e(h₁)  
*g̱hor(ï)eh₁-  
*g̱hóṣtos [*g̱hés-r- ‘hand’]  
*g̱hrésdh(i)  
*g̱hwáks (WC)  
*g̱hwêř  
*g̱hwnos [*g̱heu(h₁)- ‘call’]  
*g̱hy- ~ *g̱yei- (C)  
*gh₁  
*g̱w₂abḥ-  
*g̱w₂adh-  
*g̱w₂eh₁-  
*g̱w₂eidh- (WC)  
*g̱w₂e(h₁)y  
*g̱w₂el- (WC)  
*g̱w₂elbh₁us  
*g̱w₂elh₁r  
*g̱w₂elh₁a  
*g̱w₂elōn (WC) [*g̱w₂el- ‘strike’]  
*g̱w₂el(s)-  
*g̱w₂em-  
*g̱w₂en-  
*g̱w₂enh₁a  
*g̱w₂erh₁-  

‘hedgehog’  
‘stiffen (of hair), bristle’  
‘thousand’  
‘hand’  
‘pour’  
‘call to, invite, invoke’  
‘libation’  
‘± pot’  
‘horse’  
‘yawn’  
‘gaping hole’  
‘throw’  
‘± buttock’  
‘behind’  
‘gap, empty space’  
‘gall’  
‘young pig’  
‘entails’  
‘desire’  
‘hand’  
‘barley’  
‘torch’  
‘wild animal’  
‘a sound, voice’  
‘bird of prey, kite?’  
‘dip’  
‘dive’  
‘come’  
‘be foul, purulent’  
‘live’  
‘strike, stab, pierce’  
‘womb’  
‘throw’  
‘acorn’  
‘stinger’  
‘well up, flow’  
‘come’  
‘± (swollen) gland’  
‘woman’  
‘swallow’
"g"erh₇* ‘praise’
"g"éru ‘spear, spit’
"g"es- ‘extinguish’
"g"et- ‘say’
"g"étu ‘pitch’
"g"étus ‘stomach, womb’
"g"ih₃vo- (WC) ["g"yeh₇ ‘live’] ‘pitch’
"g"i(y)éh₇₁ (GA) ‘bowstring; taut thread’
"g"ltur- ‘vulture’
"g"orh₇* ‘pitch’
"g"ou-k₇’olos (WC) ‘mountain; forest’
[*g"ous ‘cow’ + *k"el- ‘turn’] ‘cowherd’
"g"óus ‘cow’
"g"reh₄u- ‘heavy’
"g"rēh₇₂w-on- ["g"r(e)₇₁(u)- ‘heavy’] ‘quern’
"g"retsos (NW) ‘thick’
"g"rih₇weh₇₁ ["g"erh₇ ‘swallow’] ‘neck’
"g"u₇₁ ‘defecate’
"g"yeh₇ ‘live’
"g"yeh₇₇ ‘physical power; overcome’
"g"yēh₇₁wyom ["g"yeh₇ ‘live’] ‘animal’

*g*h
"g"haidrös (WC) ‘bright, shining’
"g"hedh- ‘ask, pray’
"g"hel- (WC) ‘wish, want’
"g"hen- ‘strike’
"g"her- ‘warm’
"g"hermos ["g"her- ‘warm’] ‘warm’
"g"hih₇₇₇₇(slo)- (WC) ‘± sinew, thread’
"g"honós ‘± thick, sufficient’
"g"hren- (WC) ‘think’
"g"hrensós ["g"her- ‘warm’] ‘warm’

*h
*ha ‘surprise’
*ha ha ‘laughter’

*h₁
*h₁dönt- ["h₁édmi ‘eat’] ‘tooth’
*h₁édmi ‘eat’
*h₁edonom ["h₁édmi ‘eat’] ‘food’
*h₁édwōl ["h₁édmi ‘eat’] ‘pain; evil’
*h₁eg- ‘be in need, lack’
*h₁eg- ‘say’
*h₁eg ‘I’
*h₁egh- ‘cow’
*h₁egh₂his ‘hedgehog’
*h₁eghs (WC) ‘out (of)’
*h₁eg”hmi ‘drink’
*h₁eh₁tmén- ‘breath’
*h₁eh₁tr- [h₁eh₁tmén- ‘breath’] ± lung, internal organ’
*h₁ei/*h₁ih₂/*h₁id ‘this one’
*h₁ei- ‘go’
*h₁ei- ‘red’
*h₁ei- ‘move’
*h₁eihs(s)- ‘ice’
*h₁eis- ‘set in motion’
*h₁eir₃ [h₁ei- ‘go’] ‘way, road’
*h₁eiwos ‘yew’
*h₁ekt- ‘net’
*h₁ékwehs₃ [h₁ékweos ‘horse’] ‘mare’
*h₁ékweos ‘horse’
*h₁el- ‘brown’
*h₁el- (WC?) ‘waterbird, swan’
*h₁el- (WC) ‘go’
*h₁élem (NW) ‘mountain elm (Ulmus mantana)’
*h₁elemw- (WC) ‘juniper, cedar’
*h₁elh₁ën [h₁el- ‘brown’] ‘red deer’
*h₁elh₁niha- (NW) [h₁el- ‘brown’] ‘hind/cow-elk’
*h₁élkes- ± ulcer’
*h₁elh- ‘dull red’
*h₁em- (NW) ‘take, distribute’
*h₁empis (WC) ‘gnat, stinging insect’
*h₁en- (WC) ‘year’
*h₁en- ‘that’
*h₁én-do [h₁en(i) ‘in’] ‘into’
*h₁endrōs [h₁en(i) ‘in’] ‘egg, scrotum’
*h₁enek- ‘attain’
*h₁eng”- ‘swell’
*h₁énhyu ‘without’
*h₁en(i) ‘in, into’
*h₁én-h₃k”-o/eh₂- [h₁en(i) ‘in’ + h₃ek”- ‘eye’] ‘face’
*h₁enté [h₁en(i) ‘in’] ‘into, between’
*h₁en-(e)rom [h₁en(i) ‘in’] ‘innards’
*h₁epe- ‘take, seize, grasp’
*h₁eperos (NW/WC?) ‘boar’
*h₁epi ~ *h₁opi
*h₁epop
*h₁er-
*h₁er- (WC)
*h₁eregʷo- (WC)
*h₁erh₁-
*h₁erh₁-
*h₁er(h₁)- (GA)
*h₁erh₁^[h₁erh₁- 'row']
*h₁erh₂s-
*h₁erh₂-
*h₁eri-
*h₁erkʷ-
*h₁ermen-
*h₁ers-
*h₁es-
*h₁es-
*h₁ēs-
*h₁ēs-
*h₁ēs-
*h₁ēs- [*h₁ēs- 'be']
*h₁ēsen-
*h₁ēsh₂éh₂r [*h₁ēsh₂ós 'master']
*h₁ēsh₂ós
*h₁ēsh₂-
*h₁(e)su- [*h₁ēs- 'be']
*h₁ēt(e)no-
*h₁ēti
*(h₁ēti)loikʷ/os [*h₁ēti ‘addition’ + *leikʷ-. ‘leave’]
*h₁eu-
*h₁eug⁴h-
*h₁eu(h₁o)-
*h₁euh₁,dh-
*h₁euk-
*h₁eus-
*h₁eger-
*h₁idh₁a
*h₁isus (GA) [*h₁eis- ‘set in motion’]
*h₁iteros
*h₁ith₁a
*h₁leig-
*h₁lenh-
*h₁le(n)g⁴h-
*h₁leudh- [*h₁el- ‘go’]
*h₁leudh-
*h₁leudheros (WC) [*h₁leudh- ‘grow’]
*h₁leudhos [*h₁leudh-*‘grow’] ‘people, freeman’
*h₁negh- ‘stab’
*h₁neghes- (WC) [*h₁negh- ‘stab’] ‘± spear’
*h₁newh₁m₁ (*h₁nèwh₁m₁) ‘nine’
*h₁newh₁m₁p₁-mos [h₁newh₁m₁ ‘nine’] ‘ninth’
*h₁nomm ‘name’
*h₁ôg“his ‘snake
*h₁oïinos ‘one’
*h₁oïstro/eh₁r- (WC) [*h₁eis- ‘set in motion’] ‘anger, any strong feeling’
*h₁óitos [*h₁ei- ‘go’] ‘a going; oath’
*h₁ôıwo/eh₁r- (WC) [*h₁ei- ‘red’] ‘± berry, fruit’
*h₁ó̆ks ‘fast’
*h₁ó̆nkes- ‘burden’
*h₁ó̆nteros (NW) [*h₁en- ‘that’] ‘other’
*h₁op (WC?) [*h₁ep- ‘take’] ‘desire’
*h₁ørh₁d₁eh₁r- (WC) ‘± waterbird’
*h₁Ó̆rs(0)- ‘rear-end’
*h₁ó̆uₕ₁dh₁[ *h₁eɨuₕ₁dh₁ ‘swell’] ‘breast, udder’
*h₁owes [ *h₁eu- ‘cover’] ‘(inner) skin’
*h₁rebh- ‘cover with a roof’
*h₁reg₉- ‘es- ‘(place of) darkness’
*h₁reih₁ ‘move’
*h₁reih₁r₁ [ *h₁rei- ‘move’] ‘move’
*h₁reik- ‘tear (off)’
*h₁reip- (WC) ‘snatch, pluck’
*h₁řes- ~ *h₁ders- ‘liquid, moisture’
*h₁řeuₕ₁dh₁ ‘(bright) red’
*h₁řeug- ‘belch’
*h₁r̥ou̇dh̥os [ *h₁reudh₁ ‘red’] ‘the red metal, i.e. copper’
*h₁sõõnt- [ *h₁es- ‘be’] ‘real, true’
*h₁s₁u₁d₁h₁j₁ẽnos (GA) [*h₁es- ‘be’ + d¹h₁ ‘put’] ‘rich, well-off’
*h₁s₁u₁menesye/o- (GA) [ *h₁es- ‘be’ + *men- ‘think’] ‘to be well disposed to’
*h₁w₁ers- ‘rain’
*h₁w₁es- (NW) ‘moist, especially of the ground or plants’
*h₁yênhr₁ter- ‘husband’s brother’s wife’
*(h₁j₁yêro/eh₁r₁- [*h₁ei- ‘go’] ‘year, new season’

*h₁/4
*h₁/4eis- ‘refresh’
*h₁/4ek- ‘rake’
*h₁/₄er-*  
*h₁/₄ôh₁(e)s-*  
*h₁/₄okéteh₁ar-* [h₁/₄e₁k- ‘rake’]  
*h₁/₄ômsos*  
*h₁/₄ṭ₄r-*  

‘ask the gods, consult an oracle’  
‘mouth’  
‘harrow, rake’  
‘shoulder’  
‘speak a ritual formula’

*₄*h₂*  
*h₂eb(h)-*  
*h₂ed- (WC/PIE?)*  
*h₂eh₂er-*  
*h₂eh₁(e)r-*  
*h₂eh₁s-*  
*h₂eh₁mer-* (C) [h₂eh₁s- ‘burn’]  
*h₂éhs₁as [h₂eh₁s- ‘burn’]  
*h₂eh₁seh₁a-* [h₂eh₁s- ‘burn’]  
*h₂eg₁e₁f [h₂eh₁s- ‘burn’]  
*h₂eh₁tᵣ [h₂eh₁s- ‘burn’]  
*h₂eh₂rᵣ (WC) [h₂eh₁s- ‘burn’]  
*h₂eh₁trᵣ- (NW) [h₂eh₁s- ‘burn’]  
*h₂èk₁*  
*h₂èk*  
*h₂èlbhit*  
*h₂elg₁ho/eh₁a*  
*h₂elwos*  
*h₂em-*  
*h₂em-*  
*h₂em-*  
*h₂em-*  
*h₂emgh-*  
*h₂em-h₁e₁k₁s₁h₁ar-* [h₂em- ‘hold on to’ + h₁e₁k₁s₁- ‘shoulder-joint; axle’]  
*h₂emros [h₂em- ‘raw’]  
*h₂en-*  
*h₂en-*  
*h₂ınd₄hes-*  
*h₂en₁k-*  
*h₂ensiyo/eh₁a-* [h₂em- ‘hold on to’]  
*h₂sent- [h₂enti ‘in front’]  
*h₂ent₁hi- [h₂enti ‘in front’]  
*h₂ent₁hi₄k₁w₁olos [h₂enti ‘in front’ + k₁w₁el- ‘turn’]  
*h₂enti*  
*h₂ep-*  

‘river’  
‘grain, barley’  
‘hawthorn’  
‘thresh, rake’  
‘± kidney’  
‘burn, be hot’  
‘day’  
‘ash’  
‘hearth’  
‘fire’  
‘hearth’  
‘quick, fast’  
‘maple’  
‘sharp, pointed’  
‘barley’  
‘payment, prize’  
‘elongated cavity, hollow’  
‘hold on to, contain’  
‘raw, bitter’  
‘mow’  
‘tie, constrain’  
‘wagon-chassis’  
‘bitter, sour’  
‘draw (liquids)’  
‘father’s mother’  
‘± flower’  
‘bend’  
‘reins; handle’  
‘forehead’  
‘around, on both sides’  
‘servant’  
‘in front’  
‘fasten, join’
-*h₂ep- 'living water'
-*h₂épes- [*h₂ep- ‘fasten’] ‘limb, part of the body’
-*h₂er- (WC/PIE?) ‘nut’
-*h₂erdus ‘high, lofty’
-*h₂er₂g- ‘white’
-*h₂er₂gₜum [*h₂er₂g- ‘white’] ‘white (metal), silver’
-*h₂er₉ ‘destroy’
-*h₂er₉ ‘hold back’
-*h₂er₉ ‘rend, destroy’
-*h₂er₂u ‘+ pray, curse’
-*h₂ér₂yos ‘cavity’
-*h₂ers- ‘be/become dry’
-*h₂e₂ug- (C) ‘limb, part of the body’
-*h₂eu₂hi₂r₂ (WC) ‘white’
[*h₂eu₂h₂o₂s- ‘grandfather’] ‘grandmother’
[*h₂eu₂h₂o₂s] ‘grandfather; uncle’
-*h₂eu₂h₂o₂s ‘draw water’
-*h₂le₂ ‘set in motion’
-*h₂meh₂r₁ [*h₂em₂- ‘mow’] ‘mow’
-*h₂me₂r₂ (WC) [*h₂em₂- ‘mow’] ‘gather, harvest’
-*h₂me₂t₂ (NW) [*h₂em₂- ‘mow’] ‘mow’
-*h₂nòbh ‘navel; nave’
-*h₂omòs ‘raw, uncooked’
-*h₂ónk₂s [*h₂enk₂- ‘bend’] ‘something bent, hook’
-*h₂ò₁/p₂(e)n- ‘goods, wealth’
-*h₂ò₂s₂d₂s [*h₂o₂ ‘on’ + *sed₂- ‘sit’] ‘branch’
-*h₂òst ‘bone’
-*h₂owik₂hi₂r₂ [*h₂ówis₂ ‘sheep’] ‘sheep’
-*h₂ówis ‘bone’
-*h₂ér₂t₂k₂s- ‘destruction’
-*h₂é₂g₂-r₂s (GA) ‘fast’
-*h₂é₂g₂(u)- [*h₂er₂g- ‘white’] ‘white’
-*h₂é₂t₂k₂s [*h₂ér₂t₂k₂s- ‘destruction’] ‘bear’
-*h₂st₂r [*h₂eh₂r₂- ‘burn’] ‘star’
-*h₂we₂hl₁ ‘wind’
-*h₂we₂hl₁t₂ [*h₂we₂hl₁- ‘blow’] ‘wind’
-*h₂we₂hl₁v₂s [*h₂we₂hl₁- ‘blow’] ‘wind’
*(h₂)wer₂- (NW) ‘+ attach’
-*h₂we₂s- ‘dwell, pass the night, stay’
-*h₂wòst₂u [*h₂wes₂- ‘dwell’] ‘dwellling’

*h₂/3 ‘trust in, believe’
*h₂séih₁os
‘shaft (of a cart or wagon)’

*h₂s(e)lg(₃)h-
‘grain’ (or ‘millet’?)

*h₂sênk-
‘bestow’

*h₂sêu-
‘weave’

*h₂sə̑̑gisis
‘large (offensive) knife’

*h₂sônkos
‘what is bestowed’

*h₂sorbhos
‘orphan, heir’

*h₂sosp-
‘aspen, poplar’

*h₂srgis
‘wheel’

*h₂suθe/olo-
‘owl’

*h₂sukʷ-
‘cooking vessel’

*h₂swebh-
‘weave’

*h₂swed-
‘be alive’

*h₂swed(h)₂-
‘lead in marriage, marry’

*h₂swēdr ["h₂swed- ‘be alive’]
‘creatures, (wild) animals’

*h₂swēg(h)-
‘pierce’

*h₂swerg[h]- (NW/PIE?)
‘+ commit a crime’

*h₂swobhseh₂-["h₂swebh- ‘weave’]
‘wasp’

*h₂swap-
‘treat badly’

*h₃

*h₃ed-
‘hate’

*h₃ed- (WC)
‘give off a smell’

*h₃ekʷ-["h₃ekʷ- ‘see’]
‘eye’

*h₃ekʷ- (GA)
‘see’

*h₃elek- (WC)
‘elbow, forearm’

*h₃el₁h₁-
‘destroy’

*h₃el₁Vn-
‘elbow, forearm’

*h₃engʷ-
‘anoint (with salve), (be)smear’

*h₃engʷₙ (WC) ["h₃engʷ- ‘anoint’]
‘butter’

*h₃enh₂-
‘contend, quarrel’

*h₃enŋ (C)
‘dream’

*h₃ens-
‘be gracious to, show favour’

*h₃ep-
‘roast’

*h₃er-
‘set in motion (vertically)’

*h₃erbhís
‘circle, orb’

*h₃et₃(k)-
‘ash (tree)’

*h₃eu-
‘perceive’

*h₃eug₃- (WC)
‘cold’

*h₃eust(y)₁- (NW)
‘estuary, river mouth’

*h₃ēwis ["h₃eu- ‘perceive’]
‘obvious’

*h₃lem- (WC)
‘break’

*h₃ligos
‘ill; bad’

*h₃meigh-
‘drizzle, mist’

*h₃mēighe/o-
‘urinate’
*h₃merg- (GA)  'wipe off'
*h₃nobh-  'navel, nave'
*h₃nogh(w)-  '(finger- or toe-)nail'
*h₃or-  'eagle'
*h₃reg-  'extend, stretch'
*h₃regēs [*h₃reg- 'extend']  'ruler, king'
*h₃regt̪os [*h₃reg- 'extend']  'right'
*h₃reuık-  'dig up'

*h₄
dedhés-  'axe, adze'
edkémon-  'stone'
edel-  'grind down'
edelbhös  'white'
edelh₁₁-  'burn'
edelh₁₁n- [*h₄delh₁- 'burn']  'sweat' (noun)
edeli-  'he-goat'
edem-  'mother'
eden-  '(old) woman, mother'
edep- [*h₄epo 'back']  fourth generation marker
edepér- [*h₄epo 'back']  'back, behind'
edepo  'back, behind'
ederg"-  'argue, assert'
edrh₁₁os  'border, line, limit'
edérós  'member of one’s own group'
edeu-  'eat'
edeu  'away (from)'
dlog-  'branch'
dorgheï  'mounts'
dorg̩his [*h₄dorg̩heï 'mounts']  'testicle'
dupó  'up (from underneath)'
dupo-sth₂₁/o- [*h₄dupó 'up' + *(s)teh₂₁- 'stand']  'servant'
dwelk-  'pull'

*h₅
edebi- (WC)  'fir'
edebbVl-  'apple'
eded (WC)  'at, to'
ed-bher- [*h₅ed 'to' + *bher- 'carry']  'sacrifice'
edgós (GA)  'shame'
edgwis(y)ed(WC)  'axe'
edg-  'drive; fight'
*h*e giólos [*h*e gió- ‘drive’] ‘fast’
*h*e giónum [*h*e giós ‘goat’] ‘hide’
*h*e giómen- [*h*e gió- ‘drive’] ‘troop’
*h*e giós ‘he-goat’
*h*e giós (GA) [*h*e gió- ‘drive’] ‘leader’
*h*e giórehr- [*h*e gió- ‘drive’] ‘hunt’
*h*e gióros [*h*e gió- ‘drive’] ‘field, pasture’
*h*e gióh- (WC) ‘be afraid, be downcast’
*h*e gióhléh- ‘affliction’
*h*e gióhlos [*h*e gióh- ‘be afraid’] ‘unpleasant’
*h*e gióhlù ~ *h*e gióhlù (WC) ‘rain’
*h*e gióh ‘day’
*h*e gió’hlos (WC) ‘lamb’
*h*e gióperos (?) (WC) ‘river bank, shore of sea’
*h*e вли- ‘give’
*h*e вли- (WC) ‘swell’
*h*e влиdh- ‘burn; fire’
*h*e влиg- (WC) ‘oak’
*h*e влиg ‘goat’
*h*e вли’shes- (WC) ‘shame’
*h*e вли- ‘possess’
*h*e влиksmo/eh- (WC) ‘spear, pointed stick’
*h*e влиs ‘wish for, seek out’
*h*e влиkehr- ‘mother’
*h*e влиke (tro) - (NW) [*h*e вли- ‘sharp’] ‘sturgeon’
*h*e влиks ‘shoulder(-joint); axle’
*h*e влиkslehr- [*h*e влиks ‘shoulder’] ‘shoulder’
*h*e влиksitti- [*h*e вли- ‘sharp’] ‘± awn, bristle’
*h*e влиwù (NW) [*h*e вли- ‘sharp’] ‘perch’
*h*e влиwèh- (NW) ‘water’
*h*e вли- (WC) ‘grow’
*h*e вли ‘wander’
*h*e вли ‘well up, flow’
*h*e вли ‘burn’
*h*e влиso- ‘alder’
*h*e влиmos (E) [*h*e вли- ‘well up, flow’] ‘spring’
*h*e инhos (NW) ‘beyond, yonder’
*h*e инлут- ‘beer’
*h*e инлос ‘other’
*h*e инmesл- (NW) ‘blackbird’
*h*e инмhr- (GA) ‘lays hold, grasps; swears’
*h*e инм(h)инлеч- ‘suffering’
*h*e ин- (WC) ‘that’
*(h)*endhós  ‘blind’
*(h)*énghes- [*(h)*enghu- ‘narrow’] ‘± suffering, grief, fear’
*(h)*énghus- ‘narrow’
*(h)*éng(w)én- (WC) [*(h)*enghu- ‘narrow’] ‘neck’
*(h)*éng”his (WC) ‘snake’
*(h)*énhyr- ‘breathe’
*(h)*énhr -mi [*(h)*énhr- ‘breathe’] ‘breathe’
*(h)*énhr-mos [*(h)*énhr- ‘breathe’] ‘breath’
*(h)*en-hē ‘up (onto), upwards, along’
*(h)*énhr-t(e)hā ‘doorjamb’
*(h)*enk- ‘bend’
*(h)*enkulos [*(h)*enk- ‘bend’] ‘shoot’
*(h)*énhr- ‘(manly) strength, vitality’
*(h)*enseh- ‘handle’
*(h)*ensus ‘god, spirit’
*(h)*en-u (E) ‘up (onto), upwards, along’
*(h)*epus ‘weak’
*(h)*er- ‘prepare, put together’
*(h)*er- ‘reed’
*(h)*érdhis ‘point’
*(h)*érh- ‘± rye grass’
*(h)*érhswj [*(h)*érh3ye/o- ‘plough’] ‘field’
*(h)*érh3ye/o- ‘plough’
*(h)*érkLos (NW) ‘bow and/or arrow’
*(h)*érts [*(h)*er- ‘prepare’] ‘fitting, order’
*(h)*éru(s) ‘wound’
*(h)*et ‘away, beyond’
*(h)*etnos (NW) [*(h)*et- ‘go’] ‘year’
*(h)*eu- ‘favour’
*(h)*eug- ‘grow, increase’
*(h)*euges- [*(h)*eug- ‘grow’] ‘strength’
*(h)*ews [*(h)*ewes- ‘shine’] ‘gold’
*(h)*ewsōs [*(h)*ewes- ‘shine’] ‘dawn’
*(h)*ews[bracket]usket (e) [*(h)*ews- ‘shine’] ‘it lights up, dawns’
*(h)*ews(e)ro- [*(h)*ews- ‘shine’] ‘east’
*(h)*eveis- ‘bird’
*(h)*ewes- ‘oats’
*(h)*eyer- ‘early’
*(h)*eyes- ‘metal > copper > bronze’
*(h)*idhros (GA) [*(h)*eidh- ‘burn’] ‘pure’
*(h)*le- ‘smear’
*(h)*leit- (WC) ‘± do something hateful or abhorrent’
*(h)*lek- ‘defend, protect’
*(h₁)mauros (WC)  ‘dark’
*(h₁)nelg-  ‘to milk’
*(h₁)merk.g"- (WC)  ‘dark’
*(h₁)nër  ‘man, person’
*(h₂)ph₃ti-  ‘duck’
*(h₁)ogh₃r-  ‘berry, fruit’
*(h₁)ōus-  ‘ear’
*(h₁)ō(w)i-om  ‘egg’
*(h₁)ōyus  ‘vital force, life, age of vigour’
*(h₁)er(hᵢ)- (WC) [*(h₁)er- ‘prepare’]  ‘number, count (out)’
*(h₁)wiselo- (NW/WC?) [*(weis- ‘stink’) ]  ‘weasel’
*(h₁)wokseye/o- [*(h₁)eug- ‘grow’]  ‘grow’
*(h₁)yeu- [*(h₁)ōyus ‘vital force’]  ‘young’
*(h₁)u禹₃-γ-kos [*(h₁)ōyus ‘vital force’]  ‘youth’

\(h₃\)
*(h₃)ēpis (GA) [*(h₂)ep- ‘fasten’]  ‘confederate’
*(h₃)i₃ght(e/o)-  ‘desire (strongly)’
*(h₃)i₃lu (WC)  ‘mud; swamp’
*(h₃)eh₃d-  ‘dear’
*(h₃)näss  ‘nose’
*(h₃)neid-  ‘insult’
*(h₃)g₃nis  ‘fire’
*(h₁)ōktō(u)  ‘eight’
*(h₁)oktowōs [*(h₁)oktō(u) ‘eight’]  ‘eighth’
*(h₃)oldhu-  ‘(dugout) canoe, trough’
*(h₃)ōle₃  ‘awl’
*(h₃)ōlkis  ‘elk/American moose’
*(h₃)olu-  ‘spell’
*(h₂)ongl  ‘charcoal’
*(h₁)ōpes-  ‘work’ (noun)
*(h₁)orghi- (C)  ‘nit’
*(h₁)orki- (WC)  ‘tick’
*(h₁)ōsghos  ‘knot (in wood)’
*(h₁)ouste₃  ‘mouth, lip’
*(h₁)Vnghel- (WC)  ‘eel’

\(i\)
*isghis-  ‘loins’
*ish₁ros (GA)  ‘sacred power’
*it-  ‘thus’

\(k\)
*kagh- (WC)  ‘catch, grasp’
*kagh- (NW) [*(kagh- ‘catch’)]  ‘hedge, enclosure’
*kaghlos (WC) ‘hail’
*káikos (NW/PIE?) ‘one-eyed, cross-eyed’
*kai-welos ‘alone’
*kaiwr(t) (GA) ‘cave, fissure (in the earth)’
*kak(k)eh, ye/o- (WC) ‘defecate’
*kal- (GA) ‘beautiful’
*kamareh(, GA) [*kam-er-] ‘vault’
*kam-er- ‘bend’
*kamp- (WC) ‘bend (of terrain)’
*kan- (WC/PIE?) ‘sing’
*kmabh(i) (WC) ‘hemp’
*km(h)o- (WC) ‘corner, a bending’
*kap- ‘seize’
*kap- (NW) [*kap- ‘seize’] ‘hawk, falcon’
*kapolo- ‘head, skull’
*kapr ‘penis’
*kápros [*kápr ‘penis’] ‘he-goat’
*kaptos (NW) [*kapa- ‘seize’] ‘captive’
*kaput (NW) ‘head’
*kar- ‘praise loudly’
*kar- ‘hard’
*karkro- ‘crab’
*kars- ‘scratch; comb (wool)’
*kår- (GA) [*kar- ‘praise’] ‘poet’
*kat- (NW) ‘cat’
*kath, e ‘down’
*katu- (NW) ‘fight’
*kāu- (NW) ‘howl; owl’
*kau(k)- ‘cry out; cry out as a bird’
*kaulós (WC) [*kul- ‘hollow’] ‘± cabbage, stalk’
*kaunos (WC) ‘humble, lowly’
*ked- ‘± pass through’
*keh- ‘love’
*k(e)disVr- ‘mane’
*kehros (NW) [*keh- ‘love’] ‘friendly’
*keh, u- ‘strike, hew’
*keh, u, (NW) ‘hot’
*kei- ‘set in motion’
*kek- ‘polecat’
*kel- ‘drive’
*kel- ‘strike, hew’
*kel- ‘prick’
*kel- ‘raise’
*kel- (WC) ‘deceive’
*kel(h₁)* - ‘lift, raise up’
*kelh₁* - ‘call out to’
*kelh₁* (WC) [*kel- ‘strike’] - ‘strike’
*kelp- (WC/PIE?)* - ‘jug, pot’
*kem- - ‘love’
*kem- (WC) - ‘± press together’
*kem- (NW) - ‘hum’
*kemeros (WC) - ‘± hellebore’
*ken- - ‘love’
*kenh₁s - ‘ash’
*ken- - ‘± hock, back of knee’
*kenk- - ‘gird, wrap around’
*kenk- - ‘burn’
*kenk- (WC) - ‘hunger’
*kenk- (NW) - ‘± patch, patched garment’
*kenk- - ‘± caw’
*ken- (NW) - ‘burn’
*kerd- - ‘cut into, carve’
*kerd- - ‘± defile, defecate’
*kerd- (NW) - ‘belt’
*kérđos (WC) - ‘craft’
*kerdheh₁s (NW) - ‘herd, series’
*kergh- - ‘bind’
*kerh₁s-E - ‘propel’
*kerk- - ‘hen’
*ker- - [*kerd- ‘cut’] - ‘skin’
*kerp- - [*kerd- ‘cut’] - ‘pluck, harvest’
*kert- - ‘plait, twine’
*kert- (E) [*kerd- ‘cut’] - ‘knife’
*kes- - ‘comb’
*kēs(k)eh₁s-E (WC) - ‘time’
*ket- - ‘room’
*keudes- (WC) [*keuh₁ - ‘perceive’] - ‘magic force’
*keuh₁ - ‘perceive’
*keuh₁h₁s - ‘curve’
*kēu₁h₁s₁ [ *keuh₁h₁ - ‘curve’] - ‘hernia’
*keu₁k- - ‘curve’
*keul- (NW) - ‘pig’
*keus- - ‘hollow out’
*keus₁ - ‘fleshy out’
*kh₁oŋks - ‘honey-coloured, golden’
*kik-(y)eh₁s₁ - ‘jay’
*klat(n)g- (WC) - ‘scream (of birds)’
*kłeh₁s₁ (NW) - ‘spread out flat’
*kleh₁dhreh₂- (WC) ‘alder’
*kleh₁wis (WC) ‘bolt, bar; (wooden) hook’
*kléinus (NW/WC?) ‘maple’
*klen- ‘bend, turn’
*klep- ‘± lay hand to’
*klḥ₃m(n)- (E) ‘be fatigued, sleepy’
*klḥ₃-ro-s (WC) [*kel₁- ‘strike’] ‘plank’
*klḥ₃vøs ‘bald’
*kløs ‘callosity’
*klṭér [*s]kel- ‘cut’ ‘knife’
*klun- ‘resound’
*kmḥ₂p-ha- (WC) ‘drone’
*knab(h)- (WC) ‘pick at, tease out’
*knei-g"h- (NW) ‘lean’
*kneu- (NW) ‘nut’
*kob- (NW) ‘fit, suit, accomplish’
*kobom (NW) [*kob- ‘fit’] ‘success’
*kogḥeh₃ (WC) ‘goat’
*kóḥ₂ilus (WC) ‘healthy, whole’
*kóḥ₂-t ‘wax’
*koik- ‘cut hair’
*kokes- ‘inner part, nook’
*kókso/eh₃ [*kokes- ‘inner part’] ‘hollow of (major) joint’
*kol- (WC) ‘glue’
*kohl₁on (WC) [*kel(h₁)- ‘lift’] ‘hill’
*kolnós ‘one-eyed’
*kólsos [*kel- ‘raise’] ‘neck’
*ko(m) ‘with, side by side’
*kon- ‘do, make’
*kon(g)os ‘hook’
*kómh₃m- (WC) ‘lower leg, shin’
*kopso- (WC) ‘blackbird’
*kóris (WC) [*kerd- ‘cut’] ‘± biting insect’
*korm- ‘broth, mash?’
*koryonos (WC) [*koryos ‘army’] ‘leader’
*koryos ‘army, people under arms’
*Kos-t- ‘hunger’
*kós(V)los (NW) ‘hazel’
*kouh₁ēi(s) (GA) [*s]keuh₁- ‘perceive’ ‘priest’
*kreb- (NW) [*s]kerbh- ‘turn’ ‘basket’
*kreidhrom (NW) [*kerd- ‘cut’] ‘sieve’
*krek- (WC) ‘beat the weft with a stick’
*krek- (NW) ‘fish eggs, frogspawn’
*kremh₁us (WC) ‘(wild) garlic’
*kréps ‘body’
*kret- (NW) ‘shake’
*kr(e)ubh- ‘gather, amass’
*kréuhₙ₁ ‘blood, gore’
*kreuk- ‘cry out, raise the hue and cry’
*kreup- ‘± rough, scabby’
*kreus(-s)- ‘strike’
*kreut- (NW) ‘± shake’
*kyhpis (WC) [*kerd- ‘cut’] ‘shoe’
*kr̥kōs ‘thin’
*knₙom (WC) ‘cherry’
*krokb- ‘hurry’
*kroku- ~ *krókyehₙ₂ (WC) ‘post’
*k̲rneₙₐ (WC) ‘spring, wave’
*kseros- ‘dry’
*kseu- ‘rub, whet’
*kseubh- ‘shave’
*kseubh- [*skeubh- ‘push away’] ‘shake’
*k̲siₙₐ,róm ‘± (skim) milk, whey’
*ksₙₐ (WC) ‘with’
*ksuróm (GA) [*kseu- ‘rub, whet’] ‘razor’
*(k)sweid- ‘milk’
*kswek’s ‘six’
*ksweks-komtₙₐ (WC) [*kswek’s ‘six’ + *dekm(t) ‘ten’] ‘sixty’
*ksweksos [*kswek’s ‘six’] ‘sixth’
*kúhₙₜos ‘back’
*kuhₙₚ (WC) ‘water vessel’
*kuhₙₚ- ‘hire’
*kukₐ ‘cuckoo’
*kukis ‘± (female) pubic hair, vulva’
*kul- ‘hollow’
*kumbo/ehₙₐ- ‘bowl, small vessel’
*kus- ‘kiss’
*kus- ‘dwelling’
*kutsōs ‘anus, vulva’
*kVIVk- ‘cup, drinking vessel’
*kVᵣ-C- ‘crow; raven’
*kwat- ‘ferment’

*ḱ ‘fall’
*kad- ‘branch’
*ḱₐm̥os (WC) ‘sheatfish’
*kanк- ‘branch’
**käpos**

‘piece of land, garden’

**karh,ka-** (NW)

‘magpie’

**kas-**

‘grey’

**kasos [käs- ‘grey’]**

‘hare’

**keh₁-**

‘declare solemnly’

**keh₁kom**

‘edible greens’ (< *‘foliage’?)

**keh₁s-** (E) [**keh₁- ‘declare’]**

‘instruct’

**keh₂des-**

‘+ concern; hate’

**keh₂k-** (WC)

‘jump’

**keh₃te-**

‘burn’

**keh₄i-**

‘sharpen, hone’

**kei-**

‘lie’

**keigh-** (NW/PIE?)

‘fast’

**kei₁-** (NW)

‘dull or brownish black’

**küivos [kei- ‘lie’]**

‘belonging to the household’

**kek”-**

‘defecate’

**kel-** (WC)

‘conceal, cover’

**kelb-** (NW)

‘help’

**kel(h₁)-**

‘+(spear)point’

**kël [kel- ‘conceal’]**

‘(store)room’

**kelto-**

‘cold’

**kem-**

‘cover’

**kem-**

‘hornless’

**kem₃te-**

‘grow tired, tire oneself with work, work’

**kenós (C)**

‘empty’

**ke(n)s-**

‘declare solemnly’

**kent-**

‘sharp’

**ker-**

‘grow’

**ker-**

‘decay’

**ker- ~ kër-)**

‘greyish blue, greyish green’

**ker-**

‘horn’

**kérberos (GA)**

‘sprotted’

**kërd**

‘heart’

**kër(es)-** (NW)

‘+(rough) hair, bristle’

**kërḥ₂ṣ [kër- ‘horn’]**

‘horn’

**kërḥ₂ṣr [kër- ‘horn’]**

‘horn’

**kër₃r-**

‘mix’

**kers-**

‘run’

**kër(s)nō-** (WC)

‘hoarfrost, frozen snow’

**kes-**

‘cut’

**kêt-** (GA)

‘be angry’

**këudh-**

‘hide’

**këuh₁-**

‘swell, grow great with child’

**këuh(h₁)-**

‘hollow out’
*kēuh₁-
*keuk-
*keuk-
*kīkh₃-\(h₃\)on- (C) (*kēh₃(i)- ‘sharpen’)
*kīker- (WC)
*ks-
*klet-
*kleu-
*kleu- (WC)
*kleu- [*:kleu- ‘hear’]
*klēutrom [*:kleu- ‘hear’]
*klēwes [*:kleu- ‘hear’]
*klits [*:klei- ‘lean’]
*klōunis
*kme₅h₅ (GA) (*kemh₅ ‘grow tired’)
*kōntóm
*kōh₃,kōh₂
*kōh₅nos (*kēh₅(i)- ‘sharpen’)
*kōimos (WC)
*kōino- (WC)
*kōiwis
*kōkolos
*kōk₄w₄ (*kēkw₄ ‘defecate’)
*kōh₅óm
*k(o)nid- (WC)
*konk-
*konkh₅os (*konk- ‘hang’)
*kōnkus
*kōph₂sós
*kōph₇elos
*kormon- (NW)
*kōru [*:ker- ‘horn’]
*kōss
*kōstrom ~ *kosdrom (*kēs- ‘cut’)
*kou₇ros (*keu₇ ‘swell’)
*kou₅hₓ₉
*kōmos
*kred-
*kred-dheh₁ [*:kerd ‘heart’ + *dheh₁ ‘put’]
*kṛh₃srō(h₃)on- (NW) (*kēr- ‘horn’)
*kripo-
*krim₉nt (*ker- ‘horn’)
*kroi₇pos (NW)
*kṛtōh₂

‘hernia’
‘cry out (to)’
‘snow, burn’
‘pillar, post’
‘chickpea’
‘this one’
‘lean’
‘hear’
‘clean’
‘hear’
‘a sound’
‘fame’
‘post, trimmed log’
‘± haunch, hip’
‘made, prepared’
‘hundred’
‘(forked) branch’
‘whetstone, hone’
‘household, village’
‘grass’
‘± tube’
‘splinter’
‘excrement, dung, manure’
‘stalk, stem, straw’
‘nit, louse egg’
‘hang’
‘mussel(-shell), etc.’
‘a kind of fish’
‘hoof’
‘carp’
‘weasel, ermine/stoat’
‘horn’
‘(Scotch) pine’
‘knife’
‘powerful’
‘hole, opening’
‘red’
‘framework, beams’
‘believe’
‘hornet’
‘± head and facial hair’
‘horn’
‘roof’
‘head’
\*k\textsuperscript{r}so\textsuperscript{s} (NW) \*k\textsuperscript{ers} (‘run’) \*k\textsuperscript{sh}r\textsuperscript{1} \*k\textsuperscript{s}u\textsuperscript{i}l\textsuperscript{om} (WC) \*k\textsuperscript{uh},d\textsuperscript{\textalpha{}}\textsuperscript{\textalpha{}} (WC) \*k\textsuperscript{uh},lo\textsuperscript{s} \*k\textsuperscript{(u)}w\textsuperscript{n}\textsuperscript{\(\text{\textalpha{}}\)} \*k\textsuperscript{we\textalpha{}}t\textsuperscript{s} \*k\textsuperscript{\textacute{w}}\textsuperscript{\textacute{e}nd\textacute{h}}r/no\textsuperscript{-} (NW) \*k\textsuperscript{\textacute{w}}\textsuperscript{en}(to)- [\*k\textsuperscript{ueh}\textsuperscript{1} - ‘swell’] \*k\textsuperscript{\textacute{w}}\textsuperscript{esh}\textsuperscript{x} \*k\textsuperscript{\textacute{w}}\textsuperscript{esh},mi \*k\textsuperscript{\textacute{w}}\textsuperscript{eh}\textsuperscript{1} \*k\textsuperscript{\textacute{w}}\textsuperscript{eh},no\textsuperscript{-} (GA)

\*k\textsuperscript{h}\textsuperscript{\(\text{\textalpha{}}\)} \*k\textsuperscript{ha\textsuperscript{-}}

\*k\textsuperscript{\textalpha{}}\textsuperscript{w}\textsuperscript{-} (WC) \*k\textsuperscript{\textalpha{}}\textsuperscript{w}-as\textsuperscript{-} (NW) \*k\textsuperscript{\textalpha{}}\textsuperscript{w}-at\textsuperscript{-} (WC) \*k\textsuperscript{\textalpha{}}\textsuperscript{w}-e \*k\textsuperscript{\textalpha{}}\textsuperscript{w}-ed\textsuperscript{-} (NW) \*k\textsuperscript{\textalpha{}}\textsuperscript{w}ch\textsuperscript{1}(i)- \*k\textsuperscript{\textalpha{}}\textsuperscript{w}ch,k\textsuperscript{-} (NW) \*k\textsuperscript{\textalpha{}}\textsuperscript{w}ch,li \*k\textsuperscript{\textalpha{}}\textsuperscript{w}ch,m (WC) \*k\textsuperscript{\textalpha{}}\textsuperscript{w}ch,\textsuperscript{\textalpha{}}s \*k\textsuperscript{\textalpha{}}\textsuperscript{w}ei- \*k\textsuperscript{\textalpha{}}\textsuperscript{w}ei \*k\textsuperscript{\textalpha{}}\textsuperscript{w}e\textsuperscript{-} \*k\textsuperscript{\textalpha{}}\textsuperscript{w}ei \*k\textsuperscript{\textalpha{}}\textsuperscript{w}e\textsuperscript{i}h\textsuperscript{j}\textsuperscript{-} \*k\textsuperscript{\textalpha{}}\textsuperscript{w}ek/\textsuperscript{\textacute{g}}\textsuperscript{-} \*k\textsuperscript{\textalpha{}}\textsuperscript{w}ek\textsuperscript{\textacute{\textalpha{}}}/\text{l\textacute{\textalpha{}}\textsuperscript{m}} \*k\textsuperscript{\textalpha{}}\textsuperscript{w}ek\textsuperscript{-} [\*k\textsuperscript{\textalpha{}}\textsuperscript{w}el\textsuperscript{-} - ‘turn’] \*k\textsuperscript{\textalpha{}}\textsuperscript{w}el\textsuperscript{-} \*k\textsuperscript{\textalpha{}}\textsuperscript{w}elp\textsuperscript{-} (WC) \*k\textsuperscript{\textalpha{}}\textsuperscript{w}em\textsuperscript{-} \*k\textsuperscript{\textalpha{}}\textsuperscript{w}en\textsuperscript{\textalpha{}}(h)- (WC) \*k\textsuperscript{\textalpha{}}\textsuperscript{w}er\textsuperscript{-} \*k\textsuperscript{\textalpha{}}\textsuperscript{w}er\textsuperscript{-} \*k\textsuperscript{\textalpha{}}\textsuperscript{w}erp\textsuperscript{-} \*k\textsuperscript{\textalpha{}}\textsuperscript{w}erus \*k\textsuperscript{\textalpha{}}\textsuperscript{w}et\textsuperscript{-} (WC)

\‘wagon’ \‘burn, singe’ \‘worked, shaped wood; post, stake’ \‘dung’ \‘spear, spit’ \‘dog’ \‘white’ \‘angelica’ \‘± breathe; sigh, groan’ \‘breathe deeply, sigh’ \‘deep intense shade, ± green’ \‘bird of prey, kite’ \‘smoke, seethe’ \‘(wicker-) basket’ \‘shake’ \‘and’ \‘whet, sharpen’ \‘fear, revere’ \‘of what sort’ \‘of what sort/size’ \‘how; as’ \‘cough’ \‘pile up, build’ \‘perceive’ \‘fine, punish’ \‘rest, quiet’ \‘appear’ \‘wheel’ \‘turn’ \‘arch’ \‘swallow’ \‘suffer’ \‘cut’ \‘do, make, build’ \‘turn’ \‘large cooking pot, cauldron’ \‘chaff, bran’
<table>
<thead>
<tr>
<th>Proto-Indo-European</th>
<th>English Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>*kʷetwōres</td>
<td>‘four’</td>
</tr>
<tr>
<td>*kʷetwor-pod-</td>
<td>‘four’</td>
</tr>
<tr>
<td>*pōds</td>
<td>‘foot’</td>
</tr>
<tr>
<td>*kʷid</td>
<td>‘what, what one’</td>
</tr>
<tr>
<td>*kʷis</td>
<td>‘who’</td>
</tr>
<tr>
<td>*k(ʷ)leik-</td>
<td>‘suffer’</td>
</tr>
<tr>
<td>*kʷlep- (E)</td>
<td>‘desire’</td>
</tr>
<tr>
<td>*kʷleu- (*kʷel- ‘turn’)</td>
<td>‘turn’</td>
</tr>
<tr>
<td>*kʷód</td>
<td>‘what’</td>
</tr>
<tr>
<td>*kʷodēhₐ</td>
<td>‘when’</td>
</tr>
<tr>
<td>*kʷaihₐos</td>
<td>‘pertaining to whom/what’</td>
</tr>
<tr>
<td>*kʷoinehₐ- (*kʷei- ‘finc’)</td>
<td>‘compensation’</td>
</tr>
<tr>
<td>*kʷóm</td>
<td>‘when’</td>
</tr>
<tr>
<td>*kʷór</td>
<td>‘where’</td>
</tr>
<tr>
<td>*kʷós</td>
<td>‘who’</td>
</tr>
<tr>
<td>*kʷóteros</td>
<td>‘which (of two)’</td>
</tr>
<tr>
<td>*kʷóti ~ *kʷéti</td>
<td>‘how much/many’</td>
</tr>
<tr>
<td>*kʷre(hₐ)-</td>
<td>‘pay’</td>
</tr>
<tr>
<td>*kʷrénos (NW)</td>
<td>‘tree; brush(wood)’</td>
</tr>
<tr>
<td>*kʷımis</td>
<td>‘worm, insect’</td>
</tr>
<tr>
<td>*kʷısnós</td>
<td>‘black’</td>
</tr>
<tr>
<td>*kʷrustēn</td>
<td>‘(freezing) cold’</td>
</tr>
<tr>
<td>*kʷryis (*kʷer- ‘do’)</td>
<td>‘+ tool’</td>
</tr>
<tr>
<td>*kʷsep-</td>
<td>‘night’</td>
</tr>
<tr>
<td>*kʷturyós ~ *kʷetwortos</td>
<td>‘fourth’</td>
</tr>
<tr>
<td>*kʷu ~ *kʷũ</td>
<td>‘where’</td>
</tr>
</tbody>
</table>

**Proto-Indo-European—English Wordlist**
<table>
<thead>
<tr>
<th>Stem</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>*leh₁d-</td>
<td>‘grow slack, become tired’</td>
</tr>
<tr>
<td>*leh₁d-</td>
<td>‘leave’</td>
</tr>
<tr>
<td>*leh₂w- (WC)</td>
<td>‘stone’</td>
</tr>
<tr>
<td>*leh₃-</td>
<td>‘pour, wet, make flow’</td>
</tr>
<tr>
<td>*leh₄-</td>
<td>‘military action’</td>
</tr>
<tr>
<td>*leh₂wós (*leh₂- ‘military action’)</td>
<td>‘people (under arms)’</td>
</tr>
<tr>
<td>*leh₅-</td>
<td>‘bark’</td>
</tr>
<tr>
<td>*leh₆- (WC)</td>
<td>‘complain, cry out’</td>
</tr>
<tr>
<td>*leh₆d-</td>
<td>‘dear’</td>
</tr>
<tr>
<td>*leh₆peh₅-</td>
<td>‘foot, paw’</td>
</tr>
<tr>
<td>*leh₇t- (NW)</td>
<td>‘wet, moist’</td>
</tr>
<tr>
<td>*lei-</td>
<td>‘bent’</td>
</tr>
<tr>
<td>*leib- (WC)</td>
<td>‘pour, make a libation’</td>
</tr>
<tr>
<td>*leigh-</td>
<td>‘lick’</td>
</tr>
<tr>
<td>*leikʷ-</td>
<td>‘leave (behind)’</td>
</tr>
<tr>
<td>*leip-</td>
<td>‘adhere, stick; smear’</td>
</tr>
<tr>
<td>*leip- (NW)</td>
<td>‘light, cause to shine’</td>
</tr>
<tr>
<td>*leis-</td>
<td>‘leave a trace on the ground’</td>
</tr>
<tr>
<td>*[e/o]iseh₃- (NW) [*leis- ‘leave a trace’]</td>
<td>‘furrow’</td>
</tr>
<tr>
<td>*leit(h₅)-</td>
<td>‘go away, go forth’</td>
</tr>
<tr>
<td>*lek-</td>
<td>‘jump, scuttle along’</td>
</tr>
<tr>
<td>*lem- (WC)</td>
<td>‘(nocturnal) spirit’</td>
</tr>
<tr>
<td>*lemb- ~ *remb-</td>
<td>‘hang down’</td>
</tr>
<tr>
<td>*lendh- (NW)</td>
<td>‘open land, waste’</td>
</tr>
<tr>
<td>*leng-</td>
<td>‘bend’</td>
</tr>
<tr>
<td>*lenk-</td>
<td>‘bend; traverse, divide’</td>
</tr>
<tr>
<td>*lénos (NW)</td>
<td>‘quiet’</td>
</tr>
<tr>
<td>*lenteh₃- (WC)</td>
<td>‘linden’</td>
</tr>
<tr>
<td>*le(o)nto- (NW)</td>
<td>‘soft’</td>
</tr>
<tr>
<td>*lep- (WC)</td>
<td>‘stone’</td>
</tr>
<tr>
<td>*lep- (WC)</td>
<td>‘strip, peel’</td>
</tr>
<tr>
<td>*lerd- (WC)</td>
<td>‘± crooked’</td>
</tr>
<tr>
<td>*lesi-</td>
<td>‘liver’</td>
</tr>
<tr>
<td>*letrom (NW)</td>
<td>‘leather’</td>
</tr>
<tr>
<td>*leu- (WC)</td>
<td>‘dirt’</td>
</tr>
<tr>
<td>*leubh-</td>
<td>‘love, desire’</td>
</tr>
<tr>
<td>*leud- (NW)</td>
<td>‘act hypocritically, badly’</td>
</tr>
<tr>
<td>*leug-</td>
<td>‘grieve, be pained’</td>
</tr>
<tr>
<td>*leug- (WC)</td>
<td>‘bend; bend together, entwine’</td>
</tr>
<tr>
<td>*leug-</td>
<td>‘break, break off’</td>
</tr>
<tr>
<td>*leugh- (NW)</td>
<td>‘lie, tell a lie’</td>
</tr>
<tr>
<td>*leuh₅- (WC)</td>
<td>‘wash, bathe’</td>
</tr>
<tr>
<td>*leuh₆-</td>
<td>‘hunt, release, cut off’</td>
</tr>
<tr>
<td>*leuh₃,ōn [*leuh₃- ‘hunt’]</td>
<td>‘animal’</td>
</tr>
<tr>
<td>Proto-Indo-European</td>
<td>English Translation</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>*leuk-</td>
<td>‘shine’</td>
</tr>
<tr>
<td>*leukós [leuk- ‘shine’]</td>
<td>‘light, bright, clear’</td>
</tr>
<tr>
<td>*leuk- [leuk- ‘shine’]</td>
<td>‘see’</td>
</tr>
<tr>
<td>*leup-</td>
<td>‘peel’</td>
</tr>
<tr>
<td>*linom (WC)</td>
<td>‘flax’</td>
</tr>
<tr>
<td>*lō(w)- (WC)</td>
<td>‘lion’</td>
</tr>
<tr>
<td>*loh_po- (WC)</td>
<td>‘cow’</td>
</tr>
<tr>
<td>*loid- (WC)</td>
<td>‘play, jest’</td>
</tr>
<tr>
<td>*lōik”nes [leik- ‘leave’]</td>
<td>‘(inherited) possessions’</td>
</tr>
<tr>
<td>*lokús (WC)</td>
<td>‘lake, water, pond’</td>
</tr>
<tr>
<td>*lōk-</td>
<td>‘weasel’</td>
</tr>
<tr>
<td>*lōks</td>
<td>‘salmonid, salmon (trout)’</td>
</tr>
<tr>
<td>*lóngdu</td>
<td>‘loins’</td>
</tr>
<tr>
<td>*lónko(he) [leik- ‘bend’]</td>
<td>‘valley’</td>
</tr>
<tr>
<td>*lōp- (WC) [*lep- ‘strip’]</td>
<td>‘± strip of cloth, bast, or hide used for clothing’</td>
</tr>
<tr>
<td>*lord(s)hum (WC) [*lerd- ‘± crooked’]</td>
<td>‘crooked of body’</td>
</tr>
<tr>
<td>*lorgeh (NW?)</td>
<td>‘club’</td>
</tr>
<tr>
<td>*los-</td>
<td>‘cloth’</td>
</tr>
<tr>
<td>*losiwos</td>
<td>‘weak’</td>
</tr>
<tr>
<td>*lóubho(he) (WC)</td>
<td>‘bast, bark’</td>
</tr>
<tr>
<td>*lōuh_trom (WC) [*leuh- ‘wash’]</td>
<td>‘(wash-)basin’</td>
</tr>
<tr>
<td>*lōuk(es) [leuk- ‘shine’]</td>
<td>‘light’</td>
</tr>
<tr>
<td>*louksneh (NW) [*leuk- ‘shine’]</td>
<td>‘moon’</td>
</tr>
<tr>
<td>*lu- (*lus-)</td>
<td>‘louse’</td>
</tr>
<tr>
<td>*luk- (WC)</td>
<td>‘lynx’</td>
</tr>
</tbody>
</table>

**m**

<table>
<thead>
<tr>
<th>Proto-Indo-European</th>
<th>English Translation</th>
</tr>
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<tbody>
<tr>
<td>*magh-</td>
<td>‘be able’</td>
</tr>
<tr>
<td>*maghan [*magh- be able’]</td>
<td>‘young man’</td>
</tr>
<tr>
<td>*maghwhih (NW) [*magh- be able’]</td>
<td>‘young woman’</td>
</tr>
<tr>
<td>*mai- (NW)</td>
<td>‘soil, defile’</td>
</tr>
<tr>
<td>*mak- (WC)</td>
<td>‘poppy’</td>
</tr>
<tr>
<td>*mak-</td>
<td>‘thin, long’</td>
</tr>
<tr>
<td>*makrós (WC) [*meh_3k- ‘thin’]</td>
<td>‘thin, long’</td>
</tr>
<tr>
<td>*mand-</td>
<td>‘enclosure, stall’</td>
</tr>
<tr>
<td>*mandh- or *mant- (WC)</td>
<td>‘chew’</td>
</tr>
<tr>
<td>*manu-</td>
<td>‘Man’, ancestor of humankind</td>
</tr>
<tr>
<td>*márkos (NW)</td>
<td>‘horse’</td>
</tr>
<tr>
<td>*masdos (NW)</td>
<td>‘post’</td>
</tr>
<tr>
<td>*mat-</td>
<td>‘± worm, maggot’</td>
</tr>
<tr>
<td>*mat-</td>
<td>‘hoe, plough’</td>
</tr>
<tr>
<td>*māwört-</td>
<td>‘god of war’</td>
</tr>
<tr>
<td>*me/o-</td>
<td>interrogative/relative</td>
</tr>
</tbody>
</table>
*mě
*med- 'not'
*med- ['measure'] 'measure, weigh'
*méduh 'measure, weigh'
*méduhwir ['měduh 'mead'] 'mead'
*me ġha 'heal, cure'
*měh,ro- 'large, great'
*měh,ro- (WC) 'intoxicator'
*měh,ro- 'grow'
*me ġh,ir ['měh,ro- 'grow'] '± mumble'
*měh,ro- (WC) 'small animal'
*měh,ro- ('large') 'moon'
*měh,ro- 'large'
*měh,ro- 'apple'
*měh,ro- 'hand'
*měh,ro- 'good'
*mèh,ro- 'maternal kinsman; maternal uncle'
*mèh,ro- 'mother’s sister'
*méh- 'moon'
*méh- 'mother'
*méh- 'good'
*méh- 'exchange'
*méh- 'close the eyes'
*méh- 'barley’ (‘grain’?)
*méh- 'go'
*méh- 'mix'
*méh- 'opinion'
*méh- 'exchange'
*méh- 'belonging to little hand'
*méh- 'argue, contend'
*méh- 'good'
*méh- 'fail, harm'
*méh- 'pray, speak words to a deity'
*méh- 'soft, weak'
*méh- (NW) 'lightning’
*méh- 'fault, mistake'
*méh- (WC) 'limb'
*méh- 'soft'
*méh- 'grind'
*méh- (WC?) '± grain, millet'
*méh- (NW) ‘badger’
*méh- 'honey'
*méh- 'honey-bee'
*méh- (C) ['mélit ‘honey']
*méh- (C) ['mélit ‘honey']
<table>
<thead>
<tr>
<th>Proto-Indo-European</th>
<th>English Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>melk-</em></td>
<td>‘plait, spin’</td>
</tr>
<tr>
<td><em>mel-n-</em></td>
<td>‘dull or brownish black’</td>
</tr>
<tr>
<td><em>melo-</em> [<em>mel-</em> ‘harm’]</td>
<td>‘bad’</td>
</tr>
<tr>
<td><em>mē(m)ys</em></td>
<td>‘meat’</td>
</tr>
<tr>
<td><em>men-</em></td>
<td>‘think, consider’</td>
</tr>
<tr>
<td><em>men-</em></td>
<td>‘remain, stay’</td>
</tr>
<tr>
<td><em>men-</em> [<em>men-</em> ‘project’]</td>
<td>‘project’</td>
</tr>
<tr>
<td><em>mendo/eh져-</em></td>
<td>‘chin’</td>
</tr>
<tr>
<td><em>mendyos</em> (C)</td>
<td>‘± (bodily) defect’</td>
</tr>
<tr>
<td><em>menegh-</em> (WC/PIE?)</td>
<td>‘abundant’</td>
</tr>
<tr>
<td><em>ménes-</em> (GA) [<em>men-</em> ‘think’]</td>
<td>‘thought’</td>
</tr>
<tr>
<td><em>meng-</em></td>
<td>‘± charm, deceive’</td>
</tr>
<tr>
<td><em>men-</em></td>
<td>‘press’</td>
</tr>
<tr>
<td><em>men-</em> [*menus/menwos ‘thin’]</td>
<td>‘lack’</td>
</tr>
<tr>
<td><em>menkus</em> (C) [*menk- ‘press’]</td>
<td>‘soft’</td>
</tr>
<tr>
<td><em>ménnyŋ</em> [<em>men-</em> ‘think’]</td>
<td>‘thought’</td>
</tr>
<tr>
<td><em>men(s)-dh(e)h1-</em> [<em>men-</em> ‘think’]</td>
<td>‘learn’</td>
</tr>
<tr>
<td><em>dheh1-</em> ‘put’</td>
<td>‘stir’</td>
</tr>
<tr>
<td><em>menth2-</em></td>
<td>‘thought’</td>
</tr>
<tr>
<td><em>méntis</em> [<em>men-</em> ‘think’]</td>
<td>‘thin (in density)’</td>
</tr>
<tr>
<td>*menus/menwos</td>
<td>‘crush, pulverize’</td>
</tr>
<tr>
<td><em>mer-</em></td>
<td>‘die’</td>
</tr>
<tr>
<td><em>mer-</em></td>
<td>‘shine, shimmer’</td>
</tr>
<tr>
<td><em>mer-</em></td>
<td>‘disturb, forget’</td>
</tr>
<tr>
<td>*mer- (WC)</td>
<td>‘braid, bind’</td>
</tr>
<tr>
<td><em>merd-</em></td>
<td>‘± rub, scrape’</td>
</tr>
<tr>
<td><em>merihə-</em> [*mérýos ‘young man’]</td>
<td>‘young woman’</td>
</tr>
<tr>
<td>*merk- (NW)</td>
<td>‘± darken’</td>
</tr>
<tr>
<td><em>mers-</em> [<em>mer-</em> ‘disturb’]</td>
<td>‘forget’</td>
</tr>
<tr>
<td>*mérýos</td>
<td>‘young man’</td>
</tr>
<tr>
<td><em>mesg-</em></td>
<td>‘intertwine’</td>
</tr>
<tr>
<td><em>mesg-</em></td>
<td>‘dip under water, dive’</td>
</tr>
<tr>
<td><em>meud-</em></td>
<td>‘be merry’</td>
</tr>
<tr>
<td><em>meug-</em> (NW)</td>
<td>‘± cheat, deceive’</td>
</tr>
<tr>
<td><em>m(e)uh3-</em></td>
<td>‘wash (in urine?)’</td>
</tr>
<tr>
<td><em>meu(h)3-</em></td>
<td>‘move’</td>
</tr>
<tr>
<td>*méu(h)h3(n) (WC)</td>
<td>‘heap’</td>
</tr>
<tr>
<td><em>meus-</em></td>
<td>‘move; remove’</td>
</tr>
<tr>
<td><em>mēus</em> (NW)</td>
<td>‘moss, mould’</td>
</tr>
<tr>
<td><em>m-h4em-</em></td>
<td>‘mother’</td>
</tr>
<tr>
<td><em>misdhős</em></td>
<td>‘reward, prize’</td>
</tr>
<tr>
<td><em>mits</em></td>
<td>‘stake, post’</td>
</tr>
</tbody>
</table>
*ml[dho/chə* [*meldh- ‘soft’] ‘clay’
*ml[leuh,*- ‘speak’
*ml[thədh-o-* ‘crown of the head’
*ml[k-* ‘touch lightly’
*ml[k]- (WC) ‘minnow; small fish’
*mlôd-* (WC) ‘meet’
*modheros ‘blue/green’
*moi/ôs ‘ram, sheep; fleece, skin’
*mokô- ‘gnat, stinging insect’
*mokôs ‘soon’
*mono-* [*men- ‘project’] ‘neck’
*mono/-i- [*mono- ‘neck’] ‘neck ornament’
*morgô- ‘border’
*môrî ‘sea’
*môrôs ‘blackberry’
*môros [*mer- ‘die’] ‘death’
*môrôs (GA) [*mer- ‘die’] ‘person, mortal, man’
*morvi/- ～ *morm- ～ *mouro- ‘ant’
*moghos ‘marrow, brain’
*môstrô (E) ‘brain, marrow’
*mould- ‘desire strongly’
*mregh- (WC) ‘rain softly, drizzle’
*mtréalmen- (WC) ‘brain’
*mrghus ‘short’
*mr[ghus- (WC) ‘± carrot’
*mr[zk- (WC) ‘± make a (low) noise’
*mrîs [*mer- ‘die’] ‘death’
*mrî̄tmîs [*mer- ‘die’] ‘death’
*mrîsôs [*mer- ‘die’] ‘dead; mortal’
*mû- ‘dumb’
*mug- ‘ass/donkey’
*muk(ik)skos (WC) ‘murmur’
*murmu- ‘steal’
*mus- ‘mouse’
*mùs [*meus- ‘move’] ‘fly; gnat, midge, mosquito’
*mus/h,- (WC) ‘male or female sex organ’
*mustî- (E) ‘fist’
*mûs(tlo)- [*meus- ‘move’] ‘(little) mouse; muscle’

*n
*nak-* ‘press, squeeze’
*nâk(es)- (WC) ‘± pelt, hide’
*nant- (NW) ‘combat, fight’
*ňbh(ro/rî)- [*nēbhos - ‘mist’] ‘rain’
<table>
<thead>
<tr>
<th>Proto-Indo-European</th>
<th>English Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>*ndhés ~ *ndhero-</td>
<td>'under, low'</td>
</tr>
<tr>
<td>*ne</td>
<td>'not'</td>
</tr>
<tr>
<td>*ne</td>
<td>'thus'</td>
</tr>
<tr>
<td>*nébhes-</td>
<td>'mist, cloud; sky'</td>
</tr>
<tr>
<td>*ned-</td>
<td>'knot'</td>
</tr>
<tr>
<td>*ned- (WC)</td>
<td>'nettles'</td>
</tr>
<tr>
<td>*nedós</td>
<td>'reed, rush'</td>
</tr>
<tr>
<td>*nedskéh₁ (NW)</td>
<td>*ned- 'knot'</td>
</tr>
<tr>
<td>*ne/og`nós</td>
<td>'bare, naked'</td>
</tr>
<tr>
<td>*neg₁hrós (WC)</td>
<td>*h₁eng₁- 'swell'</td>
</tr>
<tr>
<td>*něň₁tr- ~ *n₁h₁tr- (NW)</td>
<td>*s₁ne₁h₁- 'twist'</td>
</tr>
<tr>
<td>*ne₁z</td>
<td>'be timid'</td>
</tr>
<tr>
<td>*néh₁us</td>
<td>'boat'</td>
</tr>
<tr>
<td>*néh₁wis</td>
<td>'corpse'</td>
</tr>
<tr>
<td>*nei-</td>
<td>'be excited'</td>
</tr>
<tr>
<td>*neig”-</td>
<td>'wash'</td>
</tr>
<tr>
<td>*neih₁</td>
<td>'lead'</td>
</tr>
<tr>
<td>*neik-</td>
<td>'begin'</td>
</tr>
<tr>
<td>*neik- (WC)</td>
<td>'winnow'</td>
</tr>
<tr>
<td>*nek-</td>
<td>'perish, die'</td>
</tr>
<tr>
<td>*neks [*nek- 'die']</td>
<td></td>
</tr>
<tr>
<td>*nékus [*nek- 'die']</td>
<td></td>
</tr>
<tr>
<td>*nek₁w₁t-</td>
<td>'night'</td>
</tr>
<tr>
<td>*nem-</td>
<td>'bend'</td>
</tr>
<tr>
<td>*nem-</td>
<td>'take/accept legally'</td>
</tr>
<tr>
<td>*némos- (WC)</td>
<td>'(sacred) grove'</td>
</tr>
<tr>
<td>*népōts</td>
<td>'grandson; (?) nephew'</td>
</tr>
<tr>
<td>*neptih₁ra [*népōts 'grandson']</td>
<td>'granddaughter; (?) niece'</td>
</tr>
<tr>
<td>*neptiyos [*népōts 'grandson']</td>
<td>'descendant'</td>
</tr>
<tr>
<td>*neptonos ~ *h₂epōm nepōts</td>
<td>'grandson of waters'</td>
</tr>
<tr>
<td>*ner</td>
<td>'under'</td>
</tr>
<tr>
<td>*nes-</td>
<td>'return home'</td>
</tr>
<tr>
<td>*neu-</td>
<td>'cry out'</td>
</tr>
<tr>
<td>*neu- (WC/PIE?)</td>
<td>'nod'</td>
</tr>
<tr>
<td>*neud- (E)</td>
<td>'push (away)'</td>
</tr>
<tr>
<td>*neud- (NW)</td>
<td>'use, enjoy'</td>
</tr>
<tr>
<td>*néwos [*nu- 'now']</td>
<td>'new'</td>
</tr>
<tr>
<td>*n₁h₂en-</td>
<td>'(old) woman, mother'</td>
</tr>
<tr>
<td>*ni</td>
<td>'downwards'</td>
</tr>
<tr>
<td>*nisdos [*ni 'down' + *sed- 'sit']</td>
<td>'nest'</td>
</tr>
<tr>
<td>*nyk”tus [*nek”t- 'night']</td>
<td>'end of the night'</td>
</tr>
<tr>
<td>*ny-mrtōs (GA) [*ne 'not' + *mer- 'die']</td>
<td>'undying' (drink)</td>
</tr>
<tr>
<td>*nóh₁</td>
<td>'we two'</td>
</tr>
<tr>
<td>*n(o)h,t- (WC)</td>
<td>‘± rear-end’</td>
</tr>
<tr>
<td>*noibhos [*nei- ‘be excited’]</td>
<td>‘holy’</td>
</tr>
<tr>
<td>*nu-</td>
<td>‘now’</td>
</tr>
<tr>
<td>*o</td>
<td>‘O’</td>
</tr>
<tr>
<td>*os(o)nos</td>
<td>‘ass’</td>
</tr>
<tr>
<td>*p</td>
<td>‘duck, teal?’</td>
</tr>
<tr>
<td>*pad-</td>
<td>‘curved’</td>
</tr>
<tr>
<td>*pandos (NW)</td>
<td>‘millet’</td>
</tr>
<tr>
<td>*pano-</td>
<td>‘stomach, paunch’</td>
</tr>
<tr>
<td>*pant-</td>
<td>‘± mother’s breast, teat’</td>
</tr>
<tr>
<td>*papa</td>
<td>‘father, papa’</td>
</tr>
<tr>
<td>*parikehr,</td>
<td>‘± concubine; wanton woman’</td>
</tr>
<tr>
<td>*pastos</td>
<td>‘firm’</td>
</tr>
<tr>
<td>*pau- (WC)</td>
<td>‘little, few’</td>
</tr>
<tr>
<td>*ped-</td>
<td>‘fall’</td>
</tr>
<tr>
<td>*pedom [*pôds ‘foot’]</td>
<td>‘footprint, track’</td>
</tr>
<tr>
<td>*peh₃(i)-</td>
<td>‘harm’</td>
</tr>
<tr>
<td>*pêh₃mŋ (GA) [*peh₃(i)- ‘harm’]</td>
<td>‘misfortune’</td>
</tr>
<tr>
<td>*peh₂</td>
<td>‘guard, cause to graze’</td>
</tr>
<tr>
<td>*p(e)h₂no/eh,r</td>
<td>‘cloth’</td>
</tr>
<tr>
<td>*pêh₃r</td>
<td>‘fire’</td>
</tr>
<tr>
<td>*pêh₃susōn (GA) [*peh₂- ‘guard’]</td>
<td>‘pastoral god’</td>
</tr>
<tr>
<td>*peh₃(i)-</td>
<td>‘swallow’ &gt; ‘drink’</td>
</tr>
<tr>
<td>*peh₂g̃ ~ *peh₂,k̃-</td>
<td>‘fasten securely’</td>
</tr>
<tr>
<td>*pei-</td>
<td>‘sing’</td>
</tr>
<tr>
<td>*peih,₃</td>
<td>‘be fat’</td>
</tr>
<tr>
<td>*peik/k̃-</td>
<td>‘be hostile, hate’</td>
</tr>
<tr>
<td>*peik-</td>
<td>‘paint, mark’</td>
</tr>
<tr>
<td>*peis-</td>
<td>‘blow to make a noise’</td>
</tr>
<tr>
<td>*peis-</td>
<td>‘thresh, grind’</td>
</tr>
<tr>
<td>*pek-</td>
<td>‘pull out [wool]’</td>
</tr>
<tr>
<td>*péku</td>
<td>‘livestock’</td>
</tr>
<tr>
<td>*pekʷ-</td>
<td>‘cook, bake’</td>
</tr>
<tr>
<td>*pel-</td>
<td>‘± sell’</td>
</tr>
<tr>
<td>*pel-</td>
<td>‘fold’</td>
</tr>
<tr>
<td>*pel-</td>
<td>‘be grey’</td>
</tr>
<tr>
<td>*pel-</td>
<td>‘hide’</td>
</tr>
<tr>
<td>*peld-</td>
<td>‘felt’</td>
</tr>
<tr>
<td>*pelekuš</td>
<td>‘axe’</td>
</tr>
<tr>
<td>*peles-</td>
<td>‘wound’</td>
</tr>
</tbody>
</table>
"pelh₁-" ‘fill’
"pēlh₁ewis ["pelh₁- ‘fill’] ‘container’
"pēlh₂us ["pelh₁- ‘fill’] ‘much’
"pelh₁- (NW) ‘set in motion’
"pelh₂- ‘spread out flat’
"pelh₂- ‘fort, fortified place’
"pelh₂- (WC) ‘bear young’
"pel(i)₂- ‘cliff, stone, rock’
"pel₁- (WC) ‘animal skin, hide’
"pelo/eh₁- ‘chaff’
"pel₁- (NW) ‘butterfly’
"pēl₁(us) ["pel₁- ‘be grey’] ‘mouse’
"pen- ‘feed, fatten’
"pen- (NW) ‘water’
"pen₁- ‘damp, mud’
"pēnk"e ‘five’
"penk"e dekŋ₁(t) ‘fifteen’
"pēnk"e ‘five’ + *dekŋ₁(t) ‘ten’ ‘fifty’
"pe(n)₁s- ‘dust’
"pēnt- ‘heel’
"pent- ‘find one’s way’
"pent- + *dheh₁-/*k"er- ‘priest’
"per₁- ["per₁- ‘appear’] ‘blow (on a fire)’
"per₁- ‘exchange, barter’
"per₁- ‘strike’
"per₁- ‘pass through’
"per₁- ‘over, through, about’
"per₁- ‘appear, bring forth’
"per₁- ["per₁- ‘appear’] ‘offspring (of an animal)’
"per₁- (WC) ‘trial, attempt’
"pēr₁ ‘house’
"per₁- (GA) ‘panther, lion’
"pēr₁- ‘fart’
"per₁- (NW) ‘pole, post’
"per₁ (h₁)- ‘first’
"peri-h₁es- (GA) ‘surpass’
"peri₁ ‘over’ + *h₁es- ‘be’ ‘fear’
"perk₁- ‘Ask, ask for (in marriage)’
"perk₁- (NW) ‘glowing ash, charcoal’
"perk₁- ‘house’
*perk*- 'speckled'
*perk-* 'dig'
*pérkus* '± breast, rib'
*perk"unos* 'thunder god'
*pérkus (NW)* 'oak'
*pers-* 'sprinkle'
*pérsneh-* 'heal'
*pértus [*per- 'pass through']* 'passage, way'
*peru-* 'rock'
*perut- [*per- 'over' + *wet- 'year'] 'last year'
*pesd- (WC)* 'fart'
*péses- 'penis'
*pet-* 'fly'
*pet-* 'stretch'
*pet(e)r- [*pet- 'fly'] 'wing, feather'
*peth,-* 'spread out (the arms)'
*peth,- (GA) *pet- 'fly' 'fly'
*pe/oths,mo- (NW) [*pet- 'stretch'] 'thread'
*peug- (WC)* 'prick, poke'
*peuh,- 'stink, rot'
*péuks* 'clean'
*pe(h)eu-* '(Scotch) pine, conifer'
*phôl- (phôl,?) (WC)* 'blow, swell'
*phôlôr *father'
*phôlôrous [*phôlôr- 'father'] 'paternal kinsman'
*phôlôtwyos* 'father’s brother'
*pîh,x wr* 'fat(ness)'
*pîh,xiy- [*peh,xiy- 'harm'] 'revile'
*pîk- (WC)* 'pitch'
*pîk- [pîk-sko-] 'spotted'
*pîkskinos [*pîk-sko- 'spotted'] 'trout, fish'
*pîldo- (WC) [*pîlos 'a hair'] 'felt'
*pîlos* '(a single) hair'
*pin-* ' ± shaped wood'
*pîpipi,usîn, [*peh,si- 'be fat'] 'rich in milk'
*pîppp-* 'young bird, nestling'
*pîpis- 'crush, pound'
*pîpsi-do/eh, *h1epi ‘on’ + *sed- 'sit’* 'vulva'
*pîtus (NW?) [*peh,si- 'be fat'] '(some form of) conifer'
*(p)órmos* 'grain, meal'
*pelmihlwêh, (WC) [*pelmih- 'fill'] '± grief, shame'
*pelmihlwêhs* '(the mass of) people'
*poums- ‘(human) body hair’
*prem- ‘press down or back’
*pre- (WC) ‘appear’
*prest- ‘(period of) time’
*preu- ‘jump’
*preu- ‘burn’
*preus- ‘freeze’
*preus- ‘anus’
*prhktós (C) ‘what is distributed’
*prh.éi [per ‘over’] ‘in front of; before (of time)’
*prhr.ós ‘of one’s own’
*prih.óμ [‘exchange’] ‘love’
*prih.ér [‘of one’s own’] ‘wife’
*prih.óμ (NW) ‘furrow’
*pro [per ‘over’] ‘forward, ahead, away’
*pro- third generation marker
*pro- ‘earl, morning’
*proksom ‘grain’
*proti [per ‘over’] ‘against, up to’
*proti-h(ó)kewa [‘against’ ‘face, front’ ‘woman’s breast, nipple’ ‘sneeze’
*proti-h(a)- ‘face, front’ ‘fall’ ‘elm?’ ‘stink’ ‘putrefaction, pus’ ‘tail’ ‘headband’ ‘cut’ ‘stain’ ‘little’ ‘son’ ‘± vulva, anus’ ‘strike’
*r ‘± ferocity’
*rabh- ‘gnaw, scrape’
*red- (GA) ‘dye’
*reg- (GA)
*reg-/*rek-nos (WC)  ‘make wet’
*reh₁’  ‘put in order’
*reh₂’  ‘give’
*réh₁is [*reh₁- ‘give’]  ‘possessions’
*reh₁mós  ‘dirty; dirt, soot’
*reh₂ (NW)  ‘post, pole’
*rei- (NW)  ‘tremble, be unsteady’
*rei-  ‘scratch’
*reidh- (NW)  ‘ride’
*reg- (NW)  ‘extend, stretch out (a body part)’
*reik-* [*rei- ‘scratch’]  ‘scratch; line’
*rek-  ‘speak’
*rendh-  ‘rend, tear open’
*rēp- (NW)  ‘crawl’
*rēph (WC)  ‘turnip’
*resg-  ‘plait, wattle’
*reth₂  ‘run’
*reu-  ‘roar, howl’
*reudh-  ‘mourn, lament’
*reudh₁-  ‘± push back’
*réughmen-  ‘cream’
*reuh₁-  ‘be open’
*reuh₂-  ‘tear out, pluck’
*réuh₁es- [*reuh₁- ‘be open’]  ‘open space’
*reuk/g-  ‘shrink, wrinkle up’
*reumn-  ‘runem’
*réumn- [*reuh₂- ‘pluck’]  ‘horsehair’ or ‘fleece’
*reup-  ‘break’
*reus-  ‘± contend with, be angry at’
*rik-  ‘nit, tick’
*rōs  ‘dew, moisture’
*róth₂o/eh₁r- [*reth₂- ‘run’]  ‘wheel’
*tēn  ‘male’
*rughis (NW)  ‘rye’
*ruk- (NW)  ‘over-garment’

*s
*saiwos (NW)  ‘hard, sharp, rude’
*sakros  ‘holy’
*sal(i)k- (NW)  ‘(tree) willow’
*samh₂dhos (WC)  ‘sand’
*sap- ~ *sep- (WC)  ‘± taste, come to know’
*sap- ~ *sab-  ‘sap’
*sausos
*(s)bhond-neha (WC) [*bhendhi- ‘bind’]
*sed-
*sed-
*sedes- [*sed- ‘sit’]
*sedlon (WC) [*sed- ‘sit’]
*sedros (WC) [*sed- ‘sit’]
*seg-
*segh-
*seh₁-
*seh₁(i)-
*seh₁(i)- (WC)
*seh₁men- (NW) [*seh₁- ‘sow’]
*seh₁ros (NW) [*seh₁(i)- ‘throw’]
*seh₂(i)-
*séh₂-tis (NW) [*seh₂(i)- ‘satisfy’]
*seh₂i-
*seh₂r(e)i-
*seh₂g-
*seh₂ul
*seik-
*seik-
*sek-
*sek-
*sekᵢr- (NW) [*sek- ‘cut’]
*sekᵢ-
*sekᵢ- [*sekᵢ- ‘follow’]
*sekᵢ- (WC)
*sekᵢo- [*sekᵢ- ‘follow’]
*sel-
*sel- (WC)
*sel- (WC) [*sel- ‘move quickly’]
*selg-
*selk-
*séles (GA)
*sélpes-
*sem-
*sem- [*sem- ‘once’]
*sem-
*sem- (WC)
*semgo(lo)s [*sem- ‘once’]
*sémis [*sem- ‘once’]
*sens [*sem- ‘once’]
*seng"h- ‘sing, make an incantation’
*seng(h)- ‘seek, accomplish’
*senh₂dhr- (NW) ‘congealed moisture, slag’
*sen-i/u- ‘apart’
*senk- (NW) [*sek- ‘dry up’] ‘make/become dry, singe’
*seno-meh₁tér (NW) [sénos ‘old’ + *méh₁tér ‘mother’] ‘grandmother’
*séños ‘old’
*sent- (NW) ‘perceive, think’
*sent- ‘go’
*sentos [*sent- ‘go’] ‘way, passage’
*sep- ‘handle (skilfully), hold (reverently)’
*sepit ‘wheat’
*septiŋ ‘seven’
*septiŋ-mós [*septiŋ ‘seven’] ‘seventh’
*ser- ‘line up’
*ser- ‘protect’
*ser- (WC) ‘flow’
*seren(y)uh₁s (GA) name of goddess
*serk- ‘make a circle; complete; construct/repair a wall, make restitution’
*serK- ‘pass, surpass’
*serp- ‘crawl’
*ses- ‘rest, sleep, keep quiet’
*ses(y)ó- ‘grain, fruit’
*seu- ‘boil (something)’
*seu- ‘turn’
*seug- (WC) ‘be sick’
*seug/k- (NW) ‘suck’
*seuh₁- ‘set in motion’
*seu(h₁)- ‘bear a child’
*seu(h₁)- ‘express a liquid’
*seup- ‘pure’
*seuyós [*seu- ‘turn’] ‘left’
*sevé ‘-self’
*sevos [*sévé ‘-self’] ‘own’
*(s)grebh₁- (WC) ‘scratch, cut’
*(s)greh₁,b(h)- (WC) ‘hornbeam’
*sh₂ómēn- ‘song’
*sh₂tós (WC) [*seh₂(i)- ‘satisfy’] ‘satisfied’
*(s)-h₁upó∠(i) ‘over’
*s- h₂upó [h₂upó ‘up’] ‘underneath’
*silVb₁r- (NW) ‘silver’
*singhós ‘leopard’
| *siskus* [*sek- ‘dry up’] | ‘dry’ |
| *skabh- | ‘hold up’ |
| *skaiwós (WC) | ‘left’ |
| *(s)kamb- (WC) | ‘curve’ |
| *skand- | ‘jump’ |
| *(s)kand- | ‘shine, glitter; moon’ |
| *skauros | ‘± lame’ |
| *skęp- (NW) [*sek- ‘cut’] | ‘scratch, shave’ |
| *(s)ked- | ‘scatter’ |
| *skępil(d)- [*sek- ‘cut’] | ‘cut’ |
| *skêteits (NW) | ‘shield, board’ |
| *(s)skęp- | ‘± jump’ |
| *(s)skel- (WC) | ‘crooked’ |
| *(s)skel- [*sek- ‘cut’] | ‘cut, split apart’ |
| *(s)skęp- | ‘crooked, limp’ |
| *(s)skęp- | ‘± threaten’ |
| *(s)skęp- [*sek- ‘cut’] | ‘cut apart, cut off’ |
| *skęp- (WC) | ‘± hop about’ |
| *skęp(h)- (WC) | ‘turn’ |
| *skęp(h)- | ‘injure, harm’ |
| *skęp(h)- | ‘sneeze’ |
| *skęp(h)- (NW) | ‘push away, push ahead’ |
| *(s)skęp(h)- | ‘throw, shoot’ |
| *(s)skęp(h)- | ‘perceive’ |
| *(s)skęp(h)- | ‘cover, wrap’ |
| *(s)skęp- (NW) | ‘bundle’ |
| *skęp(h)ós (WC) | ‘thin’ |
| *(s)skoitróś | ‘bright, clear’ |
| *(s)skooptional- (WC) | ‘young dog’ |
| *(s)skolmeh₂- (WC) [*seg- ‘cut’] | ‘sword’ |
| *(s)skolmos [*seg- ‘cut’] | ‘boat’ |
| *(s)skooptional- (WC) [*seg- ‘cut’] | ‘stake’ |
| *skótoś (WC) | ‘shadow, shade’ |
| *(s)skooptional- (NW) | ‘shake, jolt’ |
| *(s)skooptional- [{s}kehr(h₂)- ‘cover’] | ‘skin, hide’ |
| *skweśis (NW) | ‘± needle and/or thorn’ |
| *(s)skégos | ‘sheep/goat’ |
| *(s)skélw(e)re- (WC) | ‘north wind’ |
| *(s)skółyha | ‘shade’ |
| *(s)skup- | ‘shoulder’ |
| *(s)skúllos | ‘sheatfish, wels’ |
| *(s)ských- ~ *(s)leh₂-g- (WC) | ‘slack’ |
| *(s)ských- (WC) | ‘take, hold’ |
| *slak- (NW) | ‘strike’ |
*(s)lei* - 'sticky, slimy, slippery'
*(s)lei* (WC) [*(s)lei- 'sticky'] - 'tench'
*(s)leidh* - 'slide'
*sleimak-*(WC) [*(s)lei- 'sticky'] - 'snail, slug'
*slenk-*(NW) - 'turn, twist (like a snake)'
*sleubh-*(NW) - 'slide'
*slih,*u*(NW) - 'plum-Coloured'
*slóugos*(NW) - 'servant'
*(s)me* - 'middle, among'
*smeg*(NW) - 'taste (good)'
*smei* - 'smile, laugh'
*smeid*(WC) - 'smear'
*smeit* - 'throw'
*smei* - 'chin, jaw'
*(s)mel* - 'deceive'
*(s)mel* - 'give off light smoke, smoulder'
*(s)meld*(WC) - 'to melt'
*(s)mer* - 'remember, be concerned about'
*sme´ru* - 'oil, grease'
*(s)meug-* (WC) [*(s)meuk-] - 'slick, slippery'
*(s)meug*(h) *(WC) - 'smoke'
*[sem ‘together’ + *(legh- ‘lie’) ‘spouse’
*[smmós *[sem- ‘once’] - ‘some, any’
*[smókwrg *[smeık- ‘chin’] - ‘chin, beard’
*[smteros *(WC) *[sem- ‘once’] - ‘one or the other of two’
*(s)nehJer* - ‘twist, turn’
*(s)nehJer(i) - [*(s)nehJer- ‘twist’] - ‘twist fibres into thread’
*snehJer- *[s(s)nehJer- ‘twist’] - ‘twist fibres into thread’
*snehJerwrg *[s(s)nehJer- ‘twist’] - ‘sinew, tendon’
*snehJer- - ‘swim’
*sneig”h- - ‘to snow’
*(s)ner* - ‘fasten with thread or cord’
*sner-*(WC) - ‘± rattle, growl’
*sneubh-*(WC) - ‘marry’
*sneudh* - ‘mistr, cloud’
*sneig”h-s *[sneig”h- ‘snow’] - ‘snow’
*snuwos* - ‘son’s wife, brother’s wife’
*so1*seh`e*toďd* - ‘that one’
*soiotehd* *(NW) - ‘sorcery’
*sokto* - ‘sickness’
*sok`e* - ‘(human) excrement’
*sok”h2 oí [*(sek”- ‘follow’] - ‘follower, companion’
*sok”w`os - ‘sap, resin’
*sók"t
*solh,~
*solo/eh,~ ~ selo- (NW)
*sòlvos
*som- [*sem- 'once']
*somo-ǵnh1-yo-s (WC)
[sem 'together' + *ǵenh1- 'beget']
*somos [*sem- 'once']
*soru
*speh1-
*(s)p(e)iko/eh,~
*(s)pek-
*(s)pel-
*(s)pel-
*spelo/eh,~ [**(s)p(h)el- 'strip']
*(s)pen-
*spend-
*sper-
*sper- (WC)
*sperg1-
*sperh1-
*sperh,~g- (NW)
*(s)peud-
*speud-
*sph1rós [*speh1- 'be satisfied']
*sph2,~en- (WC)
*(s)py(e)uh,~
*(s)pingo- (WC/PIE?)
*spleigh-
*(s)plend-
*sploigh2-én
*spoh,~ino/eh,~
*(s)pondh(n)os (WC)
*(s)pornóm
*(s)preg- (WC)
*(s)pretn- (WC)
*(s)ph1,~o- [*sperh1- 'kick']
*(s)ph2,~g-
*srebh-
*sre/oh,~gs (WC)
*srenk- (WC)
*srênó/eh,~

'(upper) leg'
'dirt; dirty'
'dwelling, settlement'
'whole'
'(together) with'
'same (kinship) line'
'of the same father'
'same'
'booty'
'be satisfied, be filled, thrive'
'bird, woodpecker'
'be observe'
'say aloud, recite'
'tear off, strip'
'shield'
'draw, spin'
'make an offering'
'be satisfied, be filled, thrive'
'sparrow'
'strew, sow'
'wrap around'
'move energetically'
'kick, spurn'
'strew, sprinkle'
'push, repulse'
'hurry'
'± fat, rich'
'flat-shaped piece of wood'
'spew, spit'
'finch'
'step, go'
'shine'
'spleen'
'foam'
'wooden vessel'
'wing, feather'
'speak'
'wrap up, constricct'
'heel'
'crackle, sputter'
'gulp, ingest noisily'
'± berry, fruit'
'snore'
'± hip, thigh'
<table>
<thead>
<tr>
<th>Proto-Indo-European</th>
<th>English Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>*sret-</td>
<td>'boil, be agitated, move noisily'</td>
</tr>
<tr>
<td>*sreu-</td>
<td>'flow'</td>
</tr>
<tr>
<td>*sreumen- (WC) ['sreu- ‘flow’]</td>
<td>'flowing, streaming (in river names)'</td>
</tr>
<tr>
<td>*srīges- (WC)</td>
<td>'cold, frost'</td>
</tr>
<tr>
<td>*sromós</td>
<td>'lame'</td>
</tr>
<tr>
<td>*sṛpo/eh₃</td>
<td>'sickle'</td>
</tr>
<tr>
<td>*stag- (WC)</td>
<td>'seep, drip'</td>
</tr>
<tr>
<td>*(s)teg- (WC/PIE?)</td>
<td>'cover'</td>
</tr>
<tr>
<td><em>(s)teg- (WC) ['</em>(s)teg- ‘cover’]</td>
<td>'pole, post'</td>
</tr>
<tr>
<td><em>(s)téges- (WC) ['</em>(s)teg- ‘cover’]</td>
<td>'roof'</td>
</tr>
<tr>
<td>*(s)te₇₂-</td>
<td>'stand'</td>
</tr>
<tr>
<td><em>(s)te₇₃st (WC) ['</em>(s)te₇₂- ‘stand’]</td>
<td>'dough'</td>
</tr>
<tr>
<td><em>stē₇₂mōn ['</em>(s)te₇₂- ‘stand’]</td>
<td>'what stands, stature’</td>
</tr>
<tr>
<td><em>stē₇₂tis ['</em>(s)te₇₂- ‘stand’]</td>
<td>'place'</td>
</tr>
<tr>
<td><em>stē₇₂ur ['</em>(s)te₇₂- ‘stand’]</td>
<td>'post’</td>
</tr>
<tr>
<td>*(s)te₇₂₀</td>
<td>'steal’</td>
</tr>
<tr>
<td>*ste₇²-</td>
<td>'prick’</td>
</tr>
<tr>
<td>*ste₇²st</td>
<td>'step (up), go’</td>
</tr>
<tr>
<td>*st₆-</td>
<td>'be still, quiet’</td>
</tr>
<tr>
<td>*(s)tel- (NW)</td>
<td>'be still, quiet’</td>
</tr>
<tr>
<td>*(s)tel- (NW)</td>
<td>'put in place, (make) stand’</td>
</tr>
<tr>
<td><em>stembh- ['</em>(s)te₇₂- ‘stand’]</td>
<td>'make stand, prop up’</td>
</tr>
<tr>
<td>*sten-</td>
<td>'moan’</td>
</tr>
<tr>
<td>*(s)tenh₃ ['*sten- ‘moan’]</td>
<td>'groan; thunder’</td>
</tr>
<tr>
<td>*ster-</td>
<td>'barren, infertile’</td>
</tr>
<tr>
<td>*(s)ter-</td>
<td>'spread out’</td>
</tr>
<tr>
<td>*ster- (WC)</td>
<td>'stork’</td>
</tr>
<tr>
<td>*(s)terg₇</td>
<td>'stiff’</td>
</tr>
<tr>
<td>*(s)terh₇₁-</td>
<td>'stiff’</td>
</tr>
<tr>
<td>*(s)ter(h₁)-</td>
<td>'strew’</td>
</tr>
<tr>
<td>*ster(h₃)m₉ ['*ster(h₃)- ‘strew’]</td>
<td>'strewn place, ?bed’</td>
</tr>
<tr>
<td>*steu- (GA)</td>
<td>'praise’</td>
</tr>
<tr>
<td>*(s)teud-</td>
<td>'push, thrust’</td>
</tr>
<tr>
<td>*steup-</td>
<td>'strike’</td>
</tr>
<tr>
<td>*steuros</td>
<td>'large (domestic) animal’</td>
</tr>
<tr>
<td>*sth₂bho/eh₃</td>
<td>'post, pillar’</td>
</tr>
<tr>
<td><em>sth₂ei- ['</em>(s)te₇₂- ‘stand’]</td>
<td>'become hard, fixed’</td>
</tr>
<tr>
<td><em>st(h₁)eug- ['</em>(s)te₇₂- ‘stand’]</td>
<td>'stiff’</td>
</tr>
<tr>
<td>*stih₃[steigh- ‘step’]</td>
<td>'path’</td>
</tr>
<tr>
<td>*st₇₁neh₉ (WC) ['*stel- ‘put in place’]</td>
<td>'post, support’</td>
</tr>
<tr>
<td>*stömn</td>
<td>'mouth’</td>
</tr>
<tr>
<td>*storos (NW)</td>
<td>'starling’</td>
</tr>
<tr>
<td>*strenk- (WC)</td>
<td>'string, to pull (tight)’</td>
</tr>
</tbody>
</table>
*(s)trep- (NW) ‘± cry out, dispute’
*streug- ‘be fatigued, exhausted’
*str(h,₁)yon- (NW) ‘sturgeon/salmon’
*stup- [*steup- ‘strike’] ‘± officut, piece of wood’
*su- [*h₁es- ‘be’] ‘good’
*suh- ‘rain’
*suh₄us [*seu(h₄)- ‘bear a child’] ‘son’
*suh₄ros (NW) ‘sour, acid’
*suh₄sos [*seu(h₄)- ‘bear a child’] ‘grandfather’
*suh₄yús [*seu(h₄)- ‘bear a child’] ‘son’
*sülhe₄ [*seu(h₄)- ‘express a liquid’] ‘pig (fermented) juice’
*sás [*seu(h₄)- ‘bear a child’] ‘laugh’
*sward- (WC) ‘lineage’
*s(w)ebh-* [*swe- ‘self’] ‘custom, characteristic’
*s(w)edh- ‘lineage’
*sweh₄o- ‘be tasty, please’
*sweh₄o- [*sweh₄de/o- ‘be tasty’] ‘pleasing (to the senses), tasty’
*(s)weh₄gh- (WC) ‘blow to hiss or buzz’
*sweih- ‘sweat’
*sweid-* ‘shine’
*(s)weig-* ‘deceive’
*sweékhr₄s [*swékuros ‘father-in-law’] ‘mother-in-law’
*swékuros ‘father-in-law’
*swékuros [*swékuros ‘father-in-law’] ‘wife’s brother’
*swel- (NW) ‘burn’
*swel- ~ *sel- (WC) ‘plank, board’
*sweltoyon- (WC) ‘wife’s sister’s husband’
*swelno- ‘rise’
*swel₄p- [*swel- ‘burn’] ‘burn, smoulder’
*swem- (NW) ‘swim’
*swe(n)g- ‘bend, swing’
*swe₄h- ‘(re)sound’
*sweep-* ‘sleep, dream’ (vb).
*sweep- ‘throw, sweep’
*swer- ‘post, rod’
*swer- ‘darken’
*(s)wer- ‘say, speak’
*swerbh- (NW) ‘turn, move in a twirling motion’
*swergh- ‘be ill’
*swerh₄,K- ‘watch over, be concerned about’
*sweroh- ‘(suppurating) wound’
*swe₄sör ‘sister’
<table>
<thead>
<tr>
<th>Proto-Indo-European</th>
<th>English Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>*swesr̩h,nos (NW)</td>
<td>*swēsər 'sister's son'</td>
</tr>
<tr>
<td>*swesr(i)yóns</td>
<td>*swēsər 'sisterly, sister's son'</td>
</tr>
<tr>
<td>*sẃi̯g/- (WC)</td>
<td>*swi̯g- 'be silent, hush'</td>
</tr>
<tr>
<td>*swónyeh,ό (WC)</td>
<td>*swónyeh,ό 'wife’s sister’, i.e., ‘sister-in-law’</td>
</tr>
<tr>
<td>*swómñhos (WC)</td>
<td>*swómñhos 'spongy'</td>
</tr>
<tr>
<td>*swópniyom</td>
<td>*swópniyom 'dream'</td>
</tr>
<tr>
<td>*swópnoṣ</td>
<td>*swópnoṣ 'sleep, dream’ (noun)</td>
</tr>
<tr>
<td>*sw̱(o)r̩-</td>
<td>*sw̱(o)r̩- 'shrew'</td>
</tr>
<tr>
<td>*sy̱ó(u)ros</td>
<td>*sy̱ó(u)ros 'wife’s brother'</td>
</tr>
<tr>
<td>*sy̱uhr̩-</td>
<td>*sy̱uhr̩- 'sew'</td>
</tr>
<tr>
<td>*taŋ- (WC)</td>
<td>*taŋ- 'touch’</td>
</tr>
<tr>
<td>*taŋ̀-</td>
<td>*taŋ̀- 'set in place, arrange’</td>
</tr>
<tr>
<td>*tagós *tāg- ‘arrange’</td>
<td>*tagós *tāg- ‘leader’</td>
</tr>
<tr>
<td>*tak̩- (NW)</td>
<td>*tak̩- 'be silent’</td>
</tr>
<tr>
<td>*tákoṣ</td>
<td>*tákoṣ 'yew’</td>
</tr>
<tr>
<td>*t-āt̩-</td>
<td>*t-āt̩- ‘father’</td>
</tr>
<tr>
<td>*tauros</td>
<td>*tauros 'aurochs; bull’</td>
</tr>
<tr>
<td>*tegus</td>
<td>*tegus 'thick, fat’</td>
</tr>
<tr>
<td>*t(e)h₂us̩- (NW/PIE?)</td>
<td>*t(e)h₂us̩- ‘quiet, silent’</td>
</tr>
<tr>
<td>*teh₂r̩-</td>
<td>*teh₂r̩- ‘to melt’</td>
</tr>
<tr>
<td>*teh₂li (WC)</td>
<td>*teh₂li ‘of that sort or size’</td>
</tr>
<tr>
<td>*téh₂mot̩s (WC)</td>
<td>*téh₂mot̩s ‘then, at that place’</td>
</tr>
<tr>
<td>*téh₂wot̩s</td>
<td>*téh₂wot̩s 'so many, so long’</td>
</tr>
<tr>
<td>*teigʷ- (WC)</td>
<td>*teigʷ- ‘± side’</td>
</tr>
<tr>
<td>*tek̩-</td>
<td>*tek̩- ‘bear or beget a child’</td>
</tr>
<tr>
<td>*tek̩-</td>
<td>*tek̩- ‘run, flow swiftly’</td>
</tr>
<tr>
<td>*tek̩nom [*tek̩- ‘bear a child’]</td>
<td>*tek̩nom ‘child, offspring’</td>
</tr>
<tr>
<td>*tek̩s̩-</td>
<td>*tek̩s̩- ‘fabricate’</td>
</tr>
<tr>
<td>*tek̩so/eh₂r̩- [*tek̩s̩- ‘fabricate’]</td>
<td>*tek̩so/eh₂r̩- ‘axe, adze’</td>
</tr>
<tr>
<td>*tek̩steh₂r̩- [*tek̩s̩- ‘fabricate’]</td>
<td>*tek̩steh₂r̩- ‘plate, bowl’</td>
</tr>
<tr>
<td>*tek̩s̩-(t)or/n- [*tek̩s̩- ‘fabricate’]</td>
<td>*tek̩s̩-(t)or/n- ‘one who fabricates’</td>
</tr>
<tr>
<td>*telh₂r̩-</td>
<td>*telh₂r̩- ‘lift, raise’</td>
</tr>
<tr>
<td>*telh₂r̩-</td>
<td>*telh₂r̩- ‘± pray’</td>
</tr>
<tr>
<td>*telh₂r̩-om</td>
<td>*telh₂r̩-om ‘floor (of planks)?’</td>
</tr>
<tr>
<td>*telk̩- (NW)</td>
<td>*telk̩- ‘push, thrust’</td>
</tr>
<tr>
<td>*telp̩-</td>
<td>*telp̩- ‘have room’</td>
</tr>
<tr>
<td>*tem̩-</td>
<td>*tem̩- ‘reach, attain’</td>
</tr>
<tr>
<td>*temh₂r̩-</td>
<td>*temh₂r̩- ‘be struck, be exhausted’</td>
</tr>
<tr>
<td>*temp̩- [*tem- ‘pull’]</td>
<td>*temp̩- ‘stretch’</td>
</tr>
<tr>
<td>*ten̩-</td>
<td>*ten̩- ‘pull, stretch’</td>
</tr>
<tr>
<td>*teng̩-</td>
<td>*teng̩- ‘think, feel’</td>
</tr>
<tr>
<td>*teng̩- (WC)</td>
<td>*teng̩- (WC) ‘to moisten, soak’</td>
</tr>
</tbody>
</table>
*tengh-
*teng(h)-
*tengh-s- (NW) [*ten- ‘pull’]
*ténégh- (WC)
*téng-
*ténk[-] [*tenk- ‘become firm’]
*tén-s- [*ten- ‘pull’]
*ténumus [*ten- ‘pull’]
*tép-
*ter-
*ter-
*terg"-
*terh₁-
*térrh₁trom ~ *térh₁dhrom (WC)
[térrh₁- ‘pierce’]
*terh₂-
*ter(i)- (WC) [*terh₁- ‘pierce’]
*TerK-
*terk(w)-
*termn- [*ter- ‘cross over’]
*terp-
*tértis [*terp- ‘satisfy oneself’]
*ters-
*teter-
*teu-
*teubh-
*teuhr-
*teus-
*teus-
*teutéh₁a- (WC/PIE?) [*teuh₁a- ‘swell’]
*tihₙn-
*tikeh₁- (GA)
*tkei- (GA)
*ték- (GA)
*tékitis (GA) [*tkei- ‘settle’]
*tkw-reh₂yot-
*todéh₁a
*tóksom (GA)
*tolko/eh₁w-
*tolkw"- (NW)
*tómhéh₁es-
*tór
*tóti (WC)
*trébs (WC)

‘be heavy, difficult’
‘pull’
‘pole’
‘shallow water?’
‘become firm, thicken; shrink’
‘buttermilk’
‘pull’
‘thin, long’
‘hot’
‘± speak out’
‘crossover’
‘scare’
‘pierce, pierce by rubbing’
‘auger’
‘bring across; overcome, through, above’
‘rub, turn’
‘release, allow’
‘twist’ (< ‘spin’)‘end, border; thread-end’
‘take (to oneself), satisfy oneself’
‘satisfaction’
‘dry’
‘gamebird’
‘look on with favour’
‘steal’
‘swell (with power), grow fat’
‘be happy’
‘to empty’
‘the people (?under arms)’
‘(be) dirty’
‘rule’
‘settle, dwell’
‘sstrike’
‘settlement’
‘clay’
‘then’
‘bow’
‘sacrifice, sacrificial meal’
‘speak’
‘dark’
‘there’
‘so much, many’
‘dwelling’
*treg-* 'gnaw'
*tregh- (NW) 'run'
*trem- ‘shake, tremble (in fear)’
*trep- ‘turn’
*tres- ‘tremble, shake with fear’
*treuh- (WC) ‘thrust, press’
*tren(h₃)- (WC) [‘terh₃- ‘pierce’] ‘rub away, wear away’
*tréyes ‘three’
*trih₄-tön (WC) ‘watery (one?)’
*trí̄-kōm(t₄) [‘thrust, press’] ‘thrust’
*tris- (WC) ‘+ vine’
*triyós [‘tréyes ‘three’] ‘third’
*tí̄nu- ‘thorn’
*tirosdos (NW/WC?) ‘thrust’
*trus- (WC) ‘reed, rush’
*(t)sel- ‘sneak up on, crawl up on’
*tuh₃-s-ków’tós (NW) [‘teuh₃- ‘swell’] ‘thirty’
*þek’tóm ‘hundred’
*tu̇h₃ thou
*tussék’yos [‘teus- ‘be empty’] ‘thousand’
*tweis- (GA) ‘thrice’
*twéks ‘skin’
*twer- ‘stir, agitate’
*twer- (WC) ‘take, hold’
*twerk- ‘cut off’
*twóh₃ ‘curds, curdled milk’
*twór’kos ‘boar’
*týyeg’- (GA) ‘give way, pull oneself back (in awe)’

*u*
*ud-* ‘upward, out (from under)’
*udero- [‘ud- ‘out’] ‘abdomen, stomach’
*udrós [‘wóðy ‘water’] ‘otter’
*ud’tero- [‘ud- ‘out’] ‘abdomen, stomach’
*uk₃(s)é̄n- ‘ox’
*ul- ‘± howl, hoot’
*ulu- [‘ul- ‘hoot’] ‘owl’
*usr- ‘aurochs’

*w*
*wadh- (NW) ‘wade’
*waγ- ‘split’
| *wágros (GA) [*wág- ‘split’] | ‘cudgel’ |
| *wai | ‘alas’ |
| *wailos (WC) [*wai ‘alas’] | ‘wolf’ |
| *wak-* | ‘be empty’ |
| *wal- | ‘be strong, rule’ |
| *wálos (WC/PIE?) | ‘stake’ |
| *wápós | ‘vapour, steam’ |
| *wē | ‘or’ |
| *wēben | ‘cutting weapon, knife’ |
| *webhel- ~ *wobhel- (NW) | ‘weevil, beetle’ |
| *wed-* | ‘raise one’s voice’ |
| *wedmo/ch₇₂- (WC) | ‘bride-price’ |
| *wedh- | ‘push, strike’ |
| *wédhris [*wedh- ‘push’] | ‘castrated’ |
| *weg-* | ‘plait, weave’ |
| *weg-* | ‘strong’ |
| *wegh- (*wegh-?) | ‘shake, set in motion’ |
| *wegh- | ‘bear, carry also ride’ |
| *weghnos [*wegh- ‘bear’] | ‘wagon’ |
| *weghyeh₇₂ (WC) [*wegh- ‘bear’] | ‘track, road’ |
| *weg”- (WC) | ‘wet’ |
| *weg”h- | ‘speak solemnly’ |
| *wehr- | ‘confidence, faithfulness’ |
| *wehr₁₂os (NW) [*wehr₁2- ‘confidence’] | ‘true’ |
| *wehr₁₂- (NW) | ‘cry, scream’ |
| *w(e)h₁₂stos (NW) | ‘empty’ |
| *wehr₁₂- (WC) | ‘(suppurating) wound’ |
| *wehr₄- | ‘body of water’ |
| *wehr₄- | ‘water’ |
| *wéi | ‘we’ |
| *weid-* | ‘see, know (as a fact)’ |
| *weig/- | ‘± turn, yield’ |
| *weih₁₂- | ‘plait, wattle’ |
| *weih₃₂- | ‘go after’ |
| *weih₅₂- | ‘be strong’ |
| *weih₅₂(e)s- [*weih₅₂- ‘be strong’] | ‘strength, vitality, vital force’ |
| *weik-* | ‘appear’ |
| *weik- | ‘consecrate’ |
| *weik- (NW) | ‘fight’ |
| *weip- ~ *weib- | ‘turn’ |
| *weip- (E) | ‘set in motion, agitate’ |
| *weis- | ‘twist, wind around’ |
| *weis- | ‘ooze out’ |
| *weis- | ‘stink’ |
*weit-  ‘willow’
*wek-  ‘wish, want’
*wek”-  ‘speak’
*wel-  ‘die’
*wel-  ‘grass’
*wel-  ‘see’
*wel-  ‘turn, wind, roll’
*wel-  ‘wish, want’
*wel- (WC)  ‘warm, heat’
*weld-  ‘crush, grind, wear out’
*welh-  ‘strike, tear at’
*weliko/ehₐ- (WC)  ‘willow’
*welk-  ‘wet’
*wels-  ‘bulge’
*wélsu [wel- ‘grass’]  ‘meadow, pasture’
*welutrom [wel- ‘turn’]  ‘case’
*wémhₐ mı  ‘spew, vomit’
*wên-  ‘strike, wound’
*wendh-  ‘wind, twist’
*wendh- [wendh- ‘wind’]  ‘(a single) hair’
*we/ondhso- [wendh- ‘wind’]  ‘facial hair’
*weng-  ‘bend’
*wenh₈-  ‘desire, strive to obtain’
*wenVst(r)-  ‘(ab)omasum’
*wer- (WC)  ‘find, take’
*wer-  ‘boil, cook’
*wer-  ‘crow’
*wer-  ‘perceive, give attention to’
*wer-  ‘surround, cover, contain’
*wer-  ‘burn’
*werb(h)- [wer- ‘perceive’]  ‘oversee, protect’
*weg-  ‘shave, shear’
*werg-  ‘work’
*wérh₉,us  ‘broad, wide’
*werno/ehₐ-  ‘alder’
*wers-  ‘thresh’
*wers-  ‘peak’
*wersên  ‘male’
*wert-  ‘turn’
*werwer-  ‘squirrel’
*wes-  ‘crush, grind, pound, wear out; wither’
*wes-  ‘graze’
*wes-  ‘buy’
*wes-  ‘be dressed, dress’
*wesno- [wes- ‘buy’]  ‘purchase’
*wésperos ~ *wékeros (WC)  ‘evening’
*wést-  ‘spring’
*wéstor- [wes- ‘graze’]  ‘herdsman’
*we-su-  ‘excellent, noble’
*we-t-  ‘year’
*we-t-  ‘see (truly)’
*wételos [wet- ‘year’]  ‘yearling’
*wi-  ‘apart, in two, asunder’
*widh- [perhaps *wi- ‘apart’ + *dhehr ‘put’]  ‘separate, put asunder’
*widhe wéhr- [widh- ‘to be separated’]  ‘widow’
*widhu (NW) [widh- ‘to be separated’]  ‘tree, forest’
*wihr, rós [wehr,s- ‘be strong’]  ‘man, husband’
*wikso- (WC)  ‘grapevine’
*wiktrimti, [dwi- ‘bi’ + dék (t) ‘ten’]  ‘mistletoe’
*wikpots [wiks- ‘extended family’ + póth ‘husband’]  ‘twenty’
*wiks  ‘master of the clan’
*wiks  ‘(social unit of) settlement’, extended family, clan’
*wik(n)g-  ‘elm’
*wis- /g(h)ombros (NW)  ‘bison’
*wiss  ‘poison’
*witteros [wi- ‘apart’]  ‘far’
*wíleñ,  ‘wool’
*wikanos  ‘smith god’
*wikwós  ‘dangerous’
*wikwós  ‘wolf’
*wikwós  ‘she-wolf’
*wikwos  ‘dangerous’
*wíp-  ‘(red) fox’
*wid’i-  ‘bladder’
*wínañkts  ‘leader, lord’
*wídr  ‘water’
*wog/hnis (WC)  ‘ploughshare’
*wóh  ‘you two’
*wóinom (PIE?) [wehr(h,s)- ‘plait’]  ‘wine’
*wokho  ‘cow’
*wok’s- [wek- ‘speak’]  ‘voice’
*wolno/eho  ‘(bloody) wound’
*wólos  ‘tail hair (of a horse)’
*wólswom (GA) [wels- ‘bulge’]  ‘gums’
*wórghs  ‘chain, row, series’
*worh, d-i/o- (WC) [worh, do- ‘wart’]  ‘frog’
*worh,do- 'wart'
*worh,dlhus 'upright, high'
*wort(h₁)gs 'nourishment, strength'
*worPo- 'enclosure'
*wortok"- (GA) 'quail'
*worwos (WC) 'furrow'
*was(h₁)-ko- (NW) 'wax'
*wośpo/eh₆- [*wes- 'be dressed'] 'garment'
*wösu 'goods'
*wöö- (NW) [*wet- see truly'] 'poet, seer'
*wööts [ *wet- 'see truly'] 'god-inspired'
*wb₅- (WC) 'branch, sprig, twig'
*wreth- 'grow, stand, take shape'
*wreg- 'track, hunt, follow'
*wreg- (NW) 'press, oppress'
*wrehtg- (WC) 'break, tear to pieces'
*wrehtgh₆- (WC) 'thorn'
*(w)rep- 'turn, incline'
*wrêtos 'flock, herd'
*wrehten 'lamb'
*wrh₆d- (WC) 'root; branch'
*wrh₆os 'pimple'
*wrio/eh₆- 'fort'
*wümis (WC) 'worm, insect'
*wto/eh₆- [*wer- 'surround'] 'enclosure'

*y 'honour, worship'
*yaɡ- (GA) '± cure, make well'
*yak(k)- (WC) 'now, already'
*(y)ebh- 'elephant'
*yèbh/o- 'enter, penetrate, copulate'
*yeg- 'ice, icicle'
*yeh₁- 'do, make; act vigorously'
*yeh₆- (WC) 'throw'
*yeh₉g"eh₄- (WC) 'power, youthful vigour'
*yèhs₅- 'gird'
*yeh₆- 'go, travel'
*yeh₆- (E) 'ask for, beg'
*yèh₅wat(s) (GA) 'as many, as long'
*yek- '± express, avow'
*yek"t(t) 'liver'
*yem- (E) 'hold'
*yemos 'twin'
*yes- 'boil'
*yet-*  'put in the right place'
*yeu-*  'bind, join together'
*yeudh-*  'moved, stirred up; fight'
*yeudhmós [*yeudh-* ‘fight’]  ‘fighter’
*yeug- [*yeu-* ‘bind’]  'joins, harnesses'
*yeuğ-*  'stir up, incite; be unquiet'
*yeuh₃-*  'mix something moist'
*yéw(e)s-*  'order, law'
*yéw(e)s-*  'grain'
*_yo_  'and'
*yoinis (NW)  'reed, rush'
*yóku  '(animal) body hair'
*yórks (WC)  'roedeer'
*yósi/*yéh₃/*yöd  'who, what, that'
*yoteros (GA)  'which of the two'
*yötti (GA)  'as much, as many'
*yu- (WC)  ‘± shout (for joy)’
*yugóm [*yeu-* ‘bind’]  'yoke'
*yuh₃,r- (WC)  'water'
*yuh₃,s ~ *uswe ~ *swé  'ye’
*yüh₃,s- [*yeuh₃- ‘mix’]  'broth’
Appendix 3
An English to Proto-Indo-European Wordlist

ABDOMEN
ABLE (BE PHYSICALLY)
(AB)OMASUM
ABOUT
ABOVE
ABUNDANT
ACCEPT
ACCOMPLISH
ACCUSTOMED
ACID
ACORN
ACQUAINTED WITH
ACROSS
ACT HYPOCRITICALLY
ACT VIGOROUSLY
ADDITION (IN)
ADHERE
ADJACENT
ADVANCE
ADZE
AFFLICT
AFFLICTION
AFRAID
AFTER
AGAINST
AGE
AGE OF VIGOUR
AGITATE
AGITATED
AHEAD
AIM
ALAS
ALCOVE
ALDER

*udero-, *ud’e-ro-
*magh-, NW *gal-
*wenVs(r)-
*per
*terh₂-
*bhēnghus, NW/PIE? *menegh-
*dek-, *nem-
*sen(h₁)-, NW *kob-
*h₁euk-
NW *su₃-ros
*₃el₃-
*ɡneh₃-
*terh₂-
NW *leud-
*yeh₁-
*h₁etί
*leip-
WC *pos
*seh₄()-
*h₄edhés-, *tekso/eh₃-
*h₄ei-, *seh₄-
*h₄ēghle₃-
*bhībhōḥ₃-e, WC *h₁egh-
*posti

*gerh₃-
*h₄ōyus
*twer-, E *weip-
*sret-
*pro
WC *del-
*cheu, wai
*gubho/eh₃-
*h₄eliso-, *werno/eh₃-, WC *kleh₃dhreh₃-
ALIVE
ALLOW
ALONE
ALONG
ALREADY
AMASS
AMONG
AND
ANGELICA
ANGER
ANGRY
ANIMAL
ANIMAL (LARGE DOMESTIC)
ANIMAL (SMALL)
ANIMAL (WILD)
ANOINT (WITH SALVE), (BE)SMEAR
(AN)OTHER
ANT
ANUS
ANY
APART
APPEAR
APPLE
APPORTION
APPORTION (ER)
ARCH
ARGUE
ARM
ARMY
AROUND
ARRANGE
ARROW
AS
ASH
ASH (TREE)
ASK FOR
ASLANT
ASPEN
ASS
ASSAIL
ASSERT
AT
AT ONE TIME
<table>
<thead>
<tr>
<th>Word</th>
<th>Proto-Indo-European Form</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attach</td>
<td>*h₂ér(h₃)-</td>
<td>NW *h₂wer-</td>
</tr>
<tr>
<td>Attain</td>
<td>*h₂enék-</td>
<td>*tem-</td>
</tr>
<tr>
<td>Attempt</td>
<td>WC *per-</td>
<td></td>
</tr>
<tr>
<td>Attention (Pay)</td>
<td>*bheidh-</td>
<td>*wer-</td>
</tr>
<tr>
<td>Auger</td>
<td>WC *térh₁trom ~ *térh₁dhrom</td>
<td></td>
</tr>
<tr>
<td>Aurochs</td>
<td>*tauros, *usr-</td>
<td></td>
</tr>
<tr>
<td>Autumn</td>
<td>*h₁esen-</td>
<td></td>
</tr>
<tr>
<td>Avow</td>
<td>*yek-</td>
<td></td>
</tr>
<tr>
<td>Awake</td>
<td>*h₁ger-</td>
<td></td>
</tr>
<tr>
<td>Away</td>
<td>*h₄eu, *h₄et, *pro, NW *dē</td>
<td></td>
</tr>
<tr>
<td>awl</td>
<td>*h₃óleh₉-</td>
<td></td>
</tr>
<tr>
<td>AWN</td>
<td>*h₃ekst₁-</td>
<td></td>
</tr>
<tr>
<td>Axe</td>
<td>*h₄edh₁és-, *pelek₉us, *tek₉-so/eh₉-, NW</td>
<td>*sekūr-, WC *h₉egwisy(e)₉₉-</td>
</tr>
<tr>
<td>Axele</td>
<td>*h₉eks-</td>
<td></td>
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<tr>
<td>Babble</td>
<td>*baba-, *lal-</td>
<td></td>
</tr>
<tr>
<td>Back</td>
<td>*h₄epér-, *h₄épo</td>
<td></td>
</tr>
<tr>
<td>Back (Side)</td>
<td>*kūh₁₂los</td>
<td></td>
</tr>
<tr>
<td>Bad</td>
<td>*dus-, *h₃ligos, *melo-</td>
<td></td>
</tr>
<tr>
<td>Badger</td>
<td>NW *meli-</td>
<td></td>
</tr>
<tr>
<td>Bag</td>
<td>*bhōlg₁his-</td>
<td></td>
</tr>
<tr>
<td>Bake</td>
<td>*pekʷ-, WC *bhōg-</td>
<td></td>
</tr>
<tr>
<td>Bald</td>
<td>*kl₃w₁os, NW/WC? *gol(h₃)wos</td>
<td></td>
</tr>
<tr>
<td>Bar</td>
<td>WC *kleh₁w₁s</td>
<td></td>
</tr>
<tr>
<td>Bare</td>
<td>*ne/ogʷnos, NW/WC? *gol(h₃)wos, WC *bhōsós</td>
<td></td>
</tr>
<tr>
<td>Bark (Dog)</td>
<td>*leh₁₉-, NW *bherég-, WC *baub-</td>
<td></td>
</tr>
<tr>
<td>Bark (Tree)</td>
<td>WC *lōubho/eh₉₁-</td>
<td></td>
</tr>
<tr>
<td>Barley</td>
<td>*ghrésd₁ht₁(i), *h₃élbhit, *meig(h₁)-, NW *bhar₁es-, WC /PIE? *h₂ed₁-, WC *bhārs</td>
<td></td>
</tr>
<tr>
<td>Barren</td>
<td>*ster-</td>
<td></td>
</tr>
<tr>
<td>Barter</td>
<td>*per-</td>
<td></td>
</tr>
<tr>
<td>Basin</td>
<td>WC *louh₁trom</td>
<td></td>
</tr>
<tr>
<td>Basket</td>
<td>NW *kreb₁-, NW *kʷas₂-</td>
<td></td>
</tr>
<tr>
<td>Bast</td>
<td>WC *lōp₁-, WC *lōubho/eh₉₁-</td>
<td></td>
</tr>
<tr>
<td>Bathe</td>
<td>WC *leuh₁₁-</td>
<td></td>
</tr>
<tr>
<td>Be</td>
<td>*bheu(h₃)-, *h₁es₁-</td>
<td></td>
</tr>
<tr>
<td>Beam</td>
<td>*kred₁-, WC *bhēlḥ₁₂gs</td>
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<tr>
<td>Bean</td>
<td>WC *bhābhēh₁₂₁-, WC *bhak₁o/eh₉₁-</td>
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<tr>
<td>Bear (A Child)</td>
<td>*bhēr₁₂-e/₁-, *s₁e(h₁₂)-, *tek₁-</td>
<td>WC *pel₁₁-</td>
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<tr>
<td>Bear (Animal)</td>
<td>*h₂t₁k₁os</td>
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<tr>
<td>Bear (Verb)</td>
<td>*bhēr₁₂-e/₁-, *wegh₁₁-</td>
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<td>Beard</td>
<td>*smōkw₁₁, NW *bhardheh₁₂₁-</td>
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<tr>
<td>Beat</td>
<td>NW *bheid₁-</td>
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<tr>
<td>Word</td>
<td>Translation</td>
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<td>Beat the weft with a stick</td>
<td>WC *krek-</td>
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<tr>
<td>Beautiful</td>
<td>GA *kal-</td>
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<tr>
<td>Beaver</td>
<td>*bhebhrs</td>
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<tr>
<td>Bed</td>
<td>*lêghes-, *ster(h₃)mŋ</td>
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<td>Bee</td>
<td>NW *bhik”ó-, C *meliti₃a-</td>
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<td>Beech</td>
<td>WC *bheh₃gös</td>
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<td>Beer</td>
<td>*hₑelut-</td>
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<td>Beetle</td>
<td>NW <em>webhel-~</em>wobhel-</td>
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<tr>
<td>Before</td>
<td>*prh₃éh₁, *prh₃éi</td>
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<td>Beg</td>
<td>E *yeh₃</td>
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<td>Beget a child</td>
<td>*geh₁-, *tek-</td>
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<tr>
<td>Begin</td>
<td>*neik-</td>
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<tr>
<td>Behind</td>
<td>*h₄epér-, *h₄épo-, *po-sk”₃o-, WC <em>gho-, WC</em>pos</td>
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<td>Being (Come into)</td>
<td>*bheu(h₃)-</td>
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<td>Belch</td>
<td>*h₁reug-</td>
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<td>Believe</td>
<td>*h₂₂eh₃-, *kred-dheh₁-</td>
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<td>Belt</td>
<td>NW *kerd-</td>
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<td>Bend</td>
<td>*bheidh-, *bheug-, *bhedh-, *h₂enk-, *kamer-, *kleng-, *leng-, *lenk-, *nem-, *weng-, *swe(n)g-, WC *leug-</td>
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<td>Bend (Of terrain)</td>
<td>WC *kam-p</td>
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<td>Benefit</td>
<td>NW *lau-</td>
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<td>Bent</td>
<td>*h₂₂onkos, *lei-</td>
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<td>Berry</td>
<td>*h₄ogeh₃-, NW *dhreghes-, WC *h₁oïwo/eh₃-, WC *sre/oh_ggs</td>
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<td>Bestow</td>
<td>*h₂₂enk-</td>
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<td>Bestowed</td>
<td>*h₂₂onkos</td>
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<tr>
<td>Between</td>
<td>*h₁entér</td>
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<tr>
<td>Beyond</td>
<td>*h₄et, NW *h₄elnos</td>
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<tr>
<td>Bi-</td>
<td>*dwi-</td>
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<tr>
<td>Bind</td>
<td>*bhendh-, *deh₁-, *dhergh-, *kergh-, *yeu-, WC *mer-</td>
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<td>Birch</td>
<td>*bherh₂gös</td>
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<td>Bird</td>
<td>*hₑwei-, *pipp-</td>
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<td>Bird (Type of)</td>
<td>*(s)p(e)iko/eh₁-, *teter-</td>
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<td>Bird of prey</td>
<td>GA *kyeino-, C <em>ghy-~</em>gyei-</td>
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<td>Bison</td>
<td>NW *wis-/*gie(h)ombhros</td>
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<td>Bite</td>
<td>*denk-</td>
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<td>Bitter</td>
<td>*h₂en-, *h₂en-ro-s</td>
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<td>Black</td>
<td>*k₃sños-, *mel-n-, NW *keir-</td>
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<td>Blackberry</td>
<td>*morom</td>
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<tr>
<td>Blackbird</td>
<td>NW *h₄emesl-, WC *kopso-</td>
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<td>527</td>
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| BLADDER | *wpd’ti- |
| BLAME    | *h₁ lengh- |
| BLEAT    | NW *bhleh₁- |
| BLIND    | *h₁ endhos |
| BLOOD    | *h₁ ésh₂, *kréuhₐ |
| BLOOM    | *bhel- |
| BLOSSOM  | *bhel- |
| BLOW     | *bhel-, *bhes-, *h₂ wehr₁-, *peis-, *per-, *p(h)eu-, *swei-, *wet- |
| BLUE     | *ké- ~ *k₁- was, modheros |
| BOAR     | *twerkòs, NW/ WC ? *h₁ eperos |
| BOARD    | NW *skéits, WC *swel- ~ *sel- |
| BOAT     | *néh₂us, *(s)kolmos |
| BODY     | *kréps |
| BOIL     | *seu-, *sret-, *yes-, WC *bhreu- |
| BOLD     | *dhrs- |
| BOLSTER  | *bhólghis- |
| BOLT     | WC *klehₐwis |
| BONE     | *h₂ ost |
| BOOTY    | *soru |
| BORDER   | *h₄ erh₂os, *morg-, * térmy |
| BORN     | * génh₁- |
| BOTTOM   | *bhōu |
| BOW      | NW *h₃ érkwos, GA *tòksom |
| BOWL     | *kumbo/eh₂- |
| BOWSTRING| GA *g” (iy)éhₐ |
| Braid    | *plek-, WC *mer- |
| Brain    | *mosghos, WC *mréghmen-, E *mösty |
| Bran     | WC *k” et- |
| Branch   | *h₂ osdos, *h₄ loğ-, *kank-, *kóh₁ kóh₂, NW |
|          | *gabhlo/ch₁- , WC *gol-, WC *gwësdos, WC |
|          | *w₁b-, WC *wr(h₃) d- |
| Brave    | *dhrs- |
| BREAK    | *bheg-, *bhreu-, * leuğ-, * reup-, NW *bhreg- |
|          | WC *bhreus-, WC *h₃ lem-, WC *plek-, WC |
|          | *wre h₁g |
| Breast   | *dhh₁ ilehₐ-, *h₁ iouh₁ dl₃-, *pap-, *pérkus, |
|          | *pstinós- |
| Breath   | *h₁ ehr₁tmên-, *h₁ énh₁ mos |
| Breathe  | *dhwes-, *h₁ énh₁, *h₁ énh₃ mi, *kwesh₁- |
| BREATHE ONE’S LAST | WC *dheu- |
| BREW     | WC *bhreu- |
| BRIDE-PRICE | WC *wedno/ehₐ- |
**BRIGHT**
*dei-, *ghers-, *leukós, *(s)koitrós, WC *g’haidróς, C *h_eug-

**BRING ACROSS**
*terh₂-

**BRING FORTH**
*per-

**BRISTLE**
*ghers -, *h₂ekstí-, NW *ker(es)-

**BROAD**
*pleτ-, *plth₂ur-, *wérh₂us

**BROTH**
*korm-, *yúh₂-

**BROTHER**
*bhréh₃,ter-

**BROTHERHOOD**
*bhréh₃,riyom

**BROTHER’S WIFE**
*snusós

**BROWN**
*bher-, *h₁el-, NW *badyos

**BRUSH(WOOD)**
NW *k₁ rénos

**BUBBLE**
*bher-

**BUCK**
*bhugós

**BUILD**
*dem(h₁a)-, *dheigh-, *k₁eir-, *k₁er-

**BULGE**
*wels-

**BULL**
*domh₂yos, *tauros

**BUNDLE**
NW *(s)keup-

**BURDEN**
*h₁onh₂es-

**BURN**
*bhleg-, *deh₂u-, *dheg"h-, *gwelh₁-, *h₁eus-, *h₂ehx-, *h₁elh₂-, *h₁eidh-, *h₁el-, *kenk-, *keh₂u-, *keuk-, *k₁eh₁-, *preu-, *swel-, *wer-, NW *ker-, NW *swel-

**BURROW**
*bhedh-

**BUTTER**
WC *h₂éng"ŋ

**BUTTERFLY**
NW *pelpel-

**BUTTERMILK**
*tenkl

**BUTTOCK**
GA *ğmgheño/ehₐ-

**BUY**
*wes-

**CABBAGE**
*kaulós

**CACKLE**
WC *gag-

**CALL**
*gal-, *gár-, *ğheu(h₂)-, *kelh₁-

**CALLOSITY**
*k₁nos

**CANOE**
*h₁oldhu-

**CAPTIVE**
NW *kaptos

**CARP**
*kóph₂elos

**CARROT**
WC *mek-

**CARRY**
*bher-, *wegh-

**CARVE**
*del-, *kerd-

**CASE**
*welutrom

**CASTRATED**
*wédhris

**CAT**
NW *kat-
# AN ENGLISH—PROTO-INDO-EUROPEAN WORDLIST

<table>
<thead>
<tr>
<th>Word</th>
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<tr>
<td>CATCH</td>
<td>WC <em>kagh-</em></td>
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<tr>
<td>CAULDRON</td>
<td>*kʷerus</td>
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<td>CAVE</td>
<td>GA *káiwr(t)</td>
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<td>CAVITY</td>
<td>*h₂elwos , *h₂éryos</td>
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<td>CAW</td>
<td>*ker-</td>
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<td>CEDAR</td>
<td>WC *h₁elew-</td>
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<td>CHAFF</td>
<td>*pelo/ch₂-, WC *kʷet-</td>
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<td>CHAIN</td>
<td>*vórghs</td>
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<td>CHARACTERISTIC</td>
<td>*s(w)cdh-</td>
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<td>CHARCOAL</td>
<td>*h₃ongl₁, NW *perk-</td>
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<td>CHARM</td>
<td>*meng-</td>
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<td>CHEAT</td>
<td>NW *meug-</td>
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<td>CHERRY</td>
<td>WC *krnom</td>
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<td>CHEW</td>
<td>*gyeuḥ₃-, WC *mandh - or *mant-</td>
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<td>CHICKPEA</td>
<td>WC *kikér-</td>
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<td>CHILD</td>
<td>*teknom</td>
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<td>CHIN</td>
<td>*men, *smek-, *smókw₇</td>
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<td>CIRCLE</td>
<td>*ānos, *h₃érhbis, *serk-</td>
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<td>CLAN</td>
<td>*wik-</td>
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<td>CLAY</td>
<td>*m₁dh₂o/eh₄-, *tkʷreḥ₁yot-, WC *gloiwos</td>
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<td>CLEAN</td>
<td>*peuh₃-, WC *kleu-</td>
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<td>*leukós, *(s)koitrós</td>
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<td>CLIFF</td>
<td>*pel(i)s-</td>
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<td>CLOAK</td>
<td>*drap- ~ *drop-, NW *ruk-, WC *baitéh₃-</td>
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<td>CLOSE THE EYES</td>
<td>*meigh- ~ *meik-</td>
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<td>CLOTH</td>
<td>*los-, *(p)(e)₂h₂no/eh₃-, WC *bh₂pᵢw-,</td>
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<td>*lōp-</td>
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<td>*drap- ~ *drop-, *wospo/eh₄-, WC *kéntr/n-</td>
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<td>CLOUD(Y)</td>
<td>*nēbh₂-, *sneudh-, NW *bhlendh-</td>
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<td>CLUB</td>
<td>NW *lorgeh₄-, WC *bak-, GA *wágros</td>
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<td>COAL</td>
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<td>COLD</td>
<td>*kelto-, *(kʷ)rustēn, NW *gel-, WC *h₃eug-, WC *srōges-</td>
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<td>COLOUR (DEEP INTENSE SHADE)</td>
<td>*kyeuh₁-</td>
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<td>COMB</td>
<td>*kars-, *kes-</td>
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<td>COMBAT</td>
<td>NW *nant-</td>
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<td>COME</td>
<td>*(gʷ)ch₃-, *(gʷ)em-</td>
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<td>COMMIT A CRIME</td>
<td>NW/PIE? *h₂₂₃wergh-</td>
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<td>COMMOTION (BE IN)</td>
<td>*dheu(h₃)-</td>
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<td>COMPANION</td>
<td>*sōk- &quot;h₂-ōi, NW *dthroughös, GA *h₂épis</td>
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<td>COMPEL</td>
<td>WC *bheidh-</td>
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COMPENSATION *k"oîneh₂ₕ-
COMPLAIN WC *lêh₉-
COMPLETE *serk-
COMPRESS NW *greut-, WC *gen-
COMPUTE WC *del-
CONCEAL WC * kel-
CONCERN * kel₉.des-, *(s)mer-, *swer₉.K-
CONCUBINE *parikeh₉-
CONFIDE WC * bheidh-
CONFIDENCE * weh₁r-
CONGEALED MOISTURE NW * senh₉.dhr-
CONFIR WC * segh-
CONSECRATE *weik-
CONSIDER *men-
CONSTRAIN *h₂emgh-
CONTAIN *h₂em-, *wer-
CONTAINER *pêl(h₁)ewis
CONTEND *h₃enh₂-, *mel-, *reus-
COOK WC * bhel-
COOT WC * bhel-
COPPER *h₁roudhōs, *h₉ey-es-
COPULATE (< Early PIE 'enter') *yèbhe/o-
CORNER WC * kan-t(h)₀-
CORPSE *nêh₉wis
COUCH *lêghes-
COUGH *k"eₜh₂₀s-
COUNT (OUT) WC *h₉.rei(h₃)-
COUNTRY *pₙth₂whi₉-
COVER *h₁eu-, *h₁rebh-, *kem-, *(s)keu(h₃)-, *wer-, WC/PIE? *(s)teg-, WC * kel-, GA * dhwenh₂-
COW WC * g"ōus, *h₁eɡh-, *wokōeh₉, WC * loh₃po-
COWHERD WC * g"ou-k"olos
CRAB *karkr(o)-
CRACK *gerg-
CRACKLE *(s)pₙh₆₈g-
CRAFT WC * kér dos
CRAFTSMAN WC * dhabhros
CRANE *ger-
CRAWL *serp-, *(t)el-, NW * rēp-
CRAYFISH *kmh₉ros
CREAM * rēughmen-
CREATURES *h₂₉wēdr
CROOKED  *(s)keng-, WC *(lerd-, WC *lord(šk)os, WC *(s)kel-
CROSS-EYED  NW/PIE? *(ká)tkos
CROSSOVER  *ter-
CROW  *kVr-C -, *wer-
CROWD  WC *(ger-
CROWN OF THE HEAD  *
CRUSH  *mer-, *(p)is-, *(s)tergy-, *weld-, *wes-
CRY  *glaγh-, *γar-, *gher-, *kau(k)-, *keuk-,
*Creu-, *neu-, *wed-, NW *s(trep-,
NW *weh,h-, WC *ghel-, WC *leh, WC *(s)weh,a-
CUCKOO  *kukū
CUP  *kVlVḵ-, *poh2tlom
CURDS  *
CURE  *med-, WC *bher-, WC *yak(k)-
CURSE  *h,era-
CURVE  *geu-~*geh,a-, *keu(h,)-, *keu-k-,
WC *(s)kamb-
CURVED  NW *(p)andos
CUSTOM  *(w)edh-
CUT  *bher-, *bhresh,i-, *bhreu-, *(deh,)-,
*del-, *kerd-, *(k)es-, *(k`er-, *put-, *sek-,
*skeh,1-,(d)-, *(s)kel-, *(s)ker-, *
*twerk-, WC *gleubh -, WC *(s)greb-
CUT HAIR  *koik-
CUTTING WEAPON  *
wēben

DAMP  *
DANGEROUS  *
w,l`w`-ös
DARK  *
dh(ono)gu-, *tómh,es-, WC *
*(h,a)mauros, WC *(h,a)merh,g`-
DARKEN  *
DARKNESS  *
DAUGHTER  *
DAWN  *h,éusös
Dawns  *
*heγ(1)-us-sketi
DAY  *
*D(ein)-, *dye(u)-, *h,éγh-, C *h,ez,mer-
DEAD  *
m,tos-, *nékus
DEAF  *
*bhoodh,rös
DEAR  *
*h,leh,a-, *leh,a-
DEATH  *
m`oros, *m’tis, *m`tóm, *neks, *nékus
DEBT  NW *
DECAY  *ker-
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DRAW (LIQUIDS) *h2en−, *h2eu(h3)s−, WC *sem−
DRAW (SPIN) *(s)pen−
DRAW TOGETHER, BE THICK *bhengh−
DREAM *sweep−, *swópniyom, *swópnos, C *h3énγ
DREGS WC *dhydrogh−
DRESS(ED) *wes−
DRINK *h1eg”hmi
DRIP WC *leg−, WC *stag−
DRIVE *h1eg−, *kel−, NW *dhreibh−
DRIZZLE *h3neigh−, WC *mregh−
DRONE (< BUZZ) WC *dhren−
DRONE (BEE) WC *kmh.d-p−h3−
DUMB *mū−
DUNG *kōk−γ, *sōk−γ, NW *dher−, WC *kuh−dōs
DUST *pē(n)n−
DwELL *h2wes−, GA *tkēi−
DWELLING *h2wöstu, *kus−, NW *solo/ch3− ~ *selo−, WC *tṛēbs
DYE GA *reg−

EAGLE *h3or−
EAR *h1ous−
EARLY *h1eyer−, *pré−
EAR OF GRAIN *h1ékēs−
EARTH *dhēghōm, WC *h1er−
EAST *h1eust(e)ro−
EAT *gras−, *gēP−, *h1édmi, *h3eu−
EEL WC *h3Vnghel−
EGG *h1endrōs, *h1ō(w)i−om
EIGHT *h1ōktō(u)
EIGHTH *h1ōkto−wōs
ELBOW *h3elVn−, WC *h3elek−
ELEPHANT ??(y)ebh−
ELF *h4(e)bbh−
ELK/AMERICAN MOOSE *h1ōlkiś, NW *h1elh3niha−
ELM *pṭeleyeh3−, *wī(n)g−, NW *h1élem
EMPTY *h1ea(h4)−, *teus−, *tusskysos, *wak−, NW *w(e)h3sitos, C *kēnōs
ENCLOSE *ghrebh−
ENCLOSURE *ghórδhos, *mand−, *worPo−, *wrto/eh3−, NW *kagh−
FIT (SUIT)  NW *kob-
FITTING  *h₄ér tus
FIVE  *pënkwₑ
FIXED  *sthₑl-
FLANK  *poksós
FLAT  *plehₑk-
FLAX  WC *linom
FLAY  *der-
FLEA  *plus-
FLEE  WC *bheug-
FLEECE  *moisós, *rēum-
FLOAT  *pleu-
FLOCK  *wrētos
FLOOR  *tel₃om, WC *dmϕpedom
FLOW  *dhen-, *g₉el(s)_, *h₁ers-, *h₄el-, *leh₂-,
       *sreu-, *tek-, WC *del-, WC *ser-, GA
       *dhgʷher-
FLOWER  *h₂ēndhes-, NW *bhloh₄dho-
FLOWING (IN RIVER NAMES)  WC *sreu-men-
FLY (INSECT)  WC *mus/₉ₑ
FLY (VERB)  *dih₁-, *pet-, GA *peth₃-
FOAM  *spohᵢno/eh₁u
FOLD  *pel-
FOLLOW  *sekʷ₃-, *wreg-
FOSSIL  *sökʷ₃-h₂-oï
FOLLOWING  *sekʷ₃₀-, WC *pos
FOOD  *h₁εdonom
FOOT  *pōds, *leh₄peh₁u-
FOOTPRINT  *pedom
FOREARM  *bh₃ăghus, *h₃clV₁n-, WC *h₃elek-
FOREHEAD  *bhōlom-, *h₃ent-
FORELEG  *bh₃ăghus
FOREST  *g₉orh₁ₑ, NW *widhu
FORGET  *mer-, *mers-
FORK  NW *ghabhlo/eh₁ᵩ-
FORT  *dhǐghs, *peln₁ᵩ, *wriyo/eh₁ᵩ₄, NW *dḥūnos,
       WC *bherg-
       *pro
FOUL  WC *g₉εidh-
FOUR  *k₉etwōres
FOURTH  *k₉turyós ~ *k₉etwor-tos
FOX  *w(lo)p-
FRAMEWORK  *k₉red-
FREEZE  *preus-, NW *gel-
FRESH  
FRIENDLY  
FRIGHTEN  
FROG  
FROGSPAWN  
FRONT  
FROST  
FRUIT  
FULL  
FURROW  
GALL  
GAMEBIRD  
GAP  
GAPE  
GARDEN  
GARLIC  
GATE  
GATHER  
GENERATION MARKER (FOURTH)  
GENERATION MARKER (THIRD)  
GIFT  
GIRD  
GIVE  
GIVE WAY  
GLANCE AT  
GLAND  
GLEAN  
GLIDE  
GLITTER  
GLOW  
GLUE  
GNAT  
GNAW  
GO
GOAT  *bhugos, *diks, *h1er, *h4el-, *h1egos,  
*egs, *kapros, *(s)uegos, NW  
*ghaidos, WC *koghelo-

GOD  *deivos, *dhêhs, *h2eñosus

GOD-INSPIRED  *wôtis

GOD OF WAR  ??*mawor-

GOLD  *h1eousom

GOOD  *h1(e)su-, *mel-, *su-, NW *meh(t)-

GOODS  *h2ô/ep(e)n-, *wôsu

GOOSE  *ghan-s

GORE  *krêuh-

GRAIN  *dhr,weh-, *dhoheh-, *grhnom,  
*h2/4(e)lgh-, *mghl-, *prôksom, *ses(y)-ô-,  
yew(e)s, NW *pitus, WC/PIE? *h2ed-, WC  
*melh-

GRANDDAUGHTER  *neptih-

GRANDFATHER  *h2euhos, *suh,sos, NW *h2eu-

GRANDMOTHER  *h2en-, NW *seno-meh, WC *h2euh-

GRANDSON  *nêpôts

GRANDSON OF WATERS  *neptinos ~ *h2epôm nepôts

GRAPEVINE  *wijhèn

GRASP  *ghrebh-, *h1ep-, NW *ghreib-, WC *dergh-,  
WC *kagh-, GA *h1emh-

GRASS  *wel-, WC *köino-

GRAZE  *gras-, *pel-, *wes-

GREASE  *sélpes-, *smérw-

GREAT  *megh-

GREEDY  *las-

GREEN  *ker- ~ *kr-wos, *kyeh-1, *modheros

GREENS (EDIBLE)  *kehkom

GREY  *kas-, *pel-, *pl-

GRIEF  *h1ènghes-, *(p)kôrmos

GRIEVE  *leug-

GRIND  *h1el-, *melh-, *peis-, *weld-, *wes-, WC  
*ghrendh-

GRIP  NW *ghreib-

GROAN  *kwesh-, *(s)tenh-, WC *ghromos

GROUND (ON[TO] THE)  *dhge(e)m-en

GROVE  WC *nêmos-

GROW  *bhêu(h)-, *grêu-, *h1leudh-, *h1egu-,  
*h1wokseye-ô-, *ker-, *meh(t)-,  
*wredh-, WC *h1el-

GROWL  NW *bhereg-, WC *sner-
AN ENGLISH—PROTO-INDO-EUROPEAN WORDLIST

grunt
guard
guest
gullet
gulp
gums

WC *g(h)ru(n)(d)*peh2NW *ghostis
*gutr
8, WC *bherug*srebh8, GA *wólswom
NW *ghéha(u)-mr

hail
hair

*ghel(h
82)d-, WC *grōdo-, WC *kaghlos
*dek̂-, *dhrigh-, *gówr
8, *ghait(so)-,
*k̂ripo-, *pou-m-s-, *pilos, *pulos,
*wendh-, *we/ondhso-, *yók̂u, NW
*k̂er(es)*sēmis
*ĝhésr-, *ĝhóstos, *méhar
*mei-wos
*h2enseha*sep*lemb-  *remb-, *k̂onk*meud-, *teus*kar-, *sth2ei-, NW *saiwos
*k̂asos
*dhebh-, *dhwerhx-, *mel-, *peh1(i)-, WC
*sket(h)*h1/4okéteha*kerp-, WC *h2merg*h3ed-, *k̂ehades-, *peik/k̂*k̂lóunis
NW *kap*h2ed(h)NW *kós(V)los
*ghebhōl, *kapōlo-, *k̂r
8rēh2, NW *káput
8, GA *puk̂GA *déh1mn
*med-, WC *bher-, WC *yak(k)WC *kóhailus
WC *méuhxkō(n)
*k̂leu-, *k̂leus*k̂ērd
*h2ehxseha-, WC *h2ehxtrehaWC *wel*gwr(e)ha(-u)-, *tengh*ghórdhos, NW *kagh*h1eĝhis, WC *ghē´r
8h1ó*pēnt-, *pérsneha-, *spr
*bhuĝos, *haeĝós, *h4eli-, *kápros

half
hand
hand (belonging to little)
handle
handle (skilfully)
hang
happy
hard
hare
harm
harrow
harvest
hate
haunch
hawk
hawthorn
hazel
head
headband
heal
healthy
heap
hear
heart
hearth
heat
heavy
hedge
hedgehog
heel
he-goat

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<p>| HEIGHT = FORT | WC *bhergh- |
| HEIR | *h₂/orbhos |
| HETTBORE | WC *kemeros |
| HELP | NW *kel- |
| HEMP | WC *kannabis |
| HEN | *kerk- |
| HENBANE | NW *bhel- |
| HERD | *wrestos, NW *kerdheh₉- |
| HERDSMAN | *wéstor-, WC *pohimén- |
| HERE | *h₁idh₉ |
| HERNIA | *kéuh₉, *kéust₉ |
| HEW | *keh₉, *kel- |
| HIDE (CONCEAL) | *gheigh-, *gheugh-, *keudh- |
| HIDE (SKIN) | *h₁egeh₉nom, *pel-, *(s)kwéh₉tis, WC |
| HIGH | *nák(es)-, WC *pél₉n- |
| HIGH ONE | *bhrgh₉nih₉ |
| HILL | *bhergh-, WC *kolh₉on |
| HIND/COW-ELK | NW *h₁elah₉nih₉ |
| HIP | *kl₁omis, *srënu₉s/eh₉s- |
| HIRE | *kuh₉s- |
| HISS | WC *ger- |
| HOARFROST | WC *kert(s)no- |
| HOCK | *kenk- |
| HOE | *mat- |
| HOLD | *h₂-em-, *h₂erk-, *segh-, *skabh-, WC |
| HOLE | *(s)lag₉-, WC *twér-, E *yem- |
| HOLLOW | *ghe₉wos, *kòuh₉g |
| HOLLOW OF (MAJOR) JOINT | *h₂elwos, *kul- |
| HOLLOW OUT | *kòks-o/eh₉- |
| HOLY | *kew(to)-, *noibhos, *sakros |
| HONE | *keh₉i-, *koh₉os |
| HONEY | *mélit |
| HONEY-COLOURED, GOLDEN | *kh₉onks |
| HONOUR | *deke₉s, GA *ya₉- |
| HOOF | *kop₉ös |
| HOOK | *h₂ónkos, *ko(n)gos, WC *kleh₉wis |
| HOOPOE | *h₁epop |
| HOOT | *ul- |
| HOP ABOUT | WC *sker- |
| HORN | *k₂r₉s, *k₂r₉s, *k₉ro, *k₉nom |
| HORNBEAM | WC *(s)gre₉,h₉(b)h- |</p>
<table>
<thead>
<tr>
<th>Term</th>
<th>Proto-Indo-European Word</th>
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<tbody>
<tr>
<td>Hornet</td>
<td>NW *kʰr₁sro-(h₁)on-</td>
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<tr>
<td>Hornless</td>
<td>*kem-</td>
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<tr>
<td>Horse</td>
<td>*ghéyos, *h₁ékwoś, NW *márkoś, C *mendyoś</td>
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<td>Horsehair</td>
<td>*rɛum-</td>
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<tr>
<td>Hostile</td>
<td>*pek/k₁-, GA *dusmenēs</td>
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<td>Hot</td>
<td>*h₂-eh₉-, *tep-, NW *keh₁-</td>
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<tr>
<td>House(hold)</td>
<td>*döm, *döm(h₁)os, *kéiwoś, *për, WC *kóimós,</td>
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<tr>
<td>How</td>
<td>WC *kʷeh₂m</td>
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<tr>
<td>Howl</td>
<td>*bukk-, *bhels-, *rew-, *ul-, NW *kau-, WC *ger-</td>
</tr>
<tr>
<td>How much/many</td>
<td>*kʷóti ~ *kʷéti</td>
</tr>
<tr>
<td>Hue and cry</td>
<td>*kreuk-</td>
</tr>
<tr>
<td>Hum</td>
<td>NW *kem-</td>
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<tr>
<td>Humble</td>
<td>WC *kaunoś</td>
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<tr>
<td>Hundred</td>
<td>*k nútm</td>
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<td>Hunger</td>
<td>*Kos-t-, WC *kenk-</td>
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<tr>
<td>Hunt</td>
<td>*h₁egreh₉-, *leuḥ₉-, *wreg-</td>
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<td>Hurl</td>
<td>*h₁es-</td>
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<tr>
<td>Hurry</td>
<td>*krob-, *speud-</td>
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<td>Husband</td>
<td>*pótiś, *wih₂rós</td>
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<tr>
<td>Husband's brother</td>
<td>*daith₁wér</td>
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<tr>
<td>Husband's brother's wife</td>
<td>*h₁yênhe₈-ter-</td>
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<tr>
<td>Husband's sister</td>
<td>*g₁lh₁wos-</td>
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<td>Hush</td>
<td>WC *swëg/k₁-</td>
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<td>I</td>
<td>*h₁eg, *h₁me</td>
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<tr>
<td>Ice</td>
<td>*h₁eith₁(s)-, *yeg-</td>
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<td>Iceicle</td>
<td>*yeg-</td>
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<tr>
<td>Ill</td>
<td>*h₁ilogos, *sweγrh₁-, WC *seuγ-</td>
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<tr>
<td>Immediately</td>
<td>WC *pos</td>
</tr>
<tr>
<td>Immobile</td>
<td>*dher-</td>
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<tr>
<td>Impels</td>
<td>*ghei₁-, *γeγ-</td>
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<tr>
<td>In</td>
<td>*h₁eṇdo, *h₁eṇi(i), *h₁enéτ-</td>
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<tr>
<td>Incline</td>
<td>*(w)rep-</td>
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<tr>
<td>Increase</td>
<td>*h₁eug-</td>
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<td>Infertile</td>
<td>*ster-</td>
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<tr>
<td>Inflated</td>
<td>WC *bhlei-</td>
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<tr>
<td>In front of</td>
<td>*h₁-enti, *ph₁,ĕh₁, *ph₁,ĕi</td>
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<tr>
<td>Injure</td>
<td>WC *sket(h)-</td>
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<tr>
<td>Innards</td>
<td>*h₁ent(e)roṃ</td>
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<tr>
<td>Inner part</td>
<td>*kokes-</td>
</tr>
<tr>
<td>Insect</td>
<td>*kʷr₁mis, *mat-, WC *w₇r₁mis</td>
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<tr>
<td>INSECT (BITING)</td>
<td>WC *kóris</td>
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<tr>
<td>INSECT (STINGING)</td>
<td>*moko-, NW *bhik&quot;-á, WC *h₁empis</td>
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<tr>
<td>INSTRUCT</td>
<td>E *kêh₁s-</td>
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<tr>
<td>INSULT</td>
<td>*(h₁)neid-</td>
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<tr>
<td>INTERNAL ORGAN</td>
<td>*h₁eh₁tr-</td>
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<tr>
<td>INTERROGATIVE/RELATIVE</td>
<td>*me/o-</td>
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<td>INTERTWINE</td>
<td>*mesg-</td>
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<tr>
<td>INTESTINES</td>
<td>*gudóm, *h₁ent(e)rom</td>
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<tr>
<td>INTOXICATOR</td>
<td>*medhwi₉-</td>
</tr>
<tr>
<td>INVITE</td>
<td>*ğheu(h₁)-</td>
</tr>
<tr>
<td>INVOLVE</td>
<td>*ğheu(h₁)-</td>
</tr>
<tr>
<td>IVORY</td>
<td>?*lebh-</td>
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<tr>
<td>JAW</td>
<td>*ğênu-, *sme₃-, WC *gónhₐdhos</td>
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<tr>
<td>JAY</td>
<td>*ki₃(y)ehₐ-</td>
</tr>
<tr>
<td>JEST</td>
<td>WC *loid-</td>
</tr>
<tr>
<td>JOIN, FIT TOGETHER</td>
<td>*ghedh-, *h₂sep-, *yeu-, *yeug-</td>
</tr>
<tr>
<td>JUICE</td>
<td>*sûleh₉-</td>
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<tr>
<td>JUG</td>
<td>WC/PIE? *kelp-</td>
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<tr>
<td>JUMP</td>
<td>*h₁leig-, *lek-, *preu-, *preug-, *skand-, *skek-, WC *kêh₉₈-, WC *sel-</td>
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<tr>
<td>JUNIPER</td>
<td>WC *h₁elev-</td>
</tr>
<tr>
<td>KEEP</td>
<td>NW *bhergh-</td>
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<tr>
<td>KERNEL</td>
<td>*h₁é(t)no-</td>
</tr>
<tr>
<td>KICK</td>
<td>*sperh₁-</td>
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<tr>
<td>KIDNEY</td>
<td>*h₂eh₂(e)r-, WC *neg&quot;hrós</td>
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<tr>
<td>KINDLE</td>
<td>*deh₉₃-</td>
</tr>
<tr>
<td>KING</td>
<td>*h₃rēgs</td>
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<td>KINSHIP LINE (SAME)</td>
<td>WC *somo-ğî₉₁-yo-s</td>
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<td>KINSMAN (MATERNAL)</td>
<td>WC *mē₉₈trōus</td>
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<td>KINSMAN (PATERNAL)</td>
<td>*ph₈₉trōus</td>
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<tr>
<td>KISS</td>
<td>*kus-</td>
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<tr>
<td>KITE</td>
<td>GA *kyeino-., C *gîy- ~ *gîyei-</td>
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<tr>
<td>KNEE</td>
<td>*gînu</td>
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<td>KNEE (BACK OF)</td>
<td>*kenk-</td>
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<tr>
<td>KNIFE</td>
<td>*h₂₉₁ţis, *k₁₉₉ér, *kîstrome ~ *kîstrom₂₉, *wē-ben, E *kert-</td>
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<tr>
<td>KNOT</td>
<td>*ned-</td>
</tr>
<tr>
<td>KNOT (IN WOOD)</td>
<td>*h₉₁ţosghos</td>
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<tr>
<td>KNOW</td>
<td>*gîneh₉₁, *weid-, WC *sap- or *sep-</td>
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<tr>
<td>LACK</td>
<td>*das-, *deu(s)-, *h₁eg-, *menk-</td>
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<tr>
<td>LADY</td>
<td>*pot-nih₉₉-</td>
</tr>
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</table>
LAKE WC *lokus
LAMB *wrh₂en, WC *h₁e₉w₂hnos
LAME *skauros, *sromos
LAMENT *glaγh-, *reud₃h₂-, WC *γem-
LAND *plth₂₁h₂-
LAND (FALLOW) NW *polk₁h-
LAND (OPEN) NW *lendh-, WC *poh₂iweh₂-
LAND (PIECE OF) *kapos
LARGE *meγh₂-, WC *meh₁ro- ~ *moh₁ro-
LASCIVIOUS
LAUGH *ha ha, *kha-, *smei-, WC *sward-
LAW *dhéh₃m₁men-, *dhéh₃tis, *yéw(e)-
LAY HAND TO *klep-, GA *h₁emh₁-
LEAD *neih-
LEADER *tagós, *w(g)nákts, WC *koryonos, GA *h₁e-gós
LEAF *bh₁h₃d-, WC *bhóliom-
LEAN *k₁ele-, NW *knei-g₃h-
LEAP *dher-
LEARN *men(s)-dh(e)₁-
LEATHER NW *letrom
LEAVE NW *deuh₁- ~ *gheh₁- ~ *leh₁d-, *leik"-
LEAVE A TRACE ON THE GROUND *leis-
LEECH *gelu-
LEFT *laiwós, *seuyós, WC *skaiwós
LEG (LOWER) WC *kónh₃m-
LEG (UPPER) *sok₃i-
LEOPARD *singhós
LEPROSY *dedrus
LESS *mei-
LIBATION *gheumn-, WC *leib-
LICK *leig-, WC *lab-, WC *lak-
LIE *kei-, *legh-
LIE (DECEIVE) NW *leugh-
LIFE *h₁óyus
LIFT *kel(h₁)-, *telh₂-
LIGHT (OF WEIGHT) *h₁le(n)γ₃h-
LIGHT (SHINE) *leukós, *louk(ex)-, NW *leip-, GA
LIGHTNING NW *meldh-
LIMB *h₂épes-, WC *méles-
LIMIT *h₁erh₂o₃s
LIMP *(s)keng-
LINDEN WC *lenteh₂
<table>
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<th>LINE</th>
<th>*h₄erho-, *reik-</th>
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<tr>
<td>LINEAGE</td>
<td>*s(w)ebh-, *swedh-o-</td>
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<td>LINE UP</td>
<td>*ser-</td>
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<td>LION</td>
<td>WC *li(w)-, GA *perd-</td>
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<td>LIP</td>
<td>*h₄ousteh₉, NW *leb-, WC *gheluneh₉-</td>
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<td>LIQUID</td>
<td>*h₁res- ~ *h₁ers-</td>
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<td>LITTLE</td>
<td>WC *pau-</td>
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<td>LIVE</td>
<td>*gʷeih₄-, *gʷyeh₃-</td>
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<td>LIVER</td>
<td>*lesi-, *yek₇(t)</td>
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<td>LIVESTOCK</td>
<td>*péku</td>
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<td>LOG (TRIMMED)</td>
<td>*kläts</td>
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<td>LOINS</td>
<td>*isghis-, *lönðhu</td>
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<td>LONG (AS)</td>
<td>*yeh₄,woṭ(s)</td>
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<td>LONG (OF TIME/SPACE)</td>
<td>*dḷ₁ghós, *dlonghos, *duh₄,roṣ, *mak-,</td>
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<td></td>
<td>*ténus, NW *seh₁roṣ, WC *makroṣ</td>
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<td>LORD</td>
<td>*w(i)nákts</td>
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<td>LOUSE</td>
<td>*lu- (*lus-)</td>
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<td>LOUSE EGG</td>
<td>WC *k(o)níd-</td>
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<td>LOVE</td>
<td>*keh₉, *ken-, *leubh-, *prih₉eh₉-</td>
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<td>LOW (NOISE)</td>
<td>WC *baub-</td>
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<td>LOW (POSITION)</td>
<td>*ydhés ~ *ydhéron-</td>
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<td>LUNG</td>
<td>*h₁eh₁tr₂- *pléumôn</td>
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<td>LYING (PLACE FOR)</td>
<td>*léghès-</td>
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<td>LYNX</td>
<td>WC *luk-</td>
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<td>MADE</td>
<td>GA *kmeh₉-</td>
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<td>MAGGOT</td>
<td>*mat-</td>
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<td>MAGIC FORCE</td>
<td>WC *keudes-</td>
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<td>MAGPIE</td>
<td>NW *karh₉,ka-</td>
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<td>MAKE</td>
<td>*kon-, *kʷcr₂-, *yeh₁-</td>
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<td>MALE</td>
<td>*gáèn, *wersën</td>
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<td>MAN</td>
<td>*h₉nér, *maghús, *méryos, *m₉nus, *wih₉,roṣ, NW *dhígmôn, GA *mórtos</td>
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<td>MAN (ANCESTOR OF HUMANKIND)</td>
<td>*manu-</td>
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<td>MANE</td>
<td>*ghait(s)-, *k(e)h₄isVRT-</td>
</tr>
<tr>
<td>MANY (AS)</td>
<td>GA *yeh₄,woṭ(s)</td>
</tr>
<tr>
<td>MANY-COLOURED</td>
<td>GA/PIE? *p₁ḥ₄,poik/kos</td>
</tr>
<tr>
<td>MAPLE</td>
<td>*h₂ék₉, NW/WC? *kléinus</td>
</tr>
<tr>
<td>MARE</td>
<td>*h₁ékweh₉-</td>
</tr>
<tr>
<td>MARK</td>
<td>*peik-</td>
</tr>
<tr>
<td>MARROW</td>
<td>*mosghos, E *móstr</td>
</tr>
<tr>
<td>MARRY</td>
<td>*gëmh₉-, *h₂wed(h₂)-, WC *sneubh-</td>
</tr>
<tr>
<td>MARSH</td>
<td>GA *sélës</td>
</tr>
<tr>
<td>MARTEN</td>
<td>NW *bhel-</td>
</tr>
<tr>
<td>AN ENGLISH—PROTO-INDO-EUROPEAN WORDLIST 545</td>
<td></td>
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<tr>
<td>----------------------------------------------</td>
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<tr>
<td><strong>MASH (NOUN)</strong></td>
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<tr>
<td><em>korm-</em></td>
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</tr>
<tr>
<td><strong>MASTER</strong></td>
<td></td>
</tr>
<tr>
<td><em>dom₇(h₂)unos</em>, <em>h₁esh₂ōs</em>, <em>pótyetoï</em>, <em>wikpots</em>, GA <em>dems-pot-</em></td>
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<tr>
<td><strong>MATERNAL KINSMAN</strong></td>
<td></td>
</tr>
<tr>
<td>WC <em>mēh₄trōus</em></td>
<td></td>
</tr>
<tr>
<td><strong>MEAD</strong></td>
<td></td>
</tr>
<tr>
<td><em>médh₄u</em></td>
<td></td>
</tr>
<tr>
<td><strong>MEADOW</strong></td>
<td></td>
</tr>
<tr>
<td><em>wélsu</em>, WC <em>póh₂iweh₇</em></td>
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<tr>
<td><strong>MEAL</strong></td>
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<tr>
<td><em>dapnom</em>, <em>tolko/eh₇</em>, NW <em>pitol</em>, WC <em>dōrk₅om,</em></td>
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<tr>
<td><strong>MEASURE</strong></td>
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<tr>
<td><em>deik⁻</em>, <em>med⁻</em>, <em>mēh₁tis</em></td>
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<tr>
<td><strong>MEAT</strong></td>
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</tr>
<tr>
<td><em>mé(m)s</em></td>
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<tr>
<td><strong>MEET</strong></td>
<td></td>
</tr>
<tr>
<td>WC <em>mōd⁻</em></td>
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</tr>
<tr>
<td><strong>MELT</strong></td>
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</tr>
<tr>
<td><em>tēh₇</em>, WC <em>(s)mēld⁻</em></td>
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</tr>
<tr>
<td><strong>MEMBER OF ONE’S OWN GROUP</strong></td>
<td></td>
</tr>
<tr>
<td><em>h₂erōs</em></td>
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<tr>
<td><strong>MERRY</strong></td>
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<tr>
<td><em>meud⁻</em></td>
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<tr>
<td><strong>METAL</strong></td>
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<tr>
<td><em>h₆eyes⁻</em></td>
<td></td>
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<tr>
<td><strong>MIDDLE</strong></td>
<td></td>
</tr>
<tr>
<td><em>(s)me</em></td>
<td></td>
</tr>
<tr>
<td><strong>MIDGE</strong></td>
<td></td>
</tr>
<tr>
<td>WC <em>mus/h₁⁻</em></td>
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<tr>
<td><strong>MILITARY ACTION</strong></td>
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</tr>
<tr>
<td><em>leh⁻</em></td>
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<tr>
<td><strong>MILK</strong></td>
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<tr>
<td><em>dhēdh₇j⁻</em>, <em>g itk(l)₇akt</em>, <em>h₆melg⁻</em>, <em>ksīh₇rōm</em>, <em>(k)swēid⁻</em>, <em>pipih₇usih₇</em>, <em>twhōh₇</em></td>
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<td><strong>MILLET</strong></td>
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<tr>
<td><em>h₂₃(A)e₇g(h)⁻</em>, <em>pano</em>, WC <em>melh₂⁻</em></td>
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<tr>
<td><strong>MINNOW</strong></td>
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<tr>
<td>WC <em>myn₇</em></td>
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<tr>
<td><strong>MISFORTUNE</strong></td>
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<tr>
<td>GA <em>pēh₂,mn</em></td>
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<tr>
<td><strong>MIST</strong></td>
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<tr>
<td><em>h₃meigh⁻</em>, *nēbhes --, <em>neud⁻</em></td>
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<tr>
<td><strong>MISTAKE</strong></td>
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<tr>
<td><em>mēles⁻</em></td>
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<tr>
<td><strong>MISTLETOE</strong></td>
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</tr>
<tr>
<td>WC <em>wikso⁻</em></td>
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<tr>
<td><strong>MISTRESS</strong></td>
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</tr>
<tr>
<td><em>h₁esh₂ēh₇</em>, <em>potnih₇</em></td>
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<tr>
<td><strong>MIX</strong></td>
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<tr>
<td><em>kērh₇⁻</em>, <em>meik⁻</em>, <em>yeuh₇⁻</em></td>
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<tr>
<td><strong>MOAN</strong></td>
<td></td>
</tr>
<tr>
<td><em>stēn⁻</em>, WC <em>gēm⁻</em></td>
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<tr>
<td><strong>MOIST(URE)</strong></td>
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<tr>
<td>*h₁res⁻ ~ <em>h₁ers⁻</em>, <em>m(e)h₁rd⁻</em>, <em>rōs</em>, NW</td>
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<tr>
<td><em>h₁wes⁻</em>, NW <em>leh₁t⁻</em>, NW <em>senh₁dhr⁻</em>, WC <em>teng⁻</em></td>
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<td><strong>MOON</strong></td>
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<tr>
<td>*mēh₁nōt, *(s)kand⁻, NW <em>louksneh₂</em></td>
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<tr>
<td><strong>MORNING</strong></td>
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<tr>
<td><em>prō⁻</em></td>
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<tr>
<td><strong>MORTAL</strong></td>
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<tr>
<td><em>mētōs</em>, GA <em>mōrtos</em></td>
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<tr>
<td><strong>MOSQUITO</strong></td>
<td></td>
</tr>
<tr>
<td>WC <em>mus/h₁⁻</em></td>
<td></td>
</tr>
<tr>
<td><strong>MOSS</strong></td>
<td></td>
</tr>
<tr>
<td>NW <em>mēus</em></td>
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<tr>
<td><strong>MOTHER</strong></td>
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<tr>
<td><em>gēnh₁trih₇</em>, <em>h₄em⁻</em>, *h₄em-, <em>h₄ekkeh₇</em>, <em>mēh₁țēr⁻</em>, <em>m-h₄em⁻</em>, <em>n-h₄em⁻</em></td>
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<tr>
<td><strong>MOTHER-IN-LAW</strong></td>
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<tr>
<td><em>swēkrūh₇s</em></td>
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<tr>
<td><strong>MOTHER’S SISTER</strong></td>
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<tr>
<td>WC <em>mēh₄trūh₇</em></td>
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<tr>
<td><strong>MOTION (BE IN)</strong></td>
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<tr>
<td><em>dheu(h₂)</em></td>
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<tr>
<td><strong>MOULD</strong></td>
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<tr>
<td>NW <em>mēus</em></td>
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<tr>
<td><strong>MOUNTAIN</strong></td>
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<tr>
<td><em>g₇w orh₁⁻</em></td>
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</tbody>
</table>
MOUNTS (SEXUALLY)

MOURN

MOUSE

MOUTH

MOVE

MOVED

MOW

MUCH (AS)

MUD

MUMBLE

MURMUR

MUSCLE

MUSSEL (-SHELL), ETC.

NAIL

NAKED

NAME

NARROW

NAVE

NAVEL

NEAR

NECK

NECK ORNAMENT

NEED

NEEDLE

NEGLECT

NEPHEW

NEST

NESTLING

NET

NETTLE

NEW

NIECE

NIGHT

NINE

NINTH

NIPPLE

NIT

NOBLE

NOD

NOISE

*ho`órghai
*reudhₐ₉
*mūs, *mūs(tlo)-, *pē(hₘ₉)us
*h₁ᵾōh₁(e)s-, *h₉oust-ehₐ₉-, *stōmŋ
*diḥᵣ-, *h₁rei-, *h₁eig-, *h₁reihᵣ-, *meu(hᵣ)-, *meus-, *sel-, *spergh-, *sret-
*yeudh-
*h₂em-, *h₂mehᵣ-, NW *h₂net-
*pēl₉us, GA *yótī
*penk-, WC *hᵣihᵣlu
*mehᵣ(i)-
*murmur-
*mūs(tlo)-
*konkh₁os

*bhoso's

*h₁móṃŋ
*h₁₉enghus, WC *sten-
*h₁₉nobh-
*h₁₉nobh-
*h₁epi - ~ *h₁opi
*gën'eh₂wehᵣ-, *mono-, NW *kōlsos, WC
*h₁₉engh(w)en-
*mono/-
*h₁eg-
*NW *skwēis
*seh₁(i)-
*népōts
*nisdos
*pipp-
*h₁ekt-
*neptihₐ₉
*kʷsep-, *nekʷt-, *ŋkʷtus
*h₁newh₁m₉ (*h₁newh₂mᵣ)
*h₁newh₁mm₉n-mos
*pstēnōs, NW *speno-
*rik-, WC *k(o)nid-, C *h₁orghi-
*wesu-
*neu-
*
*mug-, WC *b(h)(o)mb(h)
NOISE (OF ANIMALS)  *bhrem-
NOOK  *kokes-
NORTH WIND  WC *(s)ˇeh₁w(e)r-
NOSE  *h₁náss
NOT  *mē, *ne
NOURISHING  *wòr(h₁)ˇęgs, WC *dheh₁lus-
NOW  *nu-, NW *yam/yau
NUMBER  WC *h₁rei(h₁)-
NUT  NW *kneu-, WC /PIE? *h₂er-
O  *
OAK  NW *pérk"us, WC *h₃eig-
OAR  *h₁erh₁trum
OATH  *h₁óitus
OATS  *h₃ewis
OBSERVE  *bheudh-, *(s)pek-
OBVIOUS  *
OFFER (MAKE AN OFFERING)  *spend-
OFFSPRING (ANIMAL)  *
OFFSPRING (HUMAN)  *teknom
OIL  *
OLD  *
OLD MAN  *
OLD WOMAN  *
ON  *
ONE  *
ONE-EYED  *
ONE OR THE OTHER OF TWO  WC *snteros
OOZE OUT  *
OPEN  *
OPEN SPACE  *
OPINION  *
OPPRESS  NW *wreg-
OR  *
ORACLE (CONSULT AN)  *
ORDER  *
ORPHAN  *
OTHER  *
OTTER  *
OUT  *
OVER  *
OVERCOME  *
OVERFLOW  *bhleu-, *seik-
OVERSEE

*verb(h)-

OWL

*b(e)u-, *h₂₂/th₁e/olo-, *ulu-, NW *k₃u-

OWN

*prih₁ós, *sewos

OX

*uk₁wu₃sēn-

PACKED

*dheb-

PADDLE

*h₁er₁ trom

PAIN

*h₁édvöl

PAINT

*peik-

PALE

*bhrođinós, *pl₁h₁-

PALM (OF THE HAND)

WC *dhëng, WC *pólhm

PANTHER

GA *perd-

PAP

WC *polt-

PASS

*per-, *serK-

PASSAGE

*pértus, *sentos

PASS THE NIGHT

*h₂wes-

PASS THROUGH

*ked-

PASTORAL GOD

GA *pēh₂susōn

PASTURE

*wélsu

PATCH

WC *këntr/n-

PATERNAL KINSMAN

*ph₂trōus

PATH

*pōntō₂s, *stighs

PAW

*leh₂p-eh₁-

PAY

*k"reih₁o-

PAY ATTENTION

*bheudh-

PAYMENT

*h₂elg₁ho/eh₁-

PEA

WC *h₁ereg"o-

PEAK

*wers-

PEEL

*lep-, WC *lep-

PEG

WC *dhu̥bhos

PELT

WC *nāk(es)-

PENIS

*kāpr, *pēses-

PEOPLE

WC *dēh₁mos, *h₁leudhōs, *leh₂wós, WC/PIE? *teutēh₁o-, WC *h₁leudhēros, WC *pleh₁dhwēh₁s

PERCEIVE

*h₃eu-, *keuh₁r, *k"ei-, *seh₂g₁-, *(s)keuh₁r-, *wer-, NW *ghou-, NW *sent-

PERCH (FISH)

NW *h₃ekū-

PERISH

*dhg₁weir-, *nek-

PERSON

*h₁mër, GA *mórtos

PERSUADE

WC *bheidh-

PERTAINING TO WHOM/WHAT

*k"oih₁os

PHANTOM

*dhroughos
PHYSICAL POWER

*"yeh₆-

PICK AT

WC *knab(h)-

PIERCE

*dhwer-, *h₂/sweg(h)-, *terh₁-, NW *dhelg-, WC *g"el-

PIG

*pörk₅-, *sūs, NW *keul-, C *g₇hor-

PIKEPERCH

*g₇h₇ros

PILE UP

NW *sth₂bhо/eh₆-, C *k₇ih₃w₀n-

PIMPLE

*wh₇os-

PIN

NW *dhelg-

PINE

*k₇oss, *pēũks, NW *prk("½eh₆-

PITCH

*"etu, WC *g₇ih₃wo-, WC *pik-

PLACE

*stéh₂tis

PLAIT

*kert-, *melk-, *plek-, *resg-, *weg-, *weih(h₁)-

PLANK

NW *plut-, WC *bhěl₁i₂g₃, WC *k₁h₇ro-s-, WC *swel- ~ *sél-

PLATE

*teksteh₆-

PLAY

WC *loid-

PLEASE

*pleh₆kJ-, *sweh₆de/o-

PLEASING (TO THE SENSES)

*swēh₆dus

PLOUGH

*ghel-, *h₂ér₃i₂ye/o-, *mat-

PLoughSHARE

WC *wog"hnis

PLUCK

*kerp-, *reu(h₁)-, NW *pleus-, WC *h₁rep-

PLUM-COLOURED

NW *sli₇hu-

POET

NW *wōt-, GA *k₄ru-

POINT

*bhrstís, *h₇ér₃dhis

POINTED OBJECT

NW *bharko-

POINT OUT

*bhoundhēye/o-

POISON

*wiss

POKE

WC *peug-

POLE

NW *perg-, NW *reh₁t-, NW *tengh₁s-, WC *g₇hal₁gheh₆-, WC *(s)te₇g-

*kek₇-

POLECAT


POUND

WC *lokūs-

POPLAR

*h₂/sosp-

POPPY

WC *mak-

PORRIDGE

WC *polt-

POSSESS

*h₇eik-

POSSESSIONS

*loïk₇wes-, *réh₁is

POST

*klıts, *mits, *swēr-, *stéh₂ur, NW *masdos,

NW *perg-, NW *reh₁t-, NW *sth₂bhо/eh₆-, WC *k₄roku- ~ *krōyeh₇-, WC *k₈sūlom, WC *(s)te₇g-, WC *st₁neh₆-, C *k₇ih₃w₀n-
| POT | h₂akʷ-*, kʷeru-, poh₃tom, tekstehₐ*, NW bhidh-, WC/PIE? kelp-, WC kuh₃p-, WC louh₁trom, WC póth₁d, WC (s)pondh(-n)os, C g₇(e)utreh₂ |
| POUND | pis-, wes- |
| POUR | gheu-, gʷyehₐ*, leh₂-, seik-, NW gheud-, WC leib- |
| POWER | WC yeh₁gʷehₐ*, GA ish₁ros |
| POWERFUL | kouh₁ros |
| PRAISE | gʷerhₓ*, h₁erkʷ-, kar, GA steu- |
| PRAY | gʷhedh-, h₁₄er-, h₂eru-, meldh-, telhₓ- |
| PREGNANT | h₃er-, GA k₄mehₓ- |
| PREPARE(D) | menk-, nak-, prem-, puk-, NW māk-, NW wreg-, WC gem-, WC kem-, WC treud-, GA pisₗ- |
| PRESS | kel-, steig-, WC peug- |
| PRIEST | bhertór, bhlaghmën, pent- + dheh₁r, kʷer-, GA kouh₁eš(s) |
| PRIZE | h₂elg₃ho/ch₁r, misdhós, NW lau- men- |
| PROJECT | NW bhar- |
| PROPEL | E kerhₓ- |
| PROPOSE (MARRIAGE) | perk₃- |
| PROSPER | stemmed |
| PROTECT | gheigh -, gheu̯g-, h₃leκ-, ser-, werb(h), NW bhergh- kũkis |
| PUBLIC HAIR | deuk-, dhreg-, h₃welk-, selk-, ten-, teng(h), ten-s-, NW dhregh-, WC strenk- pek-, reu(h₁)- |
| PULL | kei- |
| PULL OUT (WOOL) | wesno- |
| PURCHASE | seup-, GA h₃idhrós |
| PURE | pu₃h₃es- |
| PUS | WC pu₃h₃es- |
| PUSH | reudh-, (s)peud-, (s)teud-, wedh-, NW skeubh-, NW telk-, E neud- wi-dhh₁- |
| PUT ASUNDER | reh₁r-, sem- |
| PUT IN ORDER | dheh₁r, stel -, yet- |
| PUT IN PLACE | h₁reu- |
| PUT ON CLOTHES/SHOES | pu₃h₃es- |
| PUTREFACTION | pu₃h₃es- |
| PUT TOGETHER | h₃er- |
QUAIL GA *wortok*
QUARREL *h₂enh₂*
QUERN *gʷréh₃-win-
QUICK NW *h₂eh₂-tro-
QUIET *h₁erh₁-, *kʷeih₁-, *ses-, NW/PIE? *(e)h₂u-s-, NW *lēnos, NW *(s)tel-
RAIN *dhreg-, *h₁wers-, *ybh(ro/ri)-, *suh₂-, WC *h₂eihlu (gḥ?), WC *mregh-
RAISE *kel-, *telh₂-
RAKE *h₁/okéteh₁-, *h₂ehe₂-
RAM *moisōs
RATTLE WC *sner-
RAVEN *kVr-C-
RAW *h₂em-, *h₂omós
RAZOR GA *ksuróm
REACH *tem-
REACH FOR *seik-
REAL *h₁sōnt-
REAR-END *h₁ōrs(o)-, WC *n(o)h₁t-
RECITE *(s)pel-
RED *h₁ei-, *h₁eluo-, *h₁eudh-, *kóunos
RED DEER *h₁elh₁ēn
RED FOX *w(o)-
REED *h₁er-, *nedōs, NW *yoinis, WC *don-, WC *tṛus-, E *g(h)rewom
REFRESH *h₁eis-
REINS *h₂ensiyo/eh₃-
REJOICE *geh₃-, *geh₂dh-, *geh₂u-
RELATION *bhendhr₈ros
RELEASE *leuo-, *selg-, *TerK-
REMAIN *men-
REMAINS *(h₁eti)loikʷos
REMEMBER *(s)mer-
REMOVE *meus-
REND *h₂erk-, *rendh-, WC *lak-
REPROACH *h₁legh-
REPULSE *(s)peud-
RESIN *sokʷos
RESOND *gerg-, *klun-, *swenh₂-, WC *(s)weh₂gh-
REST *kʷeih₁-, *ses-
RESTITUTION *serk-
RETURN HOME *nes-
REVEL WC *ghleu-
REVERE *
REVILE *
REWARD *
RIB *
RICH GA *h₁su-dhh₁énos
RICH IN MILK *
RIDE *
RIGHT *
RING *
RISE *
RIVER *
RIVER BANK WC *h₁,e₇₇₇₇₁peros(?)
RIVER NAME *
ROAD *
ROAR *
ROAST *
ROCK *
ROD *
ROEDEER WC *yörks
ROOF *
ROOM *
ROOM (HAVE) *
ROOT *
ROT *
ROUGH *
ROW (BOAT) *
ROW (SERIES) *
RUB *
RUDE NW *saïwos
RULE *
RULER *
RUMBLE *
RUMEN *
RUMP *
RUN *
RUSH (REED) *
RYE *
SACRED POWER GA *ishyros
SACRIFICE *

552 APPENDIX 3
<table>
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<th>SACRIFICIAL ANIMAL</th>
<th>WC *dibhro- ~ *dibhro-</th>
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<tr>
<td>SACRIFICIAL MEAL</td>
<td>*dapnom, *tolko/ehₐ-</td>
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<td>*lōkₜ, NW *str(h₁)yon-</td>
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<td>WC *sanh₉, dhos</td>
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<td>*sap- ~ *sab-, *sokʷős</td>
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<td>*jérptis, NW *séh₂tis</td>
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<td>*h₁eis-, *h₁er-, *h₂lei-, *h₂er-, *kei-, *seuh₃-, *wegh- (*wegh-?), *yeudh-, NW *pelhr₇-, E *weip-</td>
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<td>SEX ORGAN</td>
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<td>SHADOW</td>
<td>WC *skótos</td>
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<td>*h₂žeith₁₀s</td>
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<td>*kseubh-, *trem-, *wegh- (*wegh-?), NW *kret-, NW *kreut, NW *(s)ku(n)t-, WC *kʷat-, GA *tweis-</td>
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<td>SHALLOW WATER?</td>
<td>WC *tenh₉uθ-</td>
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<td>*h₂zek-, *kent-, NW *saiwos</td>
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<td>*kseubh-, *verg-, NW *skebh-</td>
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<td>*h₁eri-, *h₂ówis, *moisós, *(s)kěgos</td>
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<td>*w[kʷ]th₁₀r-</td>
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<td>*spelo/eh₇-, NW *skētis</td>
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<td>*mer-</td>
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<td>SHIN</td>
<td>WC *kónh₉m</td>
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<td>SHINE</td>
<td>*bh₂er-, *bhel-, *bher₉ɡ-, *bhleg, *dei-, *deiw-, *ghel-, *h₆ewes-, *keuk-, *lap-, *leuk-, *mer-, *(s)kand-, *(s)plend-, *sweid-, NW *gʰer-, NW *leip-, C *h₆eug-</td>
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<td>SHINING</td>
<td>WC *gʰhaidróš</td>
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<td>SHOE</td>
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<td>SHOOT (PLANT)</td>
<td>*h₆enkulos</td>
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<td>SHOOT (THROW)</td>
<td>*(s)keud-</td>
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<td>SHORE</td>
<td>WC *h₆eh₇-peros (?)</td>
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<td>SHORT</td>
<td>*mgʰhus</td>
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<td>SHOULDER</td>
<td>*dous-, *h₁/dómso-, *h₆eksleha₀₇-, *(pl)(e)t-, *(s)kup-, *(pl)(e)t-</td>
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<td>SHOULDER BLADE</td>
<td>*h₆eks-</td>
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<td>SHOULDER JOINT</td>
<td>*gʰar-, WC *yu-</td>
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<td>SHOUT</td>
<td>*deik-, *(d)(e)kʷ-</td>
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<td>SHOW</td>
<td>WC *sw(o)t-/*sworaks</td>
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APPENDIX 3
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<td>SICK</td>
<td>WC <em>seug-</em></td>
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<td>SICKLE</td>
<td>*sro/<em>ch-</em></td>
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<td>SICKNESS</td>
<td><em>h₁erem-</em>/*, <em>sokto-</em></td>
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<td>SIDE</td>
<td>*poksos, WC <em>teig-</em></td>
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<td>SIDE BY SIDE</td>
<td>*ko(m)</td>
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<td>SIDES (ON BOTH)</td>
<td>*h₂entbhi-</td>
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<td>SIEVE</td>
<td>NW *kreidhrom</td>
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<td>SIFT</td>
<td>WC *seh(i)-</td>
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<td>SIGH</td>
<td>*k₁wesh-</td>
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<td>SIGN</td>
<td>WC *g₁ghen-</td>
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<td>SILENT</td>
<td>*(e)h₂u-s-, NW *tak, WC *swtg-k-</td>
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<td>SILVER</td>
<td>*h₂ergihtom, NW *silVbVr-</td>
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<td>SINEW</td>
<td>*snēh₁w₁, WC *g₁h₁h₁(slo)-</td>
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<td>SING</td>
<td><em>geh₁(i)-/</em>, *h₁eus-, <em>k₁seh-/</em>, *peir-, <em>seng’h-</em>, WC/PIE? *kan-, WC *g₁h₁n-</td>
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<td>SINGE</td>
<td>NW *sengk-</td>
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<td>SINGLE ONE</td>
<td>*semgo(lo)s</td>
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<td>SISTER</td>
<td>*swésör</td>
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<td>SISTERLY</td>
<td>*swesr(i)y-ös</td>
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<td>SISTER’S HUSBAND</td>
<td>*g₁(e)nt(h₁)-ros</td>
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<td>SISTER’S SON</td>
<td>*swesr(i)y-ös, NW *swesrih-₁nos</td>
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<td>SIT</td>
<td><em>h₁eš-/</em>, *sed-</td>
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<td>SIX</td>
<td>*kswek-</td>
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<td>*kswek-₁s-₁komt(h₁)</td>
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<td>SKIN</td>
<td><em>h₁owes-/</em>, <em>k₁erem-/</em>, <em>mois-/</em>, *(s)kwēh-₁tis, <em>twēk-/</em>, <em>weir-/</em>, WC *p₁m-</td>
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<td>SKIN ERUPTION</td>
<td>*dedrus</td>
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<td>SKULL</td>
<td>*kapōlo-</td>
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<td>SKY</td>
<td>*nēbhes-</td>
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<td>SKY DAUGHTER</td>
<td>*dhug₃₄₅₆₇₈₉₁ò diwós</td>
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<td>SKY FATHER</td>
<td>*dyēus ph₁₃₄₅₆₇₈₉₁ò</td>
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<td>SLACK</td>
<td>WC *(s)lag- ~ *(s)leib₃-</td>
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<td><em>der-/</em>, <em>ses-/</em>, <em>swep-/</em>, *swopnos, E <em>k₁h₁m</em>(s)-</td>
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<td>SLICK</td>
<td>*(s)meug- ~ *(s)meuk-</td>
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<td>SLIDE</td>
<td><em>(s)leidh-/</em>, NW *sleubh-</td>
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<td>SLIMY</td>
<td>*(s)lei-</td>
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<td>SLING</td>
<td>WC *(s)bhondneh₁₃₄₅₆₇₈₉₁ò</td>
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<td>SLIPPERY</td>
<td><em>(s)lei-/</em>, *(s)meug- ~ *(s)meuk-</td>
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<td>SLUG</td>
<td>WC *sleimak-</td>
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<td>SMASH</td>
<td>WC *bhreus-</td>
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<td>SMEAR</td>
<td><em>h₃eng-/</em>, <em>h₁lei-/</em>, <em>leip-/</em>, WC *smeid-</td>
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SMELL (STINK)  WC *h{sed}-
SMILE  *smei-
SMITH GOD  *w[lk]anos ~ *w[lkeh, nos
SMOKE  *dhuh-snös, WC *k"ap-, WC *(s)m(e)ug(h)-
SMOOTH  NW *ghleh,dh-(ro)-
SMOULDER  *(s)mel-, *swelp-
SNAIL  WC *sleimak-
SNAKE  *h{og"his, NW *néhtr- ~ *nh{tr-, WC *
h, eng"his
SNATCH  WC *h{rep-
SNEAK UP ON  *(l)sel-
SNEEZE  *pster-, *skew-, WC *pneu-
SNORE  WC *srenk-
SORT  WC *pneu-
SNOW  *dhreg-, *ghheim-, *sneig"h-, *snig"h-s, WC *
*ker(s)na-
SOAK  WC *teng-
SOFT  *meldh-, *mel(h)-, NW *l(e)nto-, C *menkus
SO MANY  *t{ho\,ot(s), WC *t{oti
SOME  *smös
SO MUCH  WC *t{oti
SON  *putlös, *suh, nös, *suh, yüs
SONG  *sh\,ómen-
SON-IN-LAW  *gömh,-ter-, WC *gõh,-ro-s
SON’S WIFE  *snusös
SOON  *moks
SOOT  *reh,mös
SORCERY  NW *soito/eh_o-
SORT (OF WHAT)  NW *k\eh,k-, WC *k\eh,li
SORT OR SIZE (OF THAT)  WC *teh,li
SOUND  *dhwen-, *ghwonos, *kléutrom
SOUR  *h,emros, NW *suh,ros
SOW (VERB)  *seh\,r-, *sper-
SPARROW  *sper-
SPEAK  *gal, *h1\,eng"h-, *h1/\öör-, *mleuh,\,r-, *rek-, 
*(s)wer-, *ter-, *weg"h-, *wek"-, NW 
*tolk"-, WC *bheu\,er-, WC *(s)preg-
SPEAR  *g\haisos, *g\éru, *k\,úh,los, WC *h,me\ghes-

SPEARPOINT  WC *h,eksmo/eh_o-
SPECKLED  *perk-
SPELL  *h,olu-
SPEW  *(s)py(e)uh,\,r-, *wémh,mi
SPIN  *melk-, *(s)pen-
SPIRIT  *h,ęnsus, NW *dhwes-, WC *le\m-
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<td>*g&quot;eru, *kůhlos, WC *h₁eikšmo/eh₁r-</td>
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<td>Spring (Water)</td>
<td>WC *bhreh₁wr, WC *kšme₂h₁, E *h₂élmos</td>
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<td>*pers-, NW *sperh₂-</td>
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<td>*mus-, *(s)teh₁-, *teubh-, WC *ster-</td>
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<td>*pëu(h₃), *pü- *(puh₂?-), *weis-</td>
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<td>Stir</td>
<td><em>menth₂-</em>, *twer-</td>
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<td>Stir Up</td>
<td>*yeudh-, *yeu̯g-</td>
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STOMACH *g"étus, *pant-, *uder-, *udə tero-
STONE *h,ékmon, *pel(is), WC *leh1-w, WC *lep-
STOREROOM *gubho/eh2, *kêls
STORK *(s)ter-
STRANGER NW *ghostis
STRAP WC *(s)hondneh2
STRAW *kôh₁əm
STRENGTH *h,éng-, *eug-es, *wéih₂(e)s-, *wór(h₁)g₃
STRETCH *h,vëg-, *pet-, *temp-, *ten-, NW *reïg-
STREW *sper-, *ster(h₁)w, NW *sperh₂-
STREWN PLACE *ster(h₁)mŋ
STRIKE *bhei(h₁)-, *bher-, *g"hen-, *keh₂w-, *kel-, *kreu(s)-, *per-, *pyek-, *steup-, *wedh-, *wel(h₂)-, *wen-, NW *heud-, NW *bhlaŋ-, NW *slaktion, WC *bhlïh₂g-, WC *deph₂-, WC *g"el-, WC *kel₁g-, WC *pleh₂k/g-, GA *tken-

STRIKE ONE’S BREASTS WC *pleh₂k/g-
STRING WC *strenk-
STRIP *(s)pel-, WC *lep-
STRIPED NW *reï-
STRIVE *wenh₂-
STRONG *bëlos, *wal-, *weg-, *weïh₂-
STRUCK *temh₂-
STURGEON NW *h,ëk₂e(tro)-, NW *st₂(h₁)yon-
SUBDUE *demh₂-
SUCCESS NW *kobom
SUCK(LE) *dheh₁₂, NW *seug/k-
SUCKLING WC *dheh₁lus-
SUFFER *k₂(cik₂)-, WC *k₂(erm(h₁))
SUFFERING *h₂,em(h₁)nweh₂w, *h₂,énghes-, GA *pëh₁mŋ
SUFFICIENT *g"wënës
SUMMER *sem-
SUN *sëh₃ul
SUPPORT *dher-, WC *st₂lnêh₂-
SURPASS *serK-, GA *peri-h₁es-
SURPRISE (SOUND OF) *ha
SURROUND *gherdh-, *wer-
SWALLOW *g"erh₂-, *k₂وار, *pëh₂(i)-
SWAMP WC *h₁ih₂lu
SWAN WC ?*h₁el-
SWEAR GA *h₂emh₂-
SWEAT *h₂el₁n-, *swëd-
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*te, *tuhs

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*mennu, *mëntis, GA *mënes-

THOUSAND  
NW *tuh,š-këntyos, GA *gëhesl(iy)os

THREAD  
*dek-, NW *pe/oths,mo-, WC *g"hih -(slo)-, 
GA *g"(i)yëhə

THREAD-END  
WC *(t(ε))rmn-

THREATEN  
*gëres-, *sker-

THREE  
*trëyes

THRESH  
*hëch-er, *peis-, *wers-

THRICE  
*tris

THRIVE  
*speh₁-

THROAT  
*gutə

THROUGH  
*per, *terh₂-

THROW  
*gëhi-, *g"ëlh₁-, *h₁jes-, *sch₃(i)-, *(s)këud-, 
*smeit-, *swep-, WC *yeh₁-

THRUSH  
NW /WC! *trosdos

THRUST  
*(s)teud-, NW *telk-, WC *treud-

THUMB  
NW *pölïk(o)s

THUNDER  
*(s)tenh₃-, WC *gëromos

THUNDER GOD  
*perk"unos

THUS  
*ar, *h₁ith₄, *it-, *ne

TICK  
*rık-, WC *diğ(h)-, WC *h₁orki-

TICKLE  
WC *geid-

TIE  
*h₂emgh-, NW *nedskëh₄-

TIME  
*preﬆ-, WC *kës(k)eh₄-

TIMID  
*neh₂-

TIRED  
*kemh₄-, *leh₁d-

TO  
*do ~ *de, WC *h₁ed

TONGUE  
*dgëhu₁-

TOOL  
*k"wis

TOOTH  
*gëmbhos, *h₁dönt-

TORCH  
WC *gëhwäks

TORMENT  
*gëres-

TORTOISE  
WC *gëluh₃-

TOUCH  
*deg-, *m₁l₂-, WC *ghrei-, WC *tag-

TOWARD  
*do ~ *de

TRACK (NOUN)  
WC *weghyeh₄-

TRACK (VERB)  
*wreg-

TRAVERSE  
*lenk-

TREAT BADLY  
*h₂wop-

TREE  
*döru, NW *k"résnos, NW *widhu

TREE (TYPE OF)  
NW *sal(ik)-

TREMBLE  
*rei-, *trem-, *tres-

TRIAL  
WC *per-
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<td>*h₂egmen-</td>
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<td>Trough</td>
<td>*h₂oldhu-</td>
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<td>*koiv-is</td>
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<td>Twenty</td>
<td>*wīkṇīth₁</td>
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<td>Twice</td>
<td>*dwis</td>
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<td>Twig</td>
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<td>Twine</td>
<td>*bher-, *kert-</td>
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<td>Twist fibres into thread</td>
<td>*-derbh-, *(s)neh₁(i)-, *sneh₁mu-, *terk(w)-, *weis-, *wendh-, NW *slenk-</td>
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<td>Two</td>
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<td>Two (group of)</td>
<td>*dwoï-</td>
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<td>*dw(e)i-plos, *dwoyos</td>
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<td>Undying (drink)</td>
<td>GA *y-my₂-tōs</td>
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<td>*gḥalh₂ros</td>
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<td>*sem-s</td>
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<td>Unpleasant</td>
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<td>*yeug₃-</td>
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<td>Up (ward)</td>
<td>*h₄apō, *h₄en-h₄e, *uād, E *h₄enu</td>
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<td>Upright</td>
<td>*worh₂dhnus</td>
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<td>Up to</td>
<td>*proti</td>
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<td>Urinate</td>
<td>*h₃mēighé-o-</td>
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<td>*dholh₄os, *lónk₁o/ch₄-</td>
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WEASEL *lök-, NW/WC? *(hₐ)wiselo-, NW *kormon-
WEAVE *bher-, *h₂₂₃eu-, *h₂₂₃webh-, *weg-
WEDGE WC *dhúbhos
WEEP WC *Gem-
WEEVIL NW *webhel- ~ *wobhel-
WELL-DISPOSED *h₁er₃ₙₕ-, GA *h₁su-menesye/o-
WELL UP *g₉₉ₐl(s)-, *h₉₆l-
WELS *(s)₉₉₉δlos
WET *leh₂-, *(m(e)₉₉₉ₕ-, NW *leh₉₉₉ₕ-, NW
*welk~*welg-, WC *reg-/*reknos, WC
*weg-*
WHAT *
WHEAT *
WHEEL *h₂₂₉g₉₉, *k₉₉löm, *róth₂₀/eh₉ₙ-, WC *dhrog-
WHEN *
WHERE *
WHET *
WHETSTONE *
WHEY *
WHICH (OF TWO) *
WHITE *
WHO *
WHOLE *
WIDE *
WIDOW *
WIFE *
WIFE’S BROTHER *
WIFE’S SISTER, i.e. SISTER-IN-LAW
WIFE’S SISTER’S HUSBAND
WILD ANIMAL *
WILD ASS E *gordebhós
WILDCAT NW *bhel-
WILLOW *
WIND (NOUN) *
WIND (VERB) *
WINE *
WING *
WINNOW *
WINTER *
WIPE OFF *
WISH *
WITH *

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WITHER  
*{wes}*

WITHOUT  
*b(h)ég`, *{h₁énh}_₁u*

WOLF  
*{w}_₁ksos, WC *{dhóh₁us}, WC *wai₁os*

WOMAN  
*g₁énh₁u, *maghwi₁₂`, *meri₁₂`

WOMAN (WANTON)  
?*parikeh₁₂`

WOMB  
*{g}_₁ ebh`, *g" étus*

WOOD  
*{dóru}*

WOOD (WORKED)  
*{pin}_, *{stup}_, WC *{ksúlom}, WC *{sphe₁nels}*

WOODEN VESSEL  
WC *(s)pont(h)(n)os*

WOODPECKER  
*(s)p(e)iko/eh₁₂`

WOOL  
*w₁neh₁₂`

WORK  
*{h₁éph}_, *weg主动`, WC *{derh₁₂`

WORK CLAY  
*dheigh`-

WORM  
*{k}_₂{imis}, *mat`, *{wimis}*

WORSHIP  
GA*{yağ}*_

WOUND  
*{h₁éru}(s), *peles`, *swoře`, *wen`, *woho/eh₁₂`, WC *{weh₁}_t*_

WRAP  
*kenk`, *(s)keu(h₃)`, *(s)pre(n)g`, WC *{sper}*_

WRINKLE UP  
*reuk/g_*

WUG  
*{k}_₂{imis}, WC *{wimis}, C *{demelis}*

YAWN  
*{gh₁u}w`, *{gh₁jiy-eh₁₂`

YEAR  
*(h₁)yérọ/eh₁₂`, *{we}t`, NW *{h₁etnos}, WC *{h₁en}*_

YEAR (LAST)  
*{perut}*

YEARLING  
*wételos*

YELLOW  
*{gh₁} ~ *{ghel}*

YELP  
*bhels`*

YESTERDAY  
*(dh)ghyes*

YEW  
*{h₁eivos}, *taksos*

YIELD  
*weig/k*- 

YOKE  
*dhwerh₁₂`, *yugóm*

YONDER  
NW *{h₁etnos}*

YOU  
*uswe ~ *{swé}, *wóh₁`, *yu₃h`_*

YOUNG  
*h₃yeu`-

YOUNG BIRD  
*pipp`-

YOUNG DOG  
WC *(s)koli-`

YOUNG MAN  
*maghus`, *mëryos*

YOUNG PIG  
*pörkos`, C*{ghor}*

YOUNG WOMAN  
*maghwih₁₂`, *meri₁₂`

YOUTH  
*h₃yuh₃gkós*
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\[\text{a, ä, ä, c, e, i (i), k, l, ly, m (m), n (n), ŋ, o, p, r, s, š, t, ts, u (u), w, y}\]

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