Cognations of lexical characters.

This is the basic tabulation of lexical cognations that underlies the lexical character coding of Ringe, Warnow, and Taylor 2002. The tables on the following pages give the cognate judgments from which the coding of the characters for input to the algorithm was derived, with notes on how the actual coding of each character was derived.

This document has been very lightly revised. The only cognations that have been revised are those of 29 'die' and 302 'arrow' (since better information about the distribution of the OE synonyms shows that those characters are polymorphic in Late West Saxon OE), and 135 'say' (whose OE polymorphism had been omitted by accident). The consequences of those changes have not been worked out.

Since we tried to extract as much information as possible about the diversification of the family from these data, we have not always been satisfied with root-cognations; we also code for distinctive derivations whenever there is any indication that that might reveal shared history. As a result, many characters were given alternative codings for input to the algorithm (as illustrated in Ringe, Warnow, and Taylor 2002 using the example 69 'hand'). In addition, we have kept in mind the requirements of cladistics using character compatibility, e.g. suppressing unique states (which are compatible with any tree).

Finally, since our algorithm could not handle polymorphic characters, we employed two strategies to reduce single polymorphic characters to sets of monomorphic characters. If in a polymorphic character the languages exhibiting state *x* are a proper subset of those exhibiting state *y,* the character can be duplicated and two codings adopted: a "narrower" coding in which languages exhibiting both states *x* and *y* are coded separately from those exhibiting only *y,* and a "broader" coding in which all languages exhibiting state *y* (with or without *x*) are assigned the same state. We call this strategy "split coding". In cases where such a subset relation does not obtain this strategy is not feasible; however, in a limited number of cases an alternative, which we call "conflated split coding", can be used. Suppose that language A exhibits state *x,* language B exhibits states *x* and *y,* and language C exhibits only *y;* but whereas languages A and B share states of many characters exclusively, thus forming an obvious subgroup, *neither* shares a state of *any* character exclusively with C, which is thus necessarily outside that subgroup. In such a case we can duplicate the character, coding *x* and *x/y* together and *y* separately in one duplicate (thus replicating the known subgroup) and all three together in the other duplicate without introducing spurious incompatibilities into the data. However, such cases are disappointingly few.

Lexical characters.

The reader is reminded that the coding of lexical characters presented here allows for alternatives in actual working code. The notes to each character indicate which alternatives we have adopted and why.

1 all (pl.)

[two characters]

Hitt.	1	Av.	5a	Luv.	8	Goth.	6a
Arm.	2	OCS	5b	Lyc.	8	ON	6a
Gk.	3	Lith.	5b	TA	3	OHG	6a
Alb.	4	OE	6a	OPer.	5a	Welsh	9
TB	3	OI	6b	OPru.	5b	Osc.	10
Ved.	5a	Lat.	7	Latv.	5b	Umb.	11

3 *pā́ntes

6 *ol-

5 *wi-

6a (*olnoy >) PGmc. *allai

5a (*wík-wo- >) PIIr. *vićva-

6b PCelt. *olyoy

5b (*wi-so- >) PBS *visa-

8 PLuv. *pūno-

We have coded this character both by root-etymology and by derivational morphology, on the hypothesis that there is a direct historical connection between states 5a and 5b and likewise between states 6a and 6b.

See Hübschmann 1897:416 on the Armenian word (< *sm̥-) and Stang 1966:97, 238 on the Balto-Slavic forms.

2 and

Hitt.	1	Av.	6	Luv.	1	Goth.	14
Arm.	2	OCS	7	Lyc.	1	ON	15
Gk.	3	Lith.	7	TA	11	OHG	8
Alb.	4	OE	8	OPer.	6	Welsh	6
TB	5	OI	9	OPru.	12	Osc.	16
Ved.	6	Lat.	10	Latv.	13 [loan]	Umb.	10

1 PAnat. *Ho

8 *$h_2$entí ‘in front’

6 *k^{w}e

10 *éti ‘in addition’

7 *r̥ (particle)

On the Anatolian forms see Melchert 1992:46 with fn. 13 and references.

The second component of Welsh *a* ~ *ag* is almost certainly PIE *k^{w}e; we are grateful to

Joseph Eska for helpful discussion of that form.

3 animal

Hitt.	1	Av.	7	Luv.	10	Goth.	8
Arm.	2	OCS	3b	Lyc.	11	ON	8
Gk.	3a	Lith.	3c	TA	5	OHG	8
Alb.	4	OE	8	OPer.	12	Welsh	14 [loan]
TB	5	OI	9a	OPru.	13	Osc.	15
Ved.	6	Lat.	9b	Latv.	3d	Umb.	16

3a–d derivs. of *$g^{w}ih_3w$- ‘live’
5 PToch. *luwo
8 PGmc. *deuzą
9a–b derivs. of *h_2enh_1- ‘breathe’

Since all the derivatives of ‘live’ and ‘breathe’ are different in detail (not even the closely related Lithuanian and Latvian agree!), parallel development is overwhelmingly likely; we therefore do not code this character by root-etymology.
Note that Arm. *anasown* is literally ‘non-speaker’; not to 9.

4 ashes [polymorphic, but not effectively so]

[two characters]

Hitt.	1	Av.	7	Luv.	11	Goth.	1x
Arm.	2	OCS	8a	Lyc.	12	ON	1x
Gk.	3	Lith.	8b	TA	5/6	OHG	1x
Alb.	4	OE	1x	OPer.	13	Welsh	9
TB	5/6	OI	9	OPru.	8b	Osc.	14
Ved.	1	Lat.	10	Latv.	8b	Umb.	15

1 *h_2eHs-
1x PGmc. *askōn- ~ *azgōn-
5 PToch. *tawrə
6 PToch. *t(u)wëyë
8 *pel-
8a (reduplicated?)
8b PBalt. *pelenaĩ
9 PCelt. *lowtis (*$lewh_3$- ‘wash’)

Since states 5 and 6 always cooccur, we have coded them as a single state; the polymorphism of this character thus becomes ineffective.
We have coded this character both by root-etymology and by derivation, since it is reasonable to hypothesize that state 1x replaced state 1 directly and that there is a real historical connection between states 8a and 8b.

5 at

Hitt.	1	Av.	7	Luv.	11	Goth.	9
Arm.	2	OCS	8	Lyc.	12	ON	9
Gk.	3	Lith.	8	TA	5	OHG	9
Alb.	4	OE	9	OPer.	13	Welsh	15
TB	5	OI	10	OPru.	8	Osc.	9
Ved.	6	Lat.	9	Latv.	14	Umb.	9

5 PToch. *-në 8 *prey ‘before’ 9 *ad

On the Latvian form see Endzelīns 1923:524-6.

6 back [polymorphic]

Hitt.	1	Av.	6	Luv.	13	Goth.	18
Arm.	2	OCS	7	Lyc.	14	ON	9
Gk.	3	Lith.	8	TA	15	OHG	10
Alb.	4	OE	9/10	OPer.	16	Welsh	19
TB	5	OI	11	OPru.	17	Osc.	20
Ved.	6	Lat.	12	Latv.	8	Umb.	21

6 PIIr. *pr̥štʰá- 9 PNWGmc. *baką

8 PEBalt. *nugVrā or *mugVrā 10 PWGmc. *hrugi, *hrugʲgʲ-

The polymorphism is confined to Northwest Germanic and is leaf-connected.

7 bad

Hitt.	1	Av.	6	Luv.	1	Goth.	9
Arm.	2	OCS	7	Lyc.	12	ON	17
Gk.	3	Lith.	8	TA	13	OHG	9
Alb.	4	OE	9	OPer.	14	Welsh	18
TB	1	OI	10	OPru.	15	Osc.	11
Ved.	5	Lat.	11	Latv.	16	Umb.	19

1 *édwōl 11 PItal. *mal-

9 PGmc. *ubilaz (< *$h_2$upélos, cf. Hitt. *huwappas* ‘evil’ < *$h_2$wápos, Watkins 1969:30)

On the Tocharian B word see Adams 1999 s.v. *yolo* with references.

8 bark

Hitt.	1	Av.	7	Luv.	13	Goth.	19
Arm.	2 [loan]	OCS	8	Lyc.	14	ON	20
Gk.	3	Lith.	9	TA	15	OHG	10
Alb.	4	OE	10	OPer.	16	Welsh	21
TB	5	OI	11	OPru.	17	Osc.	22
Ved.	6	Lat.	12	Latv.	18	Umb.	23

10 PWGmc. *rindā

9 because [polymorphic, but not effectively so]

Hitt.	1a	Av.	4	Luv.	1ay	Goth.	3+b
Arm.	1a	OCS	2x	Lyc.	6	ON	3+c
Gk.	1+2	Lith.	1bx/3x	TA	1+3/1az	OHG	3+d+1by
Alb.	1ax	OE	3+a	OPer.	7	Welsh	9
TB	1+3/3y	OI	5	OPru.	8	Osc.	10
Ved.	4	Lat.	1b	Latv.	3x+1b	Umb.	11

1 derivs. of interrogative/indefinite *k^{w}i- ~ *k^{w}o-

1a *k^{w}íd, unextended

1ax, 1ay, 1az compounded with unique elements

1b *k^{w}ód, unextended

1bx compounded with unique element

(see also below)

2 derivs. of relative *Hyo-

1+2 (phrase →) compound of *Hyód and indef. *k^{w}id

2x compounded with unique elements

3 derivs. of demonstrative *to-

1+3 compound of *k^{w}íd and (an innovative form of) *to-

3x PEB *tādēl

3x+1b phrase

3y PToch. *məktë

3+a–c phrases including caseforms of *to-

3+d+1by phrase including an adverb derived from 1b

4 PIIr. *ź^{h}í

The meanings of the protoforms argue massive parallel development; clearly it would be extremely inadvisable to code this character by root-etymology. In our working code we have assigned separate states to all the languages except (1) Hitt. and Arm.; (2) TB and

TA (state 1+3); (3) Ved. and Av.; (4) Lith. and Latv. Note that under such a (very conservative) coding the polymorphisms are effectively nullified.
On the Armenian form see Clackson 1994:56, 210 fn. 98 with references.
Though the relative stem is no longer distinguishable from the pronoun *i- ~ *e- in Balto-Slavic, it seems reasonable to assign OCS *je-lĭ-ma, i-žde* to the relative stem etymologically because of their meanings.
We accept the derivation of Goth. *unte* < *und þē, pace Feist 1939 s.v.

10 belly

[two characters]

Hitt.	1	Av.	6a	Luv.	12	Goth.	9
Arm.	2	OCS	7	Lyc.	13	ON	9
Gk.	3	Lith.	8	TA	5	OHG	9
Alb.	4	OE	9	OPer.	14	Welsh	15
TB	5	OI	10	OPru.	6b	Osc.	16
Ved.	6a	Lat.	11	Latv.	6b	Umb.	17

6 *udero- / *wēdero-
5 PToch. *kat^{s}o
6a PIIr. *udáram
9 PGmc. *wambō
6b PBalt. *vēderas

We have coded this character both by root-etymology and by derivation, since it is reasonable to hypothesize a direct historical connection between states 6a and 6b.

11 big

[two characters]

Hitt.	1	Av.	2	Luv.	7	Goth.	2x
Arm.	2	OCS	4	Lyc.	8	ON	2x
Gk.	2	Lith.	5	TA	9	OHG	2x
Alb.	2	OE	2x	OPer.	10	Welsh	6
TB	3	OI	6	OPru.	11	Osc.	13
Ved.	2	Lat.	2	Latv.	12	Umb.	13

2 *meǵh$_2$-
6 *meh$_2$-ro-
2x PGmc. *mikilaz

13 These Osco-Umbrian comparatives and superlatives are difficult to judge. They might reflect *meh$_2$-is-, but analogical remodelling of *mag-is- on full-grade *mag-yos- (cf. Lat. *maior,* neut. *maius*) is also possible. We have therefore assigned them a separate state.

Note that the Gmc. comparatives and superlatives, which reflect *meh$_2$-is- and would therefore be coded 6, have been omitted.
We have coded this character both by root-etymology and by derivation, on the hypothesis that state 2x replaced state 2 directly (plausible but not certain, cf. the preceding comment).

12 bird

Hitt.	1	Av.	6	Luv.	11	Goth.	9
Arm.	2	OCS	7	Lyc.	12	ON	9
Gk.	3	Lith.	8	TA	5	OHG	9
Alb.	4	OE	9	OPer.	13	Welsh	10
TB	5	OI	10	OPru.	14	Osc.	15
Ved.	6	Lat.	6	Latv.	7	Umb.	6

5 phrase ‘flying animal’
6 *h$_2$éwi- ~ *h$_2$wéy-
7 PBS *put-
9 PGmc. *fuglaz
10 (*pet-no- >) PCelt. *etnos

In Welsh the inherited stem has become the plural, and a singular has been backformed to it.

13 bite

Hitt.	1	Av.	3	Luv.	10	Goth.	7
Arm.	2	OCS	6	Lyc.	11	ON	7
Gk.	3	Lith.	6	TA	12	OHG	7
Alb.	4	OE	7	OPer.	13	Welsh	15
TB	5	OI	8	OPru.	14	Osc.	16
Ved.	3	Lat.	9	Latv.	6	Umb.	17

3 *denḱ-
6 PBS *kand-
7 PGmc. *bītidi (< *b^{h}eyd- ‘split’)

14 black [with parallel development]

Hitt.	1	Av.	7	Luv.	1	Goth.	9
Arm.	2 [loan]	OCS	6	Lyc.	12	ON	9
Gk.	3	Lith.	8	TA	5	OHG	9
Alb.	4	OE	9	OPer.	13	Welsh	10
TB	5	OI	10	OPru.	6	Osc.	14
Ved.	6	Lat.	11	Latv.	3	Umb.	11

1 PAnat. *dn̥gwi-
3 *melh$_2$-n-
5 PToch. *ërk^{w}ënt-
6 *kr̥snós
9 PGmc. *swartaz
10 PCelt. *dubus
11 PItal. *ātros

On the Anatolian forms see Starke 1987:263, fn. 74.
The Armenian form is an Iranian loan, pace Hübschmann 1897:489; see Olsen 1999:906 with references.
The parallel development of this character is confined to the satem group; it probably involves semantic shift between color terms of similar meaning.

15 blood [with parallel development]
[two characters]

Hitt.	1	Av.	4	Luv.	1	Goth.	6
Arm.	1	OCS	5a	Lyc.	9	ON	6
Gk.	2	Lith.	5b	TA	1	OHG	6
Alb.	3	OE	6	OPer.	10	Welsh	11
TB	1	OI	7	OPru.	5b	Osc.	12
Ved.	1	Lat.	8	Latv.	1	Umb.	13

1 *ésh$_2$r̥
6 PGmc. *blōþą ~ *blōda-
5 derivs. of *krewh$_2$- ‘gore’
5a *kruh$_2$-i-
5b PBalt. *krauja-

The parallel development is confined to Balto-Slavic.
We have coded this character both by root-etymology and by derivation, on the hypothesis that there is a close historical connection between states 5a and 5b.

16 blow [polymorphic]

Hitt.	1	Av.	6	Luv.	10	Goth.	6
Arm.	2	OCS	6	Lyc.	11	ON	14
Gk.	3	Lith.	7	TA	5	OHG	6/14
Alb.	4	OE	6	OPer.	12	Welsh	15
TB	5	OI	8	OPru.	13	Osc.	16
Ved.	6	Lat.	9	Latv.	7	Umb.	17

5 PToch. *piya-
6 *h$_2$wḗh$_1$ti
7 PEBalt. *putja
14 PNWGmc. *blāsidi

The polymorphism is confined to Northwest Germanic and is leaf-connected.

17 bone [polymorphic]

[two monomorphic characters by conflated split coding]

Hitt.	1	Av.	1	Luv.	1	Goth.	10
Arm.	1	OCS	4	Lyc.	8	ON	6
Gk.	1	Lith.	5	TA	3	OHG	6
Alb.	2	OE	6	OPer.	9	Welsh	1
TB	1/3 (?)	OI	7	OPru.	5	Osc.	11
Ved.	1	Lat.	1	Latv.	5	Umb.	12

1 *$h_2$óst ~ *$h_2$ést-
3 PToch. *ayə
5 PBalt. *kaulan
6 PNWGmc. *bainą

The polymorphism is confined to Tocharian and is leaf-connected. If the (pre-) PToch. singular should instead be reconstructed as *ay (the apparent *-ə being the result of analogical changes), and if *ay can reflect *ast or *ōst by regular sound change (Katz 1997:76-7) , then 3 = 1 and the polymorphism disappears; but in that case the TA word must be a loan from TB (Katz, loc. cit. with references) and should therefore be assigned a separate state. In the scenario preferred here, *ayə > TA nom./obl. sg. *e, but *āyä-* in the inflected forms, by regular sound change, and from the latter *āy* is reintroduced into the nom./obl. sg.

We have reduced this character to two monomorphic characters by conflated split coding, with 3 ∪ 1/3 coded against 1 in one character and all three coded together in the other.

18 breast

[two characters]

Hitt.	1	Av.	2	Luv.	1	Goth.	7a
Arm.	2	OCS	5	Lyc.	10	ON	7a
Gk.	3	Lith.	6	TA	2	OHG	7a
Alb.	4	OE	7a	OPer.	11	Welsh	7b
TB	2	OI	8	OPru.	12	Osc.	13
Ved.	2	Lat.	9	Latv.	6	Umb.	14

1 PAnat. *dēdan
2 *pstén-
6 PEBalt. *krūtis
7 derivs. of *b^hrews-
7a PGmc. *breust- ~ *brust-
7b PCelt. *brusn-

We have coded this character both by root-etymology and by derivation, since it is reasonable to hypothesize a direct historical connection between states 7a and 7b. (Note, however, that the OIr. cognate means ‘belly’.)

19 breathe

Hitt.	1	Av.	5	Luv.	9	Goth.	5
Arm.	2	OCS	6a	Lyc.	10	ON	5
Gk.	3	Lith.	7	TA	11	OHG	14
Alb.	4	OE	5	OPer.	12	Welsh	5
TB	5	OI	5	OPru.	13	Osc.	15
Ved.	5	Lat.	8	Latv.	6b	Umb.	16

5 *$h_2$énh$_1$ti and derivs. 6a, 6b derivs. of *d^hwes-

The Balto-Slavic forms are only distantly related: the OCS verb exhibits a process of vowel-lengthening (*dūš- ← *duš-) by which verbs are derived from other verbs, while the Latvian verb is transparently derived from the noun *dvasa* 'breath'. Coding by root-etymology is therefore inadvisable.

The derivatives of PIE *$h_2$enh$_1$- 'breathe' are also very diverse, but there is a reasonable likelihood that they replaced the inherited verb without intermediaries formed to other roots; thus we have assigned them all the same state.

This character is consequently uninformative, as there is only one shared state.

20 burn

Hitt.	1	Av.	4	Luv.	9	Goth.	6
Arm.	2	OCS	5	Lyc.	10	ON	6
Gk.	3	Lith.	4	TA	4	OHG	6
Alb.	4	OE	6	OPer.	11	Welsh	7
TB	4	OI	7	OPru.	12	Osc.	13
Ved.	4	Lat.	8	Latv.	4	Umb.	14

4 *d^hég^{wh}etor (with various developments of passive voice morphology)

6 PGmc. *brinnidi 7 PCelt. *losk-

The most widespread form was originally a passive, apparently supplanting an older intransitive verb *war- (state 1).

21 child

Hitt.	1	Av.	7	Luv.	13	Goth.	10
Arm.	2	OCS	8	Lyc.	14	ON	10
Gk.	3	Lith.	9	TA	5	OHG	18
Alb.	4	OE	10	OPer.	15	Welsh	19
TB	5	OI	11	OPru.	16	Osc.	20
Ved.	6	Lat.	12	Latv.	17 [loan]	Umb.	21

5 PToch. *śawmo ‘person’ and deriv. (dimin. in TB)

10 PGmc. *barną

It cannot be demonstrated that Gk. πά(ϝ)ις and Lat. *puer* are cognate.

22 claw

Hitt.	1	Av.	6	Luv.	8	Goth.	13
Arm.	2	OCS	3	Lyc.	9	ON	7
Gk.	3	Lith.	3	TA	10	OHG	7
Alb.	4	OE	7	OPer.	11	Welsh	14
TB	5	OI	3	OPru.	12	Osc.	15
Ved.	3	Lat.	3	Latv.	3	Umb.	16

3 *h_3nog^h-(u-) with deformations and derivs.

7 PNWGmc. *klawu

23 cloud, 57 fog, AND 146 sky [polymorphic set; see notes for coding]

	146 sky	23 cloud	57 fog
Hitt.	1	2	3
Arm.	4	5	6a
Gk.	7	1	6b
Alb.	8	9	6c
TB	10	11	12
Ved.	13	1/6a	6d
Av.	13/14	5/6a/15	16
OCS	1	17	6b
Lith.	18	1x	6b
OE	19	20	6e
OI	1	1y	21
Lat.	22	15	1z
Luv.	1	23	24
Lyc.	25	26	27
TA	28 [loan]	11	29
OPer.	14	30	31
OPru.	18	32	33
Latv.	1x	1xx	6b
Goth.	19	34	35
ON	19	36	37
OHG	19	20	1z
Welsh	38	39 [loan]	40 [loan]
Osc.	41	42	43
Umb.	44	45	46

1 *néb^{h}os ‘cloud’ and derivs.
- 1x PEBalt. *debesis
  - (1xx cpd. of 1x)
- 1y PCelt. *neblos (?)
- 1z *neb^{h}eleh$_2$

5 *h$_3$emb-

6 derivs. of *(h$_3$)meyg^{h}-
- 6a *(h$_3$)moyg^{h}ós
- 6b *(h$_3$)mig^{h}leh$_2$
- 6c–e other

11 PToch. *tərkər ‘cloud’

13 *dyḗws ‘sky’

14 *h$_2$éḱmō ‘(sharp) stone’

15 *snewd^{h}-

18 PBalt. *dangus ‘sky’

19 PGmc. *hemunaz, *himinaz ‘sky’

20 PWGmc. *wolkn ‘cloud’

The Irish and Luvian deformations of *nébʰos are poorly understood; since they do not seem to be significantly shared, we have coded them separately.
The polymorphism of 146 ‘sky’ is confined to Iranian and is leaf-connected. For that character we employ conflated split coding, with 7 ∪ 6/7 coded against 6 in one character and all three coded together in the other; 146 ‘sky’ then becomes convex (though state 1 ‘cloud’ is posited—wrongly—as the ancestral state).
Both in 146 ‘sky’ and in 23 ‘cloud’ we have adopted both codings for state 1 and its substates; thus ‘cloud’ is also coded as two characters.
For 57 ‘fog’ we have used both codings of state 6 and its substates; but it seems clear that in the alternative in which state 6 is coded as a unit parallel development must be recognized.
Otherwise the polymorphism and parallel development of this set is extensive and complex; recognition of the set is not particularly helpful in reconstructing what happened, nor in constraining the tree.

24 cold [polymorphic]

Hitt.	1	Av.	7/8	Luv.	12	Goth.	10
Arm.	2	OCS	9	Lyc.	13	ON	10
Gk.	3	Lith.	8	TA	5	OHG	10
Alb.	4	OE	10	OPer.	14	Welsh	7x
TB	5	OI	7x	OPru.	8	Osc.	15
Ved.	6	Lat.	11	Latv.	7/8	Umb.	16

5 PToch. *kʷərośce
7 derivs. of *ow-
7x PCelt. *ougros
8 *ḱolHtos
10 PGmc. *kaldaz (< *gol-)

Since the Celtic words and the apparently related words in satem languages are actually formed to roots of different shape (the correct analysis of the Proto-Celtic form is *oug-ro-s), we have coded them separately.
The polymorphism is confined to the satem group and is leaf-connected.
On the difficulties besetting the Tocharian forms see Hilmarsson 1996:182-3, 194-5.
Note that the Germanic forms are not related to set 8.

25 come, 185 walk, AND 343 go [polymorphic set; see notes for coding]

	25 come	343 go	185 walk
Hitt.	1s	1t	1u
Arm.	2	3	4
Gk.	1v	1	5
Alb.	6 [loan]	7	8
TB	9	1	1
Ved.	1w/9x	1/9	9
Av.	1w/9x	1/9	9
OCS	1x	1	1
Lith.	1y	1	1
OE	9	10/11/12	10/12
OI	13x	13	13
Lat.	9	1	14
Luv.	1s	1	15
Lyc.	16	17	18
TA	9	1	1
OPer.	1w/9x	1	19
OPru.	1z	1	20
Latv.	21	1	1/13y
Goth.	9	12/22	12
ON	9	11/12/22	12
OHG	9	10/11/12	10/12
Welsh	23	24	25
Osc.	9y	1	26
Umb.	9	1	14

1 *$h_1$éyti ‘go’
- 1s–z cpds. and (1u) deriv.
- 1s PAnat. *awḗti ‘come’
- 1w PIIr. *á aiti ‘come’

9 *g^wem- ‘step’ (pres. *g^wm̥sḱéti ‘walk’)
- 9x PIIr. *á gasćati ‘come (walking)’
- 9y cpd. with *ḱe- ‘hither’

10 PWGmc. *gai- ‘go’

11 PGmc. *faridi ‘go, travel’

12 PGmc. *gangidi ‘go’

13 *steyg^h- ‘step’
- 13x–y cpd. and deriv.

14 PItal. *amf-al- ‘walk’

22 PGmc. *līþidi ‘go, travel’

Since the compounds of the basic verbs appear to be independent formations, they are coded separately. Note further that 13y reflects a denominative formed from a noun which is derived from *steyg^h-; thus it too is coded separately.

The character 25 ‘come’ by itself is actually convex on every likely tree, but the meaning reconstructable for state 9 argues strongly that there has been extensive parallel development. We have adopted both codings for state 9 and its substates; in the narrower coding the polymorphism of the character is ineffective: since states1w and 9x always cooccur, they are coded as a single state.

In the character 343 ‘go’, the Indo-Iranian polymorphism is local and leaf-connected; so is the Germanic polymorphism, in spite of its greater complexity.

In the character 185 ‘walk’, the Latvian polymorphism is not effective; the effective polymorphism is confined to West Germanic and is leaf-connected.

26 count [polymorphic]

[two monomorphic characters, in part by conflated split coding]

Hitt.	1	Av.	7	Luv.	12	Goth.	17
Arm.	2	OCS	8a	Lyc.	13	ON	10
Gk.	3	Lith.	8b	TA	14	OHG	10
Alb.	4	OE	9/10	OPer.	15	Welsh	9
TB	5	OI	9	OPru.	16	Osc.	18
Ved.	6	Lat.	11	Latv.	8b	Umb.	19

8 diversified Balto-Slavic set

8a pre-Sl. *keit-

8b PEBalt. *skait-

9 *rīm-

10 PNWGmc. *taliþi (*talja-)

The ablaut difference of the Balto-Slavic forms suggests that the East Baltic verb was originally denominative; its *s-, however, is puzzling. Since it is reasonable to suppose that a denominative replaced the basic verb directly, we have employed both codings. The polymorphism is confined to Northwest Germanic and is leaf-connected. We employ conflated split coding to construct two monomorphic characters, with 10 ∪ 9/10 coded against 9 in one character and all three coded together in the other.

27 cut [polymorphic]

Hitt.	1	Av.	5b	Luv.	1/5a	Goth.	13
Arm.	2	OCS	7/8	Lyc.	10	ON	5c/9/13
Gk.	3	Lith.	5b/8	TA	5ax/6	OHG	9
Alb.	4	OE	5c/9	OPer.	5b	Welsh	14
TB	5ax/6	OI	7	OPru.	11	Osc.	15
Ved.	5b	Lat.	7	Latv.	12	Umb.	7

1 PAnat. *kʷérti
5 extensions of *ker-
5a *kers-
5ax PToch. *kərst-n-a(-ṣə)
5b *kert-
5c PGmc. *skiridi (*skera-)
6 PToch. *latkəna(ṣə)
7 *sek-
8 PBS *rēžjeti
9 PGmc. *snīþidi
13 PGmc. *maitidi

We have coded states 5a–c and 5ax separately, but the result is still a complex instance of polymorphism, as follows:

the Anatolian polymorphism (1/5a) is ineffective, as state 5a is unique;

the Tocharian polymorphism (5ax/6) can be coded as a single state, since its component states always cooccur;

the Northwest Germanic polymorphism (5c/9/13) is local and leaf-connected;

but states 5b, 7, and 8 must all be assigned to Proto-Balto-Slavic, and states 5b and 7 may need to be assigned to various nodes higher in the tree.

The most probable explanation for this pattern is that we have been unable to specify the meaning of this character narrowly enough, and that a substantial group of near-synonyms contributes states to it in a large number of languages (both attested and reconstructed).

28 day (= 24 hrs.)

[two characters]

Hitt.	1w	Av.	4	Luv.	7	Goth.	5
Arm.	2	OCS	1y	Lyc.	8	ON	5
Gk.	2	Lith.	1y	TA	3	OHG	5
Alb.	1x	OE	5	OPer.	9	Welsh	10 [loan]
TB	3	OI	6	OPru.	1y	Osc.	1z
Ved.	1	Lat.	1	Latv.	1y	Umb.	1z

1 *dyḗws and derivs.
1w PAnat. *díwots
1x *dit-
1y *deyn- ~ *din-
1z POU *dyēklo-
2 *ā́mr̥
3 PToch. *kawnə
5 PGmc. *dagaz

We have employed both alternative codings, on the reasonable hypothesis that states 1w, etc. replaced state 1 directly.

28a day (vs. night)

[two characters]

Hitt.	1w	Av.	4	Luv.	7	Goth.	5
Arm.	1	OCS	1y	Lyc.	8	ON	5
Gk.	2	Lith.	1y	TA	3	OHG	5
Alb.	1x	OE	5	OPer.	9	Welsh	1
TB	3	OI	6	OPru.	10	Osc.	11
Ved.	4	Lat.	1	Latv.	1y	Umb.	12

NOTE that not all the states of this character represent the same cognate sets as the states of the preceding; state 4, for example, does not.

1 *dyḗws and derivs.
1w PAnat. *díwots
1x *dit-
1y *deyn- ~ *din-
3 PToch. *kawnə
4 PIIr. *áźʰar ~ *áźʰan-
5 PGmc. *dagaz

We have employed both alternative codings, on the reasonable hypothesis that states 1w, etc. replaced state 1 directly.

It would have been possible to code this pair of characters as a polymorphic set, but nothing would be gained by such a strategy, since (a) the shared states are not distributed in significantly different patterns in the two component characters, and (b) both characters are monomorphic in any case.

29 die [polymorphic]

[two characters originally; shared state 11 will necessitate recoding]

Hitt.	1	Av.	2	Luv.	8	Goth.	10x/11
Arm.	2	OCS	2	Lyc.	8	ON	10
Gk.	3	Lith.	2x	TA	8	OHG	6/10
Alb.	4	OE	6/11	OPer.	2	Welsh	2
TB	5	OI	7	OPru.	9	Osc.	12
Ved.	2	Lat.	2	Latv.	2x	Umb.	13

2 *mer- (pres. *mr̥yétor)
2x PEB pres. *miršta
6 PWGmc. *stirbidi (*sterba-)
8 *wel-
10 PGmc. *dawiþi (*dauja-)
10x denom. *dauþ-na-
11 PGmc. *swiltidi (*swelta-)

The polymorphisms are confined to Germanic and are leaf-connected.

We originally employed both potential codings (without state 11), since direct replacement of state 2 with 2x (and of 10 with unique 10x) is probable.

The Old Prussian word is not cognate with set 8, but with Lith. *liáutis* ‘to cease’, *lavónas* ‘corpse’, etc.

30 dig

Hitt.	1	Av.	6	Luv.	11	Goth.	9
Arm.	2	OCS	7	Lyc.	12	ON	9
Gk.	3	Lith.	8	TA	5	OHG	9
Alb.	4	OE	9	OPer.	6	Welsh	10
TB	5	OI	10	OPru.	13	Osc.	15
Ved.	6	Lat.	1	Latv.	14	Umb.	16

1 *b^hodh_2- ~ *b^hedh_2-
5 PToch. *rəpa-
6 PIIr. *kánti
9 PGmc. *grabidi
10 PCelt. *klād- ~ *klad-

31 dirty

Hitt.	1	Av.	7	Luv.	13	Goth.	19
Arm.	2	OCS	8	Lyc.	14	ON	19
Gk.	3	Lith.	9	TA	15 [loan]	OHG	19
Alb.	4	OE	10	OPer.	16	Welsh	20
TB	5	OI	11	OPru.	17	Osc.	21
Ved.	6	Lat.	12	Latv.	18	Umb.	22

19 PGmc. *unhrainiz ‘unclean’

Note that the Tocharian B and Old Irish forms are unrelated; see Adams 1999 s.v. *sal.*

32 dog

Hitt.	1	Av.	1	Luv.	1	Goth.	1x
Arm.	1	OCS	3	Lyc.	5	ON	1x
Gk.	1	Lith.	1	TA	1	OHG	1x
Alb.	2 [loan]	OE	1x	OPer.	6	Welsh	1
TB	1	OI	1	OPru.	1	Osc.	7
Ved.	1	Lat.	4	Latv.	1	Umb.	8

1 *ḱwō 1x PGmc. *hundaz

The Latin word is not related; cf. Welsh *ceneu* ‘puppy’, pl. *canawon.*

On the evidence for the Hittite word see Melchert 1989.

We have coded states 1 and 1x separately, simply because if they are coded together there will be only one shared state and the character will be uninformative.

33 drink

Hitt.	1	Av.	4	Luv.	1	Goth.	6
Arm.	2	OCS	3	Lyc.	7	ON	6
Gk.	3	Lith.	5	TA	1	OHG	6
Alb.	3	OE	6	OPer.	8	Welsh	3
TB	1	OI	3	OPru.	3	Osc.	3
Ved.	3	Lat.	3	Latv.	5	Umb.	9

1 *ḗh$_2$g^{wh}ti 5 PEBalt. *gerja

3 *peh$_3$- ~ *pī- (pres. *píbeti)6 PGmc. *drinkidi

On the Anatolian and Tocharian forms see Kim 2000; though considerable analogical remodelling must be posited to explain the shape of the Tocharian verb, the two do appear to be related.

34 dry [polymorphic]

[two characters]

Hitt.	1	Av.	6x	Luv.	10	Goth.	8b
Arm.	2	OCS	6	Lyc.	11	ON	8b
Gk.	3	Lith.	6	TA	5	OHG	7/8b
Alb.	4	OE	7	OPer.	6x	Welsh	12 [loan]
TB	5	OI	8a	OPru.	6	Osc.	13
Ved.	6x	Lat.	9	Latv.	6	Umb.	14

5 PToch. *asarë

6 *sawsos

6x PIIr. *suškas

7 PWGmc. *drūg- ~ *drug-

8 derivs. of *ters- ‘be dry’

8a pre-Celt. *tērs-

8b PGmc. *þursu- ~ *þurzu-

The polymorphism is confined to West Germanic and is leaf-connected.

Given that the Germanic and Celtic states are derivatives of a verb root, it is most unlikely that there is any direct connection between them; we have therefore coded them separately. On the other hand, it is reasonable to suppose that state 6x replaced state 6 directly; therefore our coding employs the “superstate” including 6 and 6x, as well as those two states.

35 dull

Hitt.	1	Av.	7	Luv.	13	Goth.	19
Arm.	2	OCS	8	Lyc.	14	ON	20
Gk.	3	Lith.	9	TA	15	OHG	20
Alb.	4	OE	10	OPer.	16	Welsh	21
TB	5	OI	11	OPru.	17	Osc.	22
Ved.	6	Lat.	12	Latv.	18	Umb.	23

20 PNWGmc. *slewaz

36 dust [polymorphic, but not effectively so]

Hitt.	1	Av.	8	Luv.	14	Goth.	19
Arm.	2	OCS	9	Lyc.	15	ON	11b
Gk.	3	Lith.	10	TA	5/6	OHG	19
Alb.	4	OE	11a	OPer.	16	Welsh	20
TB	5/6	OI	12	OPru.	17	Osc.	21
Ved.	7	Lat.	13	Latv.	18	Umb.	22

5 PToch. *twëyë
6 PToch. *tawrə
11a–b NWGmc. *dunst-, *dust- (see below)
19 PGmc. *stubjuz

The Tocharian polymorphism is ineffective: since states 5 and 6 always cooccur, they can be coded as a single state.

It seems prudent to code the Old English and Old Norse states separately, for the following reasons. The long vowel of OE *dūst* is guaranteed by Middle English spellings (the short *u* of northern *dusst* (in the Orrmulum) and the modern word can reflect borrowing from Norse); thus the OE word should reflect PWGmc. *dunst. ON *dust* reflects a preform without *-n-, and since the *-n- must be part of the root, the two words exhibit different root-shapes. Both shapes reappear elsewhere in West Germanic (in a range of meanings including 'fine meal, dust,' and the like); moreover, OHG *dunst* apparently reflects a form with *þ-, so that further interaction between roots must be reckoned with. See now Lloyd et al. 1998 s.v. *dunst.*

37 ear

[two characters]

Hitt.	1	Av.	5	Luv.	1	Goth.	2x
Arm.	2	OCS	2	Lyc.	6	ON	2x
Gk.	2	Lith.	2	TA	3x	OHG	2x
Alb.	2	OE	2x	OPer.	5	Welsh	3y
TB	3x	OI	3y	OPru.	2	Osc.	7
Ved.	4	Lat.	2	Latv.	2	Umb.	8

1 *stómn̥ ~ *stm̥én- ('ear' ?)

2 *$h_2$éwsos
2x PGmc. *ausōn- ~ *auzōn-

3 derivs. of *ḱlew- 'hear'
3x PToch. *klëwt^{s}o
3y PCelt. *klowstā

5 PIr. *gaušah

We employ both codings for superstate 2, but since the two derivatives of 'hear' are clearly independent we have coded them separately.

38 earth

[two characters]

Hitt.	1	Av.	1	Luv.	1	Goth.	4
Arm.	2	OCS	1x	Lyc.	7	ON	4
Gk.	3	Lith.	1x	TA	1	OHG	4
Alb.	1	OE	4	OPer.	8	Welsh	9
TB	1	OI	5	OPru.	1x	Osc.	6
Ved.	1	Lat.	6	Latv.	1x	Umb.	10

1 *d^hé$ǵ^h$ōm, *$ǵ^h$m-, loc. *$d^hǵ^h$ém
1x PBS *žemjā
4 PGmc. *erþō
6 PItal. *tersā

We employ both codings for superstate 1.

39 eat [polymorphic]

Hitt.	1	Av.	4	Luv.	1	Goth.	1
Arm.	1	OCS	1	Lyc.	7	ON	1
Gk.	1	Lith.	5	TA	3	OHG	1
Alb.	2	OE	1	OPer.	8	Welsh	9
TB	3	OI	6	OPru.	1/5	Osc.	1
Ved.	1	Lat.	1	Latv.	1	Umb.	10

1 *h_1ḗdsti
3 PToch. *śuwa(ṣə)
5 PBalt. *valgā

The polymorphism is confined to Baltic and is leaf-connected.

40 egg

Hitt.	1	Av.	7	Luv.	10	Goth.	16
Arm.	2	OCS	3	Lyc.	11	ON	3
Gk.	3	Lith.	8	TA	12	OHG	3
Alb.	4	OE	3	OPer.	13	Welsh	3
TB	5	OI	9	OPru.	14	Osc.	17
Ved.	6	Lat.	3	Latv.	15	Umb.	18

3 *(h_2)ōwióm

On the Welsh and Irish forms cf. Lewis and Pedersen 1961:14, 29.

41 eye

[two characters]

Hitt.	1a	Av.	4	Luv.	1a	Goth.	2x
Arm.	2	OCS	2	Lyc.	1a	ON	2x
Gk.	2	Lith.	2	TA	2	OHG	2x
Alb.	3	OE	2x	OPer.	4	Welsh	5
TB	2	OI	1b	OPru.	2	Osc.	6
Ved.	2	Lat.	2	Latv.	2	Umb.	7

1 derivs. of *sek^{w}- ‘see’

2 *h$_2$ók^{w}

1a PAnat. *sóg^{w}o-

2x PGmc. *augōn-

1b PCelt. *sok^{w}lis

4 PIr. *čašma

It is most unlikely that there is any direct connection between states 1a and 1b; coding by root-etymology is therefore inadvisable. On the other hand, it is very likely that state 2x replaced state 2 directly (since the Germanic word for ‘eye’ has clearly been deformed by lexical analogy with ‘ear’); we have therefore employed both codings in that case.

42 fall, 53 float, 54 flow, 56 fly, AND 166 swim [polymorphic set; see notes for coding]

	42 fall	56 fly	54 flow	53 float	166 swim
Hitt.	1	2	3	4	5
Arm.	6	7	8	9	9
Gk.	2	2	10	9	11
Alb.	12	13	14	9	15 [loan]
TB	16	9	17	9	11
Ved.	18	2	10/19	9	9
Av.	2	2/9	19	20	21
OCS	18	22	23	9	9
Lith.	24	25	23	9x/9y	9x
OE	26	9x	9z	9y	27
OI	28	9	29	11	11
Lat.	30	31	32	32	11
Luv.	33	34	3	35	36
Lyc.	37	38	39	40	41
TA	16	9	42	43	44
OPer.	45	46	47	48	49
OPru.	50	51	52	53	54
Latv.	24	55	23/9y	9y	56
Goth.	57	58	59	60	61
ON	26	9x	9y/59	9y	27
OHG	26	9x	9y/59	9y	27
Welsh	62	2	63	11	11
Osc.	64	65	66	67	68
Umb.	69	70	71	72	73

2 *pet(h_2)- ‘fly’

3 *érsti ‘flow’

9 *pléweti ‘float’ and derivs.

- 9x *plew-k-
- 9y *plew-d-
- 9z *plōw- (*pleh$_3$-?)

10 *sréweti ‘flow’

11 *sné$h_2$ti ‘bathe’ and derivs.

16 PToch. *klow^{y}otər ‘fall’

18 *ped- ‘fall’

19 PIIr. *g^{h}žárati ‘flow’

23 *ték^{w}ti ‘run’

24 PEBalt. *kr__t- (?) ‘fall’

26 PNWGmc. *fallidi ‘fall’

27 PNWGmc. *swimmidi ‘swim’

32 Latin *flu*- ‘flow’

59 PGmc. *rinnidi ‘run’

Though state 32 recurs, it is confined to a single language (Latin).

The East Baltic words assigned to state 24 are apparently connected, though the root syllable has been distorted in one language or the other, so that it cannot be fully reconstructed. The Old Prussian root, however, is *krū-* (the *-t* is the infinitive ending), which appears to be different.

On the preform of state 9z see Rix et al. 2001 s.v. *pleh$_3$-.

In 53 'float' we have employed both codings for state 9 and its substates; since 9x is unique, both the resulting characters are effectively monomorphic. In 54 'flow' and 56 'fly' we have coded the substates separately, since those characters are polymorphic in any case. In 166 'swim' we have coded states 9 and 9x together, since the latter is unique.

Even the members of this set which are not polymorphic exhibit extensive parallel development. On the other hand, analysis of that phenomenon as borrowing of states between different characters of the set gives an unusually "clean" and unproblematic picture of the characters' development.

43 far

[two characters]

Hitt.	1	Av.	1x	Luv.	8	Goth.	2c
Arm.	2a	OCS	5	Lyc.	9	ON	2c
Gk.	2b	Lith.	6	TA	4	OHG	2c
Alb.	3 [loan]	OE	2c	OPer.	1x	Welsh	11
TB	4	OI	7	OPru.	10	Osc.	12
Ved.	1x	Lat.	2d	Latv.	6	Umb.	13

1 *dweh$_2$-
1x *duh$_2$ró-
4 PToch. *law, *lawkë
6 PEBalt. *tāl-

2 derivs. of *per-
2a *per-s- (*per-n- ?)
2b deriv. of *próti
2c PGmc. *ferr-
2d (other deriv. of *pró)

States 2a–d are only distantly related. Attic Greek πόρρω also 'further', reflects πόρσω < πρόσω (attested in other dialects), a derivative of πρός 'towards' < *próti, whose connection with the other forms is remote. Armenian *ṙ* should reflect *rs (or *rn?; see Olsen 1999:435), yet in Germanic we find neither *rs nor *rz (nor *rn) but a puzzling *rr. We have therefore coded all these states separately.

On the other hand, it is reasonable to suppose that state 1x replaced state 1 directly; for that pair of states we have therefore used both codings.

44 fat

Hitt.	1	Av.	6a	Luv.	11	Goth.	14
Arm.	2 [loan]	OCS	7	Lyc.	12	ON	8
Gk.	3	Lith.	7	TA	5	OHG	6b
Alb.	4 [loan]	OE	8	OPer.	13	Welsh	15
TB	5	OI	9 [loan]	OPru.	7	Osc.	16
Ved.	6a	Lat.	10	Latv.	7	Umb.	10

5 PToch. *ṣəlʸpʸë
6 derivs. of *peyH- ‘fat’
6a PIIr. *pī́vas
6b PWGmc. *faitid-
7 PBS *taukas
8 PNWGmc. *smerwą
10 PItal. *adep-

On the Celtic words see Pedersen 1909:22-4.

States 6a, 6b are very distantly related; we have therefore coded them separately.

45 father [with parallel development]

Hitt.	1	Av.	2	Luv.	4	Goth.	1
Arm.	2	OCS	1	Lyc.	4	ON	2
Gk.	2	Lith.	3	TA	2	OHG	2
Alb.	1	OE	2	OPer.	2	Welsh	5
TB	2	OI	2	OPru.	3	Osc.	2
Ved.	2	Lat.	2	Latv.	3	Umb.	2

1 *átta ‘dad’
2 *ph$_2$tḗr
3 PBalt. *tēvas
4 PAnat. *dáda ‘dad’

46 fear [polymorphic]

[two monomorphic characters, in part by conflated split coding]

Hitt.	1	Av.	5a	Luv.	8	Goth.	4b/6
Arm.	2	OCS	5b	Lyc.	9	ON	11
Gk.	2	Lith.	5c	TA	4a	OHG	4b
Alb.	3	OE	4b	OPer.	10	Welsh	12
TB	4a	OI	6	OPru.	5c	Osc.	13
Ved.	5a	Lat.	7	Latv.	5d	Umb.	14

2 *dwey-

4 *prek-

4a PToch. *praska- ~ *pərska-

←< pres. *pr̥(k)-sḱé/ó-

4b derivs. of PGmc. *furhtaz ‘fearful’ < adj. *pr̥któs

5 satem *b^{h}eyH-

5a PIIr. perf. *b^{h}eb^{h}óy(H)e

5c PBalt. *bijā

5b, 5d (other derivs.)

6 perf. *h$_2$eh$_2$óg^{h}e ‘be upset’

There is a high probability that the connection between states 4a and 4b is indirect; we have therefore coded them separately. On the other hand, it is reasonable to hypothesize a direct historical connection between states 5a–d; we have therefore employed both alternative codings for those states.

The polymorphism is confined to Germanic and is leaf-connected. We have employed conflated split coding to recode this character as two monomorphic characters, with 4b ∪ 4b/6 coded against 6 in one character and all three coded together in the other. In the latter character we have coded superstate 5 as a unit.

47 feather

[two characters]

Hitt.	1	Av.	3z	Luv.	8	Goth.	14
Arm.	2	OCS	3	Lyc.	9	ON	6a
Gk.	3x	Lith.	5	TA	10	OHG	6a
Alb.	4 [loan]	OE	6a	OPer.	11	Welsh	15 [loan]
TB	3y	OI	7	OPru.	12	Osc.	16
Ved.	3z	Lat.	6b	Latv.	13	Umb.	17

3 *peróm

3x → *pteróm by lexical analogy with *pet- ~ *pt- ‘fly’

3y remodelled as u-stem

3z *pernóm

6 derivs. of *pet- ‘fly’

6a PNWGmc. *feþru (as if) < *petreh$_2$

6b *petneh$_2$

6a and 6b appear to be independent derivations; we have therefore coded them separately. On the other hand, we have employed both codings for superstate 3, since direct historical connection between states 3, 3x, etc. appears probable.

48 few

[two characters]

Hitt.	1	Av.	7	Luv.	12	Goth.	10a
Arm.	2	OCS	8	Lyc.	13	ON	10a
Gk.	3	Lith.	9	TA	14	OHG	10a
Alb.	4 [loan]	OE	10a	OPer.	7	Welsh	16
TB	5	OI	11	OPru.	15	Osc.	17
Ved.	6	Lat.	10b	Latv.	9	Umb.	18

7 PIr. *kamna-
9 PEBalt. *mažai
10a PGmc. *fawai < *paw-o-
10b *paw-ko-

The *-h-* of OHG dat. pl. *fōh-* is probably only graphic (pace Braune and Reiffenstein 2004: 225).

We have adopted both alternative codings for states 10a, 10b, since it is reasonable to hypothesize a direct connection between them.

49 fight [polymorphic]

[two characters by conflated split coding; both still polymorphic]

Hitt.	1	Av.	6/7	Luv.	13	Goth.	10
Arm.	2 [loan]	OCS	7/8	Lyc.	14	ON	8/10
Gk.	3	Lith.	9	TA	15	OHG	11
Alb.	4	OE	10/11	OPer.	16	Welsh	18
TB	5	OI	10	OPru.	17	Osc.	19
Ved.	6	Lat.	12	Latv.	9	Umb.	20

6 PIIr. *yúd^{h}yati
7 derivs. of *per- ‘beat’
8 *b^{h}orH- ‘beat’
9 derivs. of *kaw- ‘chop’
10 *wikéti
11 PWGmc. *fihtidi (*fehta-)

The present stems of state 8 do not match perfectly; see Rix et al. 2001 s.v. *b^{h}erH- for discussion.

There are multiple polymorphisms, some extensive, but all are leaf-connected. It is possible that state 7 should be split, but that will not reduce the polymorphism by much. We have constructed two characters by conflated split coding, with 6 ∪ 6/7 coded against 7 in one character and all three coded together in the other; but that does not eliminate all the polymorphism.

50 fire [with parallel development]

Hitt.	1	Av.	4	Luv.	1	Goth.	1
Arm.	1	OCS	3	Lyc.	6	ON	7
Gk.	1	Lith.	3	TA	1	OHG	1
Alb.	2	OE	1	OPer.	4	Welsh	5
TB	1	OI	5	OPru.	1	Osc.	8
Ved.	3	Lat.	3	Latv.	3	Umb.	1

1 *péh$_2$wr̥ 4 PIr. *ātr-

3 *Vgnís ‘fire-god’ 5 PCelt. *tenet-

51 fish

[two characters]

Hitt.	1	Av.	5	Luv.	8	Goth.	7a
Arm.	2	OCS	6	Lyc.	9	ON	7a
Gk.	2	Lith.	2	TA	10	OHG	7a
Alb.	3 [loan]	OE	7a	OPer.	11	Welsh	12 [loan]
TB	4	OI	7b	OPru.	2	Osc.	13
Ved.	5	Lat.	7c	Latv.	2	Umb.	14

2 *dʰǵʰúHs 7a PGmc. *fiskaz < *piskos

5 PIIr. *mátsyas 7b *peyskos

7c *piskis

We have employed both alternative codings for states 7a–c, since a direct historical connection between them seems likely.

52 five

Hitt.	1	Av.	2	Luv.	3	Goth.	2x
Arm.	2	OCS	2	Lyc.	4	ON	2x
Gk.	2	Lith.	2	TA	2	OHG	2x
Alb.	2	OE	2x	OPer.	5	Welsh	2
TB	2	OI	2	OPru.	2	Osc.	2
Ved.	2	Lat.	2	Latv.	2	Umb.	2

2 *pénkʷe 2x PGmc. *fimf with unexpected *-f

We have coded states 2 and 2x separately, simply because if they are coded together there will be only one shared state and the character will be uninformative.

53 float

Forms a polymorphic set with 42 fall (q.v.), etc.

54 flow

Forms a polymorphic set with 42 fall (q.v.), etc.

55 flower

Hitt.	1	Av.	7	Luv.	11	Goth.	10a
Arm.	2	OCS	8	Lyc.	12	ON	10a
Gk.	3	Lith.	9	TA	5	OHG	10a
Alb.	4	OE	10a	OPer.	13	Welsh	10b
TB	5	OI	10b	OPru.	14	Osc.	10c
Ved.	6	Lat.	10c	Latv.	15	Umb.	16

5 PToch. *pyapyo
10 derivs. of *b^{h}loH-
10a PGmc. *blōm- (remodelled in OE?)
10b PCelt. *blāto-
10c PItal. *flōs

Since states 10a–c can clearly be independent derivatives of a verb ‘bloom’, we have coded them separately.

56 fly (vb.)

Forms a polymorphic set with 42 fall (q.v.), etc.

57 fog

Forms a polymorphic set with 23 cloud (q.v.) and 146 sky.

58 foot

Hitt.	1	Av.	1	Luv.	1	Goth.	1
Arm.	1	OCS	3	Lyc.	1	ON	1
Gk.	1	Lith.	4	TA	1	OHG	1
Alb.	2	OE	1	OPer.	1	Welsh	5
TB	1	OI	5	OPru.	3	Osc.	1
Ved.	1	Lat.	1	Latv.	4	Umb.	1

1 *pṓds ~ *pód- ~ *ped-
3 PBS *nagā
4 PEBalt. *kājā
5 PCelt. *traget-

59 four

[two characters]

Hitt.	1	Av.	2	Luv.	1	Goth.	2x
Arm.	2	OCS	2	Lyc.	3	ON	2x
Gk.	2	Lith.	2	TA	2	OHG	2x
Alb.	2	OE	2x	OPer.	4	Welsh	2
TB	2	OI	2	OPru.	2	Osc.	2
Ved.	2	Lat.	2	Latv.	2	Umb.	2

1 PAnat. *mæu- 2 *kʷetwóres, fem. *kʷétesres, neut. *kʷetwṓr

2x PGmc. *fedwōr with unexpected *f-

We use both codings, since a direct development of 2 to 2x is unarguable.

60 freeze

Hitt.	1	Av.	7	Luv.	13	Goth.	10
Arm.	2	OCS	8	Lyc.	14	ON	10
Gk.	3	Lith.	9	TA	15	OHG	10
Alb.	4	OE	10	OPer.	16	Welsh	10
TB	5	OI	11	OPru.	17	Osc.	18
Ved.	6	Lat.	12	Latv.	9	Umb.	19

9 PEBalt. *šal- 10 *prews- ‘burn’

61 fruit

Hitt.	1	Av.	7	Luv.	13	Goth.	19
Arm.	2	OCS	8 [loan]	Lyc.	14	ON	20
Gk.	3	Lith.	9	TA	15 [loan]	OHG	10
Alb.	4 [loan]	OE	10	OPer.	16	Welsh	21 [loan]
TB	5	OI	11	OPru.	17	Osc.	22
Ved.	6	Lat.	12	Latv.	18	Umb.	23

10 PWGmc. *obat

62 full

[two characters]

Hitt.	1	Av.	2d	Luv.	4	Goth.	2d
Arm.	2a	OCS	2d	Lyc.	5	ON	2d
Gk.	2b	Lith.	2d	TA	3	OHG	2d
Alb.	2c	OE	2d	OPer.	6	Welsh	2d
TB	3	OI	2d	OPru.	2d	Osc.	7
Ved.	2d	Lat.	2dx	Latv.	2d	Umb.	2dx

2a–d derivs. of *pleh$_1$- ‘fill’

2d *pl̥h$_1$nós

2dx *plēnos ←< *pl̥h$_1$nós by analogy with vb. *plē- < *pleh$_1$-

3 PToch. *wʸitë

On the Tocharian words see Adams 1999 s.v. *ite* with references.

We have coded states of superstate 2a–d separately, since they appear to be independent derivatives of the basic verb; however, since 2dx clearly developed from 2d, we employ both codings for superstate 2d.

63 give

[two characters]

Hitt.	1x	Av.	2b	Luv.	1x	Goth.	4
Arm.	2a	OCS	2bx	Lyc.	1x	ON	4
Gk.	2b	Lith.	2bx	TA	1	OHG	4
Alb.	3	OE	4	OPer.	2b	Welsh	2c
TB	1	OI	5	OPru.	2bx	Osc.	2b
Ved.	2b	Lat.	2b	Latv.	2bx	Umb.	2b

1 *ay-

1x PAnat. *p-ay-

2 *deh$_3$-

2a, 2c original pres. unclear

2b pres. *dédeh$_3$ti and developments of same

2bx PBS pres. *dōd- (apparently ← *ded4- < *dédeh$_3$-, but how?)

4 PGmc. *gibidi (*geba-)

The reduplicating syllable *de- was replaced by the productive *di- in Greek and Italic (an unremarkable parallel development); in Osco-Umbrian the stem was thematized, but in Latin the reduplication was lost by sound change in compounds and the dereduplicated form was then generalized to the simplex (see e.g. Sommer 1948:538-9).

In Celtic and Iranian this verb was confused with *d^heh_1- ‘put’ because the two had become very similar by sound change.
We have employed both alternative codings.

64 good

Hitt.	1	Av.	6	Luv.	6	Goth.	9
Arm.	2	OCS	7	Lyc.	12	ON	9
Gk.	3	Lith.	8	TA	5	OHG	9
Alb.	4	OE	9	OPer.	6	Welsh	14
TB	5	OI	10	OPru.	13	Osc.	15
Ved.	6	Lat.	11	Latv.	13	Umb.	16

5 PToch. *krënt-
9 PGmc. *gōdaz
6 *wḗsus ~ *wésu-
13 PBalt. *labas

65 grass

Hitt.	1	Av.	7	Luv.	13	Goth.	17
Arm.	2	OCS	8	Lyc.	14	ON	10
Gk.	3	Lith.	9	TA	5	OHG	10
Alb.	4	OE	10	OPer.	15	Welsh	1
TB	5	OI	11	OPru.	16	Osc.	18
Ved.	6	Lat.	12	Latv.	9	Umb.	19

1 *wel-
9 PEBalt. *žālē
5 PToch. *atiya-
10 PGmc. *grasą ‘plant’

66 green

[two characters]

Hitt.	1	Av.	6	Luv.	1	Goth.	13
Arm.	2	OCS	3	Lyc.	10	ON	7
Gk.	3	Lith.	3x	TA	11 [loan]	OHG	7
Alb.	4 [loan]	OE	7	OPer.	12	Welsh	14
TB	5	OI	8	OPru.	3x	Osc.	15
Ved.	3	Lat.	9	Latv.	3x	Umb.	16

1 PAnat. *HaHl̥went-
3 derivs. of *$ǵ^helh_3$-
7 PNWGmc. *grōniz
3x PBalt. *žaljas

The Welsh word might conceivably belong under 3 (as “3y”), but the phonology is difficult.

We employ both alternative codings, since a direct connection between state 3x and the other derivatives of *ǵʰelh$_3$- is likely.

67 guts

Hitt.	1	Av.	5	Luv.	10	Goth.	16
Arm.	2	OCS	6	Lyc.	11	ON	8
Gk.	2	Lith.	7	TA	12	OHG	8
Alb.	3	OE	8	OPer.	13	Welsh	17
TB	4	OI	9	OPru.	14	Osc.	18
Ved.	2	Lat.	2	Latv.	15	Umb.	19

2 derivs. of *en-tero- ‘inside’

8 PGmc. *þarmaz (< *tórmos ‘hole’, root *terh$_1$- ‘bore’)

68 hair [polymorphic]

Hitt.	1	Av.	7a	Luv.	11	Goth.	17
Arm.	2	OCS	7a	Lyc.	12	ON	9/17
Gk.	3	Lith.	8	TA	13	OHG	9
Alb.	4	OE	9	OPer.	14	Welsh	7b
TB	5	OI	7b	OPru.	15	Osc.	18
Ved.	6	Lat.	10	Latv.	16	Umb.	19

7 derivs. of *wel-

7a satem *wolḱos

7b PCelt. *woltos

9 PNWGmc. *hārą

17 PGmc. *skuftą

The relation between states 7a and 7b is remote; we have coded them separately.
The polymorphism is confined to Northwest Germanic and is leaf-connected.
Note that there is no connection between the Tocharian B and Latvian words, nor between Armenian *her* and the superficially similar Germanic word.

69 hand

[two characters]

Hitt.	1	Av.	1x	Luv.	1	Goth.	3
Arm.	1	OCS	2	Lyc.	1	ON	3
Gk.	1	Lith.	2	TA	1	OHG	3
Alb.	1	OE	3	OPer.	1x	Welsh	4
TB	1	OI	4	OPru.	2	Osc.	5
Ved.	1x	Lat.	5	Latv.	2	Umb.	5

1 *ǵʰésōr
1x PIIr. *źʰástas < *ǵʰéstos (remodelled, but how?)
2 PBS *rankā
3 PGmc. *handuz
4 PCelt. *lāmā (< *pḷ̥h$_2$meh$_2$ ‘palm’)
5 PItal. *man-

We employ both codings, since it is likely that state 1x replaced state 1 directly.

70 he, 168 that, 170 they, AND 174 this [polymorphic set]

	he	that	they	this
Hitt.	1	7	1	6
Arm.	2	2	2	6
Gk.	3	9	3	4
Alb.	4	4	4	14
TB	4	4	4	4
Ved.	4	4	4	1
Av.	4	4	4	1
OCS	1/5	1/4/5	1/5	6/12
Lith.	1	4	1	6
OE	6	4	6	4
OI	1	4	1	4
Lat.	1	10	1	15
Luv.	1/7	7	1/7	6
Lyc.	1/7	11	1/7	7
TA	4	4	4	4
OPer.	4	12	13	1/4
OPru.	4+5	4	4+5	6
Latv.	8	4	8	6
Goth.	1	4	1	4
ON	6	4	4	4
OHG	1	4	4	4
Welsh	4	4	4	4
Osc.	1	10	1	1
Umb.	1	10	1	1

1 *éy, fem. *íh$_2$, neut. *íd, adj. *ós etc. and derivs.
4 *só, fem. *séh$_2$, neut. *tód ‘that’ and derivs.
5 *eno- ~ *ono- ‘that’

6 *ḱéy, adj. *ḱós, etc. 'this' and derivs.

7 PAnat. *obós 'that'

10 PItal. *ollo- 'that'

12 *awo-

The following states, though appearing more than once in the table, are confined to particular languages:

2 Arm. forms with the deictic particle *-n-*

3 Gk. αὐτό-

8 Latv. *vinja-

We have cautiously coded Gk. ἐκεῖνος 'that' separately from state 6.

Finally, note that Lat. *hic* 'this' (state 15) is coded according to its stem, not according to the particle *-c(e)* (which is etymologically connected with state 6).

On the Old Prussian state 4+5 see Stang 1966:235-6.

71 head

Hitt.	1	Av.	6	Luv.	11	Goth.	8
Arm.	2	OCS	7	Lyc.	12	ON	10
Gk.	3	Lith.	7	TA	13	OHG	8
Alb.	4	OE	8	OPer.	14	Welsh	9
TB	5	OI	9	OPru.	7	Osc.	15
Ved.	6	Lat.	10	Latv.	7	Umb.	16

6 PIIr. *ćr̥Has < *ḱr̥h$_2$-

7 PBS *galvā

8 PGmc. *haubidą

9 PCelt. *k^{w}ennas

10 *kaput

There is probably some relation between states 8 and 10, though its exact nature is obscure; see e.g. Feist 1939 s.v. *haubiþ* with references. If 8 and 10 are coded together, the nonconvexity of this character on every likely tree is ameliorated.

72 hear [with parallel development]

[two characters]

Hitt.	1	Av.	2	Luv.	1	Goth.	3
Arm.	2	OCS	2y	Lyc.	7	ON	3
Gk.	3	Lith.	5	TA	2x	OHG	3
Alb.	4	OE	3	OPer.	8	Welsh	2
TB	2x	OI	2	OPru.	5	Osc.	9
Ved.	2	Lat.	6	Latv.	5	Umb.	10

1 PAnat. deriv. of *stómn̥
2 *ḱlew- ‘hear’ (pres. *ḱl̥néwti)
2x PToch. *klʸews-
2y other s-extension (orig. desiderative ‘listen’?)
3 *h$_2$ḱ-h$_2$ows-ié-ti ‘be sharp-eared’
5 PBalt. *girdi ‘hear’

We employ both potential codings, since the shapes of the PToch. and OCS verbs are innovative, but a direct connection with the other forms of superstate 2 is likely. The root-ablaut of the OCS verb betrays a complex prehistory, not necessarily connected in any way with the Tocharian verb.
The meaning reconstructable for state 3 strongly argues parallel development.
The consistent *k*- of the Old Prussian form is puzzling.

73 heart

[two characters]

Hitt.	1	Av.	1x	Luv.	1	Goth.	1y
Arm.	1	OCS	1	Lyc.	4	ON	1y
Gk.	1	Lith.	1	TA	3	OHG	1y
Alb.	2	OE	1y	OPer.	5	Welsh	6
TB	3	OI	1	OPru.	1	Osc.	7
Ved.	1x	Lat.	1	Latv.	1	Umb.	8

1 *ḱēr̥, *ḱr̥d- and derivs.
1x init. cons. replaced by unexpected PIIr. *ź^{h}-
1y PGmc. *hertōn-
3 PToch. *arəñce

We employ both alternative codings.

74 heavy [polymorphic]

[two monomorphic characters by conflated split coding;
parellel development still present]

Hitt.	1	Av.	3	Luv.	1	Goth.	3
Arm.	2	OCS	5	Lyc.	9	ON	7
Gk.	3	Lith.	6	TA	3x	OHG	1/7
Alb.	4	OE	1/7	OPer.	10	Welsh	8
TB	3x	OI	8	OPru.	11	Osc.	13
Ved.	3	Lat.	3	Latv.	12	Umb.	14

1 *sworu- ~ *swēru-
3 *gʷréh$_2$u- ~ *gʷr̥h$_2$éw- and derivs.
3x deriv. of PToch. *kʷramər ‘burden’ < *gʷróh$_2$mr̥
7 PNWGmc. *hafīgaz, *hafugaz
8 PCelt. *trummos

Since the connection of state 3x with state 3 is patently indirect, we have coded them separately.

We have reduced this to two monomorphic characters using conflated split coding, with 7 ∪ 1/7 coded against 1 in one character and all three coded together in the other.

Although the overt polymorphism is confined to West Germanic, both state 1 and state 3 must be posited for large numbers of internal nodes in any likely tree.

75 here AND 169 there [polymorphic set]

Hitt.	1, 2	Av.	7, 8	Luv.	1, 11	Goth.	1, 6
Arm.	1, 3	OCS	1, 6	Lyc.	2, 12	ON	1, 6
Gk.	4, 5	Lith.	6, 6	TA	6, 6	OHG	1, 6
Alb.	6, 6	OE	1, 6	OPer.	7, 13	Welsh	14, 15
TB	6, 6	OI	6, 9	OPru.	6, 6	Osc.	16, 7
Ved.	7, 6	Lat.	10, 7	Latv.	6, 6	Umb.	17, 7

1 derivs. of *ḱe- ~ *ḱi- ~ *ḱo- ‘this’
2 derivs. of PAnat. *obós ‘that’
6 derivs. of *só- ~ *tó- ‘that’
7 *idʰé(y)

We have cautiously coded Gk. ἐκεῖ ‘there’ separately from state 1.

For the (often surprising) etymologies of the other forms the standard comparative grammars should be consulted

Finally, note that Lat. *hīc* ‘here’ (state 10) is coded according to its stem, not according to the particle *-c(e)* (which is etymologically connected with state 1).

76 hit [polymorphic]

[two monomorphic characters by conflated split coding]

Hitt.	1	Av.	6	Luv.	12	Goth.	9
Arm.	2	OCS	7	Lyc.	12	ON	9/11
Gk.	3	Lith.	8	TA	5	OHG	9
Alb.	4	OE	9	OPer.	6	Welsh	15
TB	5	OI	10	OPru.	13	Osc.	16
Ved.	6	Lat.	11	Latv.	14	Umb.	17

5 PToch. *kərnəsk-
6 *g^{wh}énti
9 PG *slahidi
11 *b^{h}er-
12 PLuv. *tūbīdi

Note that there is no connection between the Proto-Luvian form and Gk. τύπτει; see Melchert 1994:242.

The polymorphism is confined to Germanic and is leaf-connected. We have constructed two monomorphic characters by conflated split coding, with 9 ∪ 9/11 coded against 11 in one character and all three coded together in the other.

77 hold AND 350 have [polymorphic set]

Hitt.	1, 1	Av.	8, 10	Luv.	20, 21	Goth.	16, 16/28
Arm.	2, 2	OCS	11, 12	Lyc.	22, 23	ON	15, 16/28
Gk.	3, 3	Lith.	13, 14	TA	24, 25	OHG	16, 16
Alb.	4, 5	OE	15, 16	OPer.	8, 26	Welsh	29, 30
TB	6, 7	OI	17, 18	OPru.	13, 14	Osc.	31, 17x
Ved.	8, 9	Lat.	19, 17x	Latv.	14, 27	Umb.	19, 17x

8 PIIr. *d^{h}āráyati ‘hold’
13 PBalt. *laikā ‘hold’
14 PBalt. *turi ‘have (?)’
15 PGmc. *haldidi ‘keep’
16 PGmc. *habaiþi ‘have, hold’
17 *g^{h}ab- ‘take, hold’
17x PItal. *habēt ‘have’
19 PItal. *tenēt ‘hold’
28 PGmc. *aih, *aig- ‘have’

The following states, though appearing more than once in the table, are confined to particular languages:

1 Hitt. *harzi, hark-*
2 Arm. *owni*
3 Gk. ἔχει

We accept the hypothesis that states 17 and 17x are etymologically connected; their distribution can be taken as a (weak) validation of the Italo-Celtic subgroup.

The internal polymorphism of 350 ‘have’ is confined to Germanic and is leaf-connected. The clear and unarguable parallel development, involving states 15 and 16, is likewise confined to Germanic. Note that it has continued beyond the period of the languages investigated here, so that *halten* is now the usual word for ‘hold’ in High German (though *haltan* usually meant ‘keep, preserve, pasture’ in OHG).

The development of the Baltic states is difficult to judge: the absence of a word for ‘have’ in Latvian looks like an archaism (see below), but Lithuanian and the less closely related Old Prussian support the reconstructions given above.

350 ‘have’ is perhaps the only character for which absence of a lexeme might reflect shared history, since it seems reasonably clear that there was no such lexeme in PIE (the usual expression for ‘x has y’ being literally ‘y is to x’). We might therefore assign state 7 in the meaning ‘have’ not only to TB, but also to Vedic, Avestan, Old Irish (since OIr. *táithi* means ‘it is to him’), TA, and Welsh—all well-attested languages for which the absence of ‘have’ is plausibly ancestral. However, it is difficult to decide whether to include poorly attested archaic languages (Luvian, Lycian, Old Persian) in this coding, since the absence of ‘have’ in our records of those languages could be an accident; the Latvian situation is also problematic (see above). We have therefore cautiously assigned unique states for 350 ‘have’ to all the languages which lack such a lexeme.
Note that there is no cognation between states 16 and 17 (!!). Though the suffixes of 16 and 17x are probably ultimately related, the root of PGmc. *habaiþi is cognate with that of Lat. *capit* ‘takes’, not with that of *habet* ‘has’. This is an excellent example of convergent development in sound and meaning, which is very common. We have not included Albanian *ka* ‘has’ in a superstate with state 16 because its shape poses problems severe enough to make its root-etymology doubtful (see Demiraj 1997:212 for brief discussion).

78 horn [with parallel development]

[two characters]

Hitt.	1	Av.	1	Luv.	1	Goth.	1x
Arm.	2	OCS	4	Lyc.	6	ON	1x
Gk.	1	Lith.	4	TA	2	OHG	1x
Alb.	3	OE	1x	OPer.	7	Welsh	8 [loan]
TB	2	OI	5	OPru.	4	Osc.	9
Ved.	1	Lat.	1	Latv.	4	Umb.	10

1 derivs. of *ḱer- ‘head-bone’ 2 *g^{h}rḗwr̥

1x PGmc. *hurną 4 PBS *ragas

We have employed both codings, since the connection between state 1x and the other derivatives of *ḱer- is likely to have been direct. It is conceivable that there is a direct connection between the Germanic, Latin, and Luvian forms with *-n-, and between the Greek and Indo-Iranian s-stems; but since that is not demonstrable, we have cautiously coded all but the Germanic derivative with the superstate.
On the complex history of the family of words represented by state 1 see Nussbaum 1986.

79 how

Hitt.	1	Av.	2	Luv.	4	Goth.	2
Arm.	2	OCS	2	Lyc.	5	ON	2
Gk.	2	Lith.	2	TA	6	OHG	2
Alb.	2	OE	2	OPer.	7	Welsh	2
TB	3	OI	2	OPru.	2	Osc.	8
Ved.	2	Lat.	2	Latv.	2	Umb.	9

2 derivs. of the interrogative stem *k^{w}e- ~ *k^{w}i- ~ *k^{w}o-

See Olsen 1999:806 with references on the first part of the Armenian compound.
It is not clear to us that Tocharian B *mäkte* contains any reflex of the interrogative stem (pace Adams 1999 s.v.), though the parallel of *mäksu* 'which?', transparently a compound of *su* 'that', makes it clear that it does contain a reflex of the demonstrative.

80 hunt

Hitt.	1	Av.	7	Luv.	13	Goth.	17
Arm.	2	OCS	8	Lyc.	14	ON	18
Gk.	3	Lith.	9	TA	15	OHG	18
Alb.	4	OE	10	OPer.	16	Welsh	19
TB	5	OI	11	OPru.	9	Osc.	20
Ved.	6	Lat.	12	Latv.	9	Umb.	21

9 derivs. of PBalt. *medjan 'woods' 18 PNWGmc. *waiþ-

81 husband, 99 man, AND 117 person [polymorphic set]

	81 husband	99 man	117 person
Hitt.	1	1	2
Arm.	3	3	4a
Gk.	3	3	5
Alb.	6	6	3
TB	7	8	9
Ved.	7	3	10
Av.	7	3/11	4b
OCS	10	10	12
Lith.	11	11	13a
OE	11	11	10
OI	11	11	13b
Lat.	14	11	13a
Luv.	15	15	15
Lyc.	15	16	17
TA	7	8	18
OPer.	19	3	4b
OPru.	11	11	13a
Latv.	11	11	20 [loan]
Goth.	21	11/13a	10
ON	11	10	10
OHG	13a+10	10	10
Welsh	11	11	13b
Osc.	22	23	13a
Umb.	24	25	13a

3 *h_2nḗr ‘man’

4 derivs. of *mer- ‘die’

- 4a *mr̥tós ‘mortal’
- 4b *mr̥tyós ‘mortal’

7 *pótis ‘master, husband’

8 PToch. *ënkwë ‘man’

(← ‘person’, < *n̥ḱwós ‘mortal’)

10 *manu- ~ *manw- (‘person’ ?)

11 *wih$_1$rós ‘young man’ (cf. TA *wir* ‘young’)

13 derivs. of *d^{h}égʰ4m ‘earth’

- 13a n-stem ‘earthling’
- 13b yo-stem ‘earthling’

15 PLuv. *zīdis ‘man’

The following states, though appearing more than once in the table, are confined to particular languages:

1 Hitt. *pisēnas* ‘man’

6 Alb. *burrë* ‘man’

The reconstructable meanings reveal extensive parallel development. States 4a–b, 13a–b have all been coded separately.

82 I AND 82a me [polymorphic set]

Hitt.	1, 2	Av.	1, 2	Luv.	2, 2	Goth.	1, 2y
Arm.	1, 2	OCS	1, 2x	Lyc.	2, 2	ON	1, 2y
Gk.	1, 2	Lith.	1, 2x	TA	4, 4	OHG	1, 2y
Alb.	3, 2	OE	1, 2 [dat.]	OPer.	1, 2	Welsh	2, 2
TB	4, 4	OI	2, 2	OPru.	1, 2x	Osc.	1, 5
Ved.	1, 2	Lat.	1, 2	Latv.	1, 2x	Umb.	6, 2

1 nom. *égh$_2$ ‘I’ 4 Toch. forms with *n-, ñ-

2 acc. *mé (*emé ?; cf. Melchert 1994:74-5), enclitic *me ‘me’

2x extended stem *me-n-

2y emphatic *mége

The accusative form current in the late West Saxon dialect of Old English is the inherited dative; other dialects of Old English preserve the inherited Germanic accusative 2y.
We have coded the substates of state 2 separately. However, we have not coded the appearance of the emphatic particle *-ém ~ *-óm, which exhibits no recognizable pattern.
Note that the final -*g* of the Hittite accusative cannot reflect the emphatic particle *-ge (which would have become “-gi”).
On the Albanian nominative see Demiraj 1997:400 with references. We have cautiously coded the Tocharian forms separately; see Jasanoff 1989 for an explanation which is workable but still somewhat speculative.

83 ice

Hitt.	1	Av.	7	Luv.	10	Goth.	14
Arm.	2	OCS	8	Lyc.	11	ON	7
Gk.	3	Lith.	8	TA	12	OHG	7
Alb.	4	OE	7	OPer.	13	Welsh	1
TB	5	OI	1	OPru.	8	Osc.	15
Ved.	6	Lat.	9	Latv.	8	Umb.	16

1 *yeg- 7 *eys- 8 PBS *ledus

On the Avestan form see Bartholomae 1979 s.v. *aēxa-*.

84 if [with parallel development]

Hitt.	1	Av.	6	Luv.	8	Goth.	6y
Arm.	2	OCS	7	Lyc.	10	ON	11
Gk.	3	Lith.	6x	TA	5	OHG	11
Alb.	4	OE	6y	OPer.	6	Welsh	12
TB	5	OI	8	OPru.	6z (?)	Osc.	9
Ved.	6	Lat.	9	Latv.	6	Umb.	9

5 derivs. of interrogative *k^{w}i-
6 relative nt. sg. *Hyód(±i) and derivs.
6y PGmc. *jab-
6x, 6z other derivs.
8 *mā-
9 PItal. *swai
11 PGmc. *ib-, deriv. of demonstrative *i-

We have cautiously coded states 6 and 6x–z separately, since there is a reasonable likelihood that they did not replace one another directly.

Note that the Welsh word is etymologically a form of the verb ‘be’, not a derivative of the interrogative (Evans 1964:242-3).

Since the demonstrative *i- and the relative *Hyó- have been largely confused in Balto-Slavic, there is some question whether the Baltic forms (especially the Old Prussian form) should be coded 6 or 11. Otherwise the parallel development seems to be confined to Germanic and to involve interchange between the parallel stems *jab- and *ib-.

85 in

[two characters]

Hitt.	1x	Av.	4	Luv.	1x	Goth.	1
Arm.	1	OCS	1	Lyc.	1x	ON	1
Gk.	1	Lith.	1	TA	2	OHG	1
Alb.	1	OE	1	OPer.	5	Welsh	1
TB	2	OI	1	OPru.	1	Osc.	1
Ved.	3	Lat.	1	Latv.	6	Umb.	1

1 *en
1x *éndom
2 PToch. *-në

We employ both codings, since it is reasonable to hypothesize a direct historical connection between states 1 and 1x.

86 kill [polymorphic]

Hitt.	1	Av.	1	Luv.	11	Goth.	8/14
Arm.	2	OCS	6	Lyc.	12	ON	14
Gk.	3	Lith.	7	TA	5	OHG	8/14
Alb.	4	OE	8	OPer.	1	Welsh	15
TB	5	OI	9	OPru.	13	Osc.	16
Ved.	1	Lat.	10	Latv.	13	Umb.	17

1 *g^{wh}énti

5 PToch. *kawṣə(ṣə)

8 PGmc. *slahidi

13 PBalt. *galin-

14 PGmc. *daudīþi (deriv. of *daudaz 'dead')

The polymorphism is confined to Germanic and is leaf-connected.

87 knee

[two characters]

Hitt.	1	Av.	1	Luv.	3	Goth.	1x
Arm.	1	OCS	2a	Lyc.	4	ON	1x
Gk.	1	Lith.	2b	TA	1	OHG	1x
Alb.	1	OE	1x	OPer.	5	Welsh	1y
TB	1	OI	1y	OPru.	6	Osc.	7
Ved.	1	Lat.	1	Latv.	2b	Umb.	8

1 *ǵónu ~ (loc.) *ǵénu ~ *ǵnéw- and derivs.

1x PGmc. *knewą

1y PCelt. *glūn- < *gnūn-

2 derivs. of *k^{w}el- 'turn'

2a pre-Slav. *kolen-

2b PEBalt. *keljas

We accept the usual derivation of the Albanian form from *glun- < *gnun- (cf. dialectal *gjũ, glu,* Demiraj 1997:190) and the usual judgment that this and the similar Celtic development were independent.

For superstate 1 we employ both codings, since direct replacement of 1 by 1x and 1y seems very likely. States 2a and 2b have been coded separately, however, because there seems to be no close connection between them.

88 know [polymorphic]

[two characters by conflated split coding; both still polymorphic]

Hitt.	1	Av.	2/5	Luv.	7	Goth.	2
Arm.	2	OCS	2/5	Lyc.	8	ON	2
Gk.	2	Lith.	5	TA	4/5	OHG	2
Alb.	3	OE	2	OPer.	5	Welsh	2
TB	4	OI	2	OPru.	2	Osc.	9
Ved.	2	Lat.	6	Latv.	5	Umb.	10

2 perf. *wóyde and derivs. 5 *ǵneh$_3$- ‘recognize, know (by sight)’

4 PToch. *kərsna(ṣə)

The polymorphism is extensive but leaf-connected. We employ conflated split coding, with 4 ∪ 4/5 coded against 5 in one character and all three coded together in the other, but that does not eliminate all the polymorphism.

89 lake [polymorphic]

Hitt.	1	Av.	6	Luv.	11	Goth.	8+9
Arm.	2	OCS	7	Lyc.	12	ON	14
Gk.	3	Lith.	7	TA	3	OHG	9
Alb.	4	OE	8/9	OPer.	13	Welsh	15
TB	3	OI	10	OPru.	7	Osc.	16
Ved.	5	Lat.	10	Latv.	7	Umb.	17

3 *léymon- ~ *limn-´ (loc. *limén) 9 PGmc. *saiwiz

7 PBS *ežeran 10 PIC *lóku ~ *l̥kéw-

8 *móri ‘sea’

The polymorphism is confined to Germanic and is leaf-connected.

90 laugh

Hitt.	1	Av.	6	Luv.	12	Goth.	9
Arm.	2	OCS	7	Lyc.	13	ON	9
Gk.	2	Lith.	8	TA	4	OHG	9
Alb.	3	OE	9	OPer.	14	Welsh	16
TB	4	OI	10	OPru.	15	Osc.	17
Ved.	5	Lat.	11	Latv.	7	Umb.	18

2 *ǵelh$_2$- 7 derivs. of *smey- ‘smile’

4 PToch. *kër- 9 PGmc. *hlahidi (*hlahja-)

91 leaf [polymorphic]

Hitt.	1	Av.	7	Luv.	12	Goth.	10
Arm.	2	OCS	8	Lyc.	13	ON	10+16
Gk.	3	Lith.	9	TA	5	OHG	10/16
Alb.	4	OE	10	OPer.	14	Welsh	11
TB	5	OI	11	OPru.	15	Osc.	17
Ved.	6	Lat.	3	Latv.	9	Umb.	18

3 *b^{h}ólyom (?)
10 PGmc. *laubaz
5 PToch. *p^{y}əlta
11 PCelt. *dolin-
9 PEBalt. *lap-
16 PNWGmc. *bladą

According to the judgment we have preferred, Gk. φύλλον is cognate with Lat. *folium* but has undergone lexical analogy with φυτόν 'plant'. However, it is also possible that the Greek word is isolated, and that Lat. *folium* reflects *d^{h}ol- and is thus cognate with the Celtic words.

The polymorphism is confined to Germanic and is leaf-connected.

92 left(-hand)

Hitt.	1	Av.	6	Luv.	11	Goth.	16
Arm.	2	OCS	6	Lyc.	12	ON	8
Gk.	3	Lith.	7	TA	5	OHG	8
Alb.	4	OE	8	OPer.	13	Welsh	17
TB	5	OI	9	OPru.	14	Osc.	18
Ved.	6	Lat.	10	Latv.	15	Umb.	18

5 PToch, *ś(uw)āl(i)y- (?)
8 PNWGmc. *winistraz
6 *sewyós
18 POU *nertro- (orig. 'lower')

On the Tocharian forms see Pinault 2002:248-61.

93 leg

Hitt.	1	Av.	7	Luv.	12	Goth.	17
Arm.	2	OCS	8	Lyc.	13	ON	18
Gk.	3	Lith.	9	TA	14	OHG	19
Alb.	4	OE	10	OPer.	15	Welsh	11
TB	5	OI	11	OPru.	16	Osc.	20
Ved.	6	Lat.	2	Latv.	9	Umb.	21

2 *ḱrūs-
11 PCelt. *koksā (cf. Lat. *coxa* 'hip', etc.)
9 PEBalt. *kājā

94 lie [with parallel development]

Hitt.	1	Av.	1	Luv.	1	Goth.	4
Arm.	2	OCS	4	Lyc.	1	ON	4
Gk.	1	Lith.	5	TA	4	OHG	4
Alb.	3	OE	4	OPer.	7	Welsh	9
TB	4	OI	4	OPru.	8	Osc.	10
Ved.	1	Lat.	6	Latv.	5	Umb.	11

1 *ḱéyor
5 PEBalt. *guli
4 *lég^{h}yetor ‘lie down [eventive]’

The parallel development consists in extending the meaning of eventive *leg^{h}- to include also the stative meaning (originally indicated by *ḱey-).

95 live

[two characters]

Hitt.	1	Av.	2b	Luv.	5	Goth.	4
Arm.	2a	OCS	2b	Lyc.	6	ON	4
Gk.	2b	Lith.	2c	TA	2b	OHG	4
Alb.	3	OE	4	OPer.	2b	Welsh	2d
TB	2b	OI	2d	OPru.	2b	Osc.	7
Ved.	2b	Lat.	2b	Latv.	2e	Umb.	8

2 *g^{w}eyh$_3$- and derivs.
4 PGmc. *libaiþi

2a inherited pres. unclear
2b pres. *g^{w}íh$_3$weti
2c–e phrases including, and late denominatives of, adj. *g^{w}ih$_3$wós

We employ both codings, since a direct connection between the states of superstate 2 is very likely.

96 liver

Hitt.	1a	Av.	2	Luv.	9	Goth.	13
Arm.	1b	OCS	5	Lyc.	10	ON	7
Gk.	2	Lith.	6	TA	11	OHG	7
Alb.	3	OE	7	OPer.	12	Welsh	8
TB	4	OI	8	OPru.	2	Osc.	14
Ved.	2	Lat.	2	Latv.	2	Umb.	15

1a, 1b *lis- (divergent suffixes)
2 *Hyḗk^{w}r̥ ~ *Hyék^{w}n-
7 PNWGmc. *libaru
8 PCelt. *ow-

On *lis- ‘liver’ see Schindler 1966. We have coded states 1a and 1b separately because the historical relation between them is unclear: possibly the Armenian word is a loan from Anatolian; in any case its suffix shows that it has been “contaminated” by lexical analogy (probably with state 2).
The reconstruction of a complete protoform for the Celtic words remains problematic; see Pedersen 1909:61, 313.

97 long

[two characters]

Hitt.	1	Av.	6	Luv.	9	Goth.	7
Arm.	2	OCS	6	Lyc.	10	ON	7
Gk.	3	Lith.	6x	TA	5	OHG	7
Alb.	4	OE	7	OPer.	6	Welsh	12
TB	5	OI	8	OPru.	6x	Osc.	13
Ved.	6	Lat.	7	Latv.	11	Umb.	14

5 PToch. *pərkrë (< *$b^{h}\underset{\circ}{r}g^{h}$rós ‘tall’) 7 *long^{h}os

6 *d$\underset{\circ}{l}h_1g^{h}$ós

6x PBalt. *ilgas (with unexpected loss of *d-)

On the Hittite word see Melchert 1994:67; there is some connection with state 6, but the root-shape is clearly different.
We reject the traditional connection of Persian *dræng* with the western words (state 7) and thus do not reconstruct *dl- for the latter; it seems much more likely that the shape of the Persian word is an independent development (from a cognate of set 6).
We employ both codings, since direct development of state 6x from 6 seems almost certain.

98 louse

Hitt.	1	Av.	7	Luv.	13	Goth.	18
Arm.	2	OCS	8	Lyc.	14	ON	10
Gk.	3	Lith.	9	TA	15	OHG	10
Alb.	4	OE	10	OPer.	16	Welsh	10
TB	5	OI	11	OPru.	17	Osc.	19
Ved.	6	Lat.	12	Latv.	9	Umb.	20

9 PEBalt. *ut- 10 *lúHs

99 man

Forms a polymorphic set with 81 husband (q.v.) and 117 person.

100 many [polymorphic]

Hitt.	1	Av.	3	Luv.	9	Goth.	3/6
Arm.	2 [loan]	OCS	6	Lyc.	10	ON	6
Gk.	3	Lith.	7	TA	1	OHG	3/6
Alb.	4	OE	3/6	OPer.	3	Welsh	12
TB	1	OI	3	OPru.	11	Osc.	13
Ved.	5	Lat.	8	Latv.	7	Umb.	14

1 *meǵh$_2$- ‘big’ 6 *mVnog^{h}o-

3 *pélh$_1$u- ~ *pl̥h$_1$éw- 7 PEBalt. *daug-

Arm. *bazowmk^h* can only be an Iranian loan; if it were cognate with the Vedic word, its first syllable would end in a nasal.

The polymorphism involves the last common ancestor of Balto-Slavic and Germanic but is leaf-connected (in Germanic).

101 meat

Hitt.	1	Av.	4	Luv.	8	Goth.	2
Arm.	2	OCS	2	Lyc.	9	ON	13
Gk.	3	Lith.	2	TA	10	OHG	5
Alb.	2	OE	5	OPer.	11	Welsh	14
TB	2	OI	6	OPru.	2	Osc.	15
Ved.	2	Lat.	7	Latv.	12	Umb.	16

2 *mḗms ~ *méms- 5 PWGmc. *flaiski

On the preform of state 2 see Ringe 1996:70-1.

102 moon [polymorphic, with parallel development]

[two characters]

Hitt.	1	Av.	5	Luv.	1	Goth.	5x
Arm.	2a	OCS	2b/5	Lyc.	1	ON	7
Gk.	3	Lith.	5	TA	5	OHG	5x
Alb.	4	OE	5x	OPer.	5	Welsh	2c
TB	5	OI	6	OPru.	5	Osc.	8
Ved.	5	Lat.	2b	Latv.	5	Umb.	9

1 PAnat. *ormos
2a–c derivs. of *lewk- ‘light’
2b *lowksneh$_2$ ‘luminary’
5 *mḗh$_1$n̥s and derivs.
5x PGmc. *mēnan-

Though the overt polymorphism is confined to Slavic, both the distribution of states 2a–c and the meaning of their root argue parallel development; note especially that an exact cognate of state 2b appears in Old Prussian in the meaning ‘star’, which virtually forces the inference that specialization to ‘moon’ occurred independently in Latin and Slavic. We have coded states 2a–c separately; but for superstate 5 we have employed both codings, since there is no reason not to suggest direct development of the inherited word into an n-stem in Germanic.

103 mother

Hitt.	1	Av.	2	Luv.	1	Goth.	4
Arm.	2	OCS	2	Lyc.	1	ON	2
Gk.	2	Lith.	2	TA	2	OHG	2
Alb.	3	OE	2	OPer.	2	Welsh	5
TB	2	OI	2	OPru.	2	Osc.	2
Ved.	2	Lat.	2	Latv.	2	Umb.	2

1 PAnat. *annos
2 *meh$_2$tḗr

The Albanian and Welsh forms are “nursery words” and should not be assigned the same state.

104 mountain

[two characters]

Hitt.	1	Av.	6a	Luv.	11	Goth.	15
Arm.	2	OCS	6b	Lyc.	12	ON	16
Gk.	3	Lith.	7	TA	5	OHG	8
Alb.	4	OE	8	OPer.	13	Welsh	10b
TB	5	OI	9	OPru.	14	Osc.	17
Ved.	6a	Lat.	10a	Latv.	7	Umb.	18

5 PToch. *ṣwʸəlë
6a PIIr. *gŕ̥s
6b PSlav. *gora
7 PEBalt. *kālnas
8 PWGmc. *berg
10a, 10b derivs. of *mon-

We have employed both codings, since it is reasonable to hypothesize a direct connection between states 6a and 6b, and between 10a and 10b.

105 mouth

Hitt.	1	Av.	1	Luv.	1	Goth.	8
Arm.	2	OCS	6	Lyc.	10	ON	8
Gk.	3	Lith.	7	TA	5	OHG	8
Alb.	4	OE	8	OPer.	11	Welsh	9
TB	5	OI	9	OPru.	6	Osc.	13
Ved.	1	Lat.	1	Latv.	12	Umb.	14

1 *$h_1$éh$_3$s ~ *h_1h$_3$és-
8 PGmc. *munþaz
5 PToch. *kọyn
9 PCelt. *genus (←< *ǵ̄nus ‘jaw’)
6 PBS *austo- (< satem *austh$_2$o- or *oustth$_2$o- ‘lip’)

On the Hittite cognate see Melchert 1994:115-6. We reject the connection between states 1 and 6 that has traditionally been posited.

On the Tocharian forms see now Hilmarsson 1996:171-2.

Though Arm. *beran* and Lith. *burnà* could share a root, its original meaning was clearly not ‘mouth’, and the derivations of the two words are wholly different (cf. Olsen 1999: 297); they have therefore been assigned unique states.

106 name

[two characters]

Hitt.	1x	Av.	1	Luv.	1y	Goth.	1
Arm.	1	OCS	1	Lyc.	1y	ON	1
Gk.	1	Lith.	2	TA	1	OHG	1
Alb.	1	OE	1	OPer.	1	Welsh	1
TB	1	OI	1	OPru.	1	Osc.	1
Ved.	1	Lat.	1	Latv.	2	Umb.	1

1 *h_1nḗh$_3$mn̥ ~ *$h_1$néh$_3$mn-
2 PEBalt. *vārdas
1x, 1y altered by dissimilation

We employ both codings of superstate 1.

107 narrow [polymorphic]

[two characters]

Hitt.	1	Av.	6	Luv.	9	Goth.	2/14
Arm.	2	OCS	2	Lyc.	10	ON	2/14
Gk.	3	Lith.	7	TA	11	OHG	2
Alb.	4 [loan]	OE	2	OPer.	12	Welsh	2x/8
TB	5	OI	2x/8	OPru.	13	Osc.	15
Ved.	2	Lat.	2	Latv.	7	Umb.	16

2 *$h_2$éng^{h}us and derivs. 8 PCelt. *koilos

2x PCelt. *komangus 14 derivs. of PGmc. *þrinhaną ‘squeeze’

7 PEBalt. *sjauras

The two instances of polymorphism are confined to Germanic and Celtic respectively; both are leaf-connected.

We employ both codings, since it is reasonable to suppose that the Celtic (intensive?) compound directly replaced the simplex adjective. Under the narrower coding we have coded 2x/8 as a single state, since states 2x and 8 always occur together.

108 near

Hitt.	1	Av.	7	Luv.	13	Goth.	10
Arm.	2	OCS	8	Lyc.	14	ON	10
Gk.	3	Lith.	9	TA	15	OHG	10
Alb.	4	OE	10	OPer.	7	Welsh	18 [loan?]
TB	5	OI	11	OPru.	16	Osc.	19
Ved.	6	Lat.	12	Latv.	17	Umb.	19

7 PIr. *asnai 19 POU (superlative) *nessīmo-

10 PGmc. *nēh^{w}a-

On the Celtic words see Pedersen 1909:161.

109 neck [polymorphic]

[two monomorphic characters by conflated split coding]

Hitt.	1	Av.	6/7	Luv.	12	Goth.	10
Arm.	2	OCS	8	Lyc.	13	ON	10
Gk.	3	Lith.	9	TA	14	OHG	10
Alb.	4	OE	10	OPer.	15	Welsh	7
TB	5	OI	11	OPru.	16	Osc.	17
Ved.	6	Lat.	10	Latv.	9	Umb.	18

6 PIIr. *grīvā
7 *mon-
9 PEBalt. *kaklas
10 *kólsos

The polymorphism is confined to Indo-Iranian and is leaf-connected. We employ conflated split coding to produce two monomorphic characters, 6 ∪ 6/7 coded against 7 in one character and all three coded together in the other.

110 new [polymorphic]

Hitt.	1	Av.	1	Luv.	1	Goth.	1y
Arm.	1x	OCS	1	Lyc.	4	ON	1y
Gk.	2	Lith.	1y	TA	1	OHG	1y
Alb.	3	OE	1y	OPer.	5	Welsh	1y
TB	1	OI	1y	OPru.	1	Osc.	7
Ved.	1/1y	Lat.	1	Latv.	6	Umb.	8

1 *néwos 1x (deriv. with r-suffix) 1y *néwios

We have coded states 1, 1x, and 1y separately, simply because if superstate 1 is coded as a unit it is the only nonunique state and the character becomes uninformative.
The polymorphism of states 1 and 1y, leaf-connected at Vedic, is extraordinarily extensive, involving Proto-Indo-Iranian, Proto-Baltic, Proto-Balto-Slavic, Proto-Italo-Celtic, and all internal nodes that dominate them up to and including Proto-Nuclear IE. We suggest that that is a viable hypothesis: early Vedic is attested from about 1500 B.C.E., its last common ancestor with Italo-Celtic is most unlikely to predate 3500 B.C.E., and a case of polymorphism between two nearly identical states over two millennia is not unreasonable (though the necessity of extending it down through Proto-Baltic, probably much later than 1500 B.C.E., is unsettling).

111 night [polymorphic, with parallel development]

Hitt.	1	Av.	1	Luv.	6	Goth.	3
Arm.	2	OCS	3	Lyc.	7	ON	3
Gk.	3	Lith.	3	TA	4	OHG	3
Alb.	3	OE	3	OPer.	1	Welsh	3
TB	4	OI	5	OPru.	3	Osc.	8
Ved.	1/3	Lat.	3	Latv.	3	Umb.	9

1 *k^{w}sep- 4 PToch. *w^{y}əṣ̣ye
3 *nók^{w}ts ~ *nék^{w}t- (‘evening’?)

Like the preceding character, this appears to be a case of very extensive polymorphism leaf-connected at Vedic, a language attested very early. But in this case there is evidence

that parallel development has occurred: the Hittite cognate of state 3, *nekuz (mēhur),* means 'evening (time)', and Tocharian offers related adverbs meaning 'in the evening' or 'at night' (TB *nekcīye,* TA *nakcu,* etc.; see Adams 1999 s.v. *nekcīye* with references). It is therefore plausible to suggest that state 3 began to replace state 1 in Nuclear IE and eventually did so, largely independently, in every daughter except Indo-Iranian.

112 nose

Hitt.	1	Av.	6	Luv.	8	Goth.	11
Arm.	2	OCS	6	Lyc.	9	ON	6
Gk.	3	Lith.	6	TA	5	OHG	6
Alb.	4	OE	6	OPer.	6	Welsh	12
TB	5	OI	7	OPru.	6	Osc.	13
Ved.	6	Lat.	6	Latv.	10	Umb.	14

5 PToch. *mëlë- 6 *nās- ~ *nas-

113 not

Hitt.	1	Av.	1	Luv.	1	Goth.	1
Arm.	2	OCS	1	Lyc.	1	ON	4
Gk.	2	Lith.	1	TA	3	OHG	1
Alb.	1	OE	1	OPer.	1	Welsh	1
TB	3	OI	1	OPru.	1	Osc.	1
Ved.	1	Lat.	1	Latv.	1	Umb.	1

1 *né and extensions 3 PToch. *ma

2 *$h_2$óyu 'life'

On the Greek and Armenian forms see Cowgill 1960.

114 old [polymorphic, with parallel development]

Hitt.	1	Av.	2	Luv.	8	Goth.	12a
Arm.	2	OCS	6	Lyc.	9	ON	12b
Gk.	3	Lith.	2	TA	5	OHG	7/12a
Alb.	4 [loan]	OE	7	OPer.	10	Welsh	2
TB	5	OI	2	OPru.	11	Osc.	13
Ved.	2	Lat.	6	Latv.	6	Umb.	14

2 *sénos
5 PToch. *k(ə)tˢaitˢtˢë
6 *wet-us- ‘year-old’
7 PWGmc. *ald (< *‘grown up’, at first applied only to living things)
12a PGmc. *firnijaz
12b PGmc. or pre-ON *furnaz

The overt polymorphism is confined to West Germanic; however, the distribution of states 2 and 6 is incompatible with any likely tree—note that even Lithuanian and Latvian are separated—and the fact that the latter is derived from ‘year’ strongly argues parallel development.

We code states 12a, 12b together, since the latter is unique and unmediated replacement is very likely.

115 one

Hitt.	1a	Av.	1c	Luv.	5	Goth.	1d
Arm.	2	OCS	3	Lyc.	6	ON	1d
Gk.	2	Lith.	4	TA	2	OHG	1d
Alb.	2	OE	1d	OPer.	1c	Welsh	1d
TB	2	OI	1d	OPru.	1d	Osc.	7
Ved.	1b	Lat.	1d	Latv.	4	Umb.	8

1 derivatives of *oy- ‘single’
1a *oyos
1b *óykos
1c *óywos
1d *óynos
2 *sem-
4 PEBalt. *vienas

There are fairly strong indications that the original meaning of state 1 was not the numeral ‘one’; for instance, the Greek cognate of 1c, οἶος, means ‘alone’, while that of 1d, οἴνη, means ‘one-spot (on dice)’, and the Latin adverb ‘once’ is *semel*—arguably “stranded” derivationally when the numeral from which it was derived was replaced by *oinos > *ūnus*. We have therefore coded states 1a–d separately. On the Hittite form see Eichner 1992:34, 42-4.

We have not coded the Slavic and East Baltic forms as substates of 1 because they do not fit the set by regular sound correspondences; we believe that the origin of those forms remains very unclear.

116 other

Hitt.	1	Av.	4a	Luv.	7	Goth.	4b
Arm.	2	OCS	5	Lyc.	8	ON	4b
Gk.	2	Lith.	6	TA	2	OHG	4b
Alb.	3	OE	4b	OPer.	4a	Welsh	2
TB	2	OI	2	OPru.	6	Osc.	2
Ved.	4a	Lat.	2	Latv.	6	Umb.	9

2 *ályos
4b PGmc. *anþeraz (< *án-teros)
4a PIIr. *Vnyás
6 PBalt. *kitas

We have coded states 4a, 4b separately because it is not clear that there is any direct connection between them—especially in view of the fact that there may be some root-connection with state 2 (conceivably *ál-yo-s : *án-tero-s, with an archaic consonant alternation).

117 person

Forms a polymorphic set with 81 husband (q.v.) and 99 man.

118 pierce

Hitt.	1	Av.	7	Luv.	12	Goth.	15
Arm.	2	OCS	8	Lyc.	13	ON	16
Gk.	3	Lith.	9	TA	5	OHG	17
Alb.	4	OE	10	OPer.	14	Welsh	18
TB	5	OI	11	OPru.	8	Osc.	19
Ved.	6	Lat.	8	Latv.	9	Umb.	20

5 PToch. *t^{s}opə(ṣə)
9 PEBalt. *durja
8 *$b^{h}od^{h}h_2$- ‘dig’

119 play

Hitt.	1	Av.	7	Luv.	13	Goth.	19
Arm.	2	OCS	8	Lyc.	14	ON	20
Gk.	3	Lith.	9	TA	15	OHG	21
Alb.	4	OE	10	OPer.	16	Welsh	22
TB	5	OI	11	OPru.	17	Osc.	23
Ved.	6	Lat.	12	Latv.	18 [loan]	Umb.	24

(No cognates.)

120 pull [polymorphic]

Hitt.	1	Av.	6	Luv.	12	Goth.	17
Arm.	2 [loan]	OCS	7	Lyc.	13	ON	9
Gk.	3	Lith.	8	TA	14	OHG	10/17
Alb.	4	OE	9/10	OPer.	15	Welsh	18 [loan]
TB	3	OI	11	OPru.	16	Osc.	19
Ved.	5	Lat.	9	Latv.	7	Umb.	20

3 *selk- 10 *dewk- ‘lead’

7 *$h_2$welk- 17 PGmc. *þinsidi

9 *d^hrag^h-

It is possible that the Albanian form reflects some sort of conflation of states 3 and 7 (cf. Demiraj 1997:48), but it cannot reflect either one directly.

The (first) Arm. term is an Iranian loan; cf. Hübschmann 1899:47.

The Germanic polymorphism is local, but a triple set 10/11/17 (not actually attested) must be posited for Proto-West Germanic, and a double set 10/17 (not actually attested) for the other internal nodes of the Germanic subtree.

121 push

Hitt.	1	Av.	6	Luv.	12	Goth.	9
Arm.	2	OCS	7	Lyc.	13	ON	9
Gk.	3	Lith.	8	TA	5	OHG	9
Alb.	4	OE	9	OPer.	14	Welsh	16
TB	5	OI	10	OPru.	15	Osc.	17
Ved.	5	Lat.	11	Latv.	8	Umb.	18

5 *newd- 9 PGmc. *skeubidi

8 PEBalt. *stumja

On the unexpected *ū in the ON and OE cognates of set 9 see now Ringe and Taylor, forthcoming.

122 rain

[two characters]

Hitt.	1	Av.	5	Luv.	11	Goth.	8
Arm.	2	OCS	6	Lyc.	12	ON	8
Gk.	3	Lith.	7	TA	3x	OHG	8
Alb.	3	OE	8	OPer.	13	Welsh	15
TB	3x	OI	9	OPru.	14	Osc.	16
Ved.	4	Lat.	10	Latv.	7	Umb.	17

3 derivs. of *suh$_2$- (‘pour’?)

3x PToch. *suwës-

7 PEBalt. *lietus

8 PGmc. *regną

Since in both Tocharian languages the verb ‘rain’ reflects states 3 and 3x, a direct link between them is demonstrable; accordingly we employ both alternative codings for this character, the related noun.

123 red [polymorphic]

Hitt.	1	Av.	3b	Luv.	6	Goth.	3d
Arm.	2 [loan]	OCS	5	Lyc.	7	ON	3d
Gk.	3a	Lith.	3c	TA	3a	OHG	3d
Alb.	4	OE	3d	OPer.	8	Welsh	3d
TB	3a	OI	3d	OPru.	9	Osc.	11
Ved.	3b	Lat.	3a	Latv.	10	Umb.	3a/3d

3 derivs. of *h$_1$rewd^h- ‘be red’

3a *h$_1$rud^{h}rós

3b PIIr. *ráud^{h}itas

3c PEBalt. or pre-Lith. *raudānas

3d *h$_1$rowd^{h}os

States 5 and 9 are apparently independent derivatives of words for ‘worm’.

The polymorphism is leaf-connected (at Umbrian) but must be posited not only for the internal nodes of Italic but also for Proto-Italo-Celtic; in addition, state 3d is shared with Germanic. The latter phenomenon could reflect early lexical borrowing; but since all the states of superstate 3 are derivatives of a Caland root, parallel development cannot be excluded.

We have coded states 3a–d separately, simply because if superstate 3 is coded as a unit it is the only nonunique state and the character becomes uninformative.

124 right(-hand)

Hitt.	1	Av.	3c	Luv.	6	Goth.	3f
Arm.	2	OCS	3c	Lyc.	7	ON	12
Gk.	3a	Lith.	3c	TA	8	OHG	3f
Alb.	3b	OE	5	OPer.	9	Welsh	3g
TB	4	OI	3d	OPru.	10	Osc.	3e
Ved.	3c	Lat.	3e	Latv.	11	Umb.	3e

3 derivs. of *deḱs-; the suffixes are:

3a *-io-	3c *-ino-	3e *-(i)tero-	3g *-ewo-
3b *-to-	3d *-o- (?)	3f *-won-	

On the Albanian form see Demiraj 1997:137-8; on the Tocharian forms see Schmidt 1994:281, 1996:276, and especially Pinault 2002:248-61.

We have coded states 3a–g separately, simply because if superstate 3 is coded as a unit it is the only nonunique state and the character becomes uninformative.

125 right [polymorphic, but not effectively so]

Hitt.	1a	Av.	1c	Luv.	10	Goth.	6b
Arm.	2	OCS	7	Lyc.	11	ON	6b
Gk.	3	Lith.	8	TA	12	OHG	6b
Alb.	4	OE	6b	OPer.	13	Welsh	9
TB	5	OI	9	OPru.	14	Osc.	16
Ved.	1b/6a	Lat.	6b	Latv.	15	Umb.	6b

1a – 1c derivs. of *ar- ‘fit’

6 derivs. of *h$_3$reǵ- ‘put in a straight line’

6a *h$_3$réǵ-u- ~ *h$_3$r̥ǵ-éw- ‘straight’

6b verbal adj. *h$_3$reǵtós (with remodelled ablaut)

9 PCelt. *kowīros ‘absolutely true’

We have coded states 1a–c and states 6a, 6b separately, because the reconstructable meanings virtually guarantee that parallel development is involved; given such a coding, the polymorphism is effectively eliminated.

Note that OPers. *rāsta* is not part of set 6; its root is PIIr. *rād^{h}- ‘bring to a goal successfully’.

126 river

Hitt.	1	Av.	7	Luv.	1	Goth.	10
Arm.	2	OCS	8	Lyc.	12	ON	10
Gk.	3	Lith.	9	TA	13	OHG	10
Alb.	4	OE	10	OPer.	7	Welsh	1
TB	5	OI	1	OPru.	9	Osc.	14
Ved.	6	Lat.	11	Latv.	9	Umb.	15

1 *$h_2$ébō ~ *$h_2$ébon-
7 derivs. of *srew- ‘flow’
9 PBalt. *upē
10 PGmc. *ah^{w}ō (= Lat. *aqua* ‘water’)

Note that Gothic *flodus* and OHG *fluz* differ in root-ablaut, suffix, and derivational relationships within their respective languages (even though they may reflect the same PIE root); we have therefore coded them separately.

127 road [polymorphic]

Hitt.	1	Av.	6/7	Luv.	12	Goth.	9
Arm.	2 [loan]	OCS	6	Lyc.	13	ON	9
Gk.	3	Lith.	8	TA	5	OHG	9
Alb.	4	OE	9	OPer.	6	Welsh	14 [loan]
TB	5	OI	10	OPru.	6	Osc.	11
Ved.	6/7	Lat.	11	Latv.	8	Umb.	11

5 PToch. *yətariye
6 *póntoh$_2$s ‘path’
7 PIIr. *ád^{h}vā
8 PEBalt. *keljas
9 PGmc. *wegaz
11 PItal. *wiā

Both Armenian words appear to be loans (cf. Olsen 1999:892-3, 933).
The polymorphism is confined to Indo-Iranian and is leaf-connected.

128 root

Hitt.	1	Av.	7	Luv.	12	Goth.	10
Arm.	2	OCS	8	Lyc.	13	ON	10
Gk.	3	Lith.	9	TA	14	OHG	10
Alb.	4	OE	10	OPer.	15	Welsh	10
TB	5	OI	11	OPru.	9	Osc.	16
Ved.	6	Lat.	10	Latv.	9	Umb.	17

9 PBalt. *šaknis
10 *wreh$_2$d- ~ *w$_{\text{r̥}}$h$_2$d-

129 rope [polymorphic]

Hitt.	1a	Av.	7	Luv.	13	Goth.	17
Arm.	2	OCS	8	Lyc.	14	ON	1c/9/10
Gk.	3	Lith.	8	TA	15	OHG	1b/10
Alb.	4	OE	1b/9/10	OPer.	16	Welsh	18
TB	5	OI	11	OPru.	8	Osc.	19
Ved.	6	Lat.	12	Latv.	8	Umb.	20

1a–c derivs. of *sh$_2$ey- ‘tie’
1b PWGmc. *sail
8 PBS *wirwi-
9 PNWGmc. *raipa-
10 PNWGmc. *strangiz

On the Armenian words see Clackson 1994:228 fn. 175.
The three states of superstate 1 are clearly independent derivatives, and we have therefore coded them separately.
The Germanic polymorphism is local and leaf-connected.

130 rotten

Hitt.	1	Av.	6b	Luv.	9	Goth.	6d
Arm.	2	OCS	7	Lyc.	10	ON	6g
Gk.	3	Lith.	6c	TA	11	OHG	6d
Alb.	4	OE	6d	OPer.	12	Welsh	14 [loan]
TB	5	OI	8	OPru.	13	Osc.	15
Ved.	6a	Lat.	6e	Latv.	6f	Umb.	16

6a–g derivs. of *pū-
6d PGmc. *fūlaz

We coded the substates of 6 separately, but the character is still uninformative.

131 round

Hitt.	1	Av.	7	Luv.	13	Goth.	18
Arm.	2	OCS	8	Lyc.	14	ON	10
Gk.	3	Lith.	9	TA	15	OHG	10
Alb.	4	OE	10	OPer.	16	Welsh	11
TB	5	OI	11	OPru.	17	Osc.	19
Ved.	6	Lat.	12	Latv.	9	Umb.	20

9 PEBalt. *apvalus
10 NWGmc. *sin-wal- (various extensions)
11 PCelt. *krundis

The East Baltic and Northwest Germanic compounds are clearly related, but as the common element is a verb root meaning ‘roll’, they can be completely independent forma-

tions.

132 rub

Hitt.	1	Av.	7	Luv.	12	Goth.	18
Arm.	2	OCS	8	Lyc.	13	ON	18
Gk.	3	Lith.	8	TA	14	OHG	9
Alb.	4	OE	9	OPer.	15	Welsh	19 [loan]
TB	5	OI	10	OPru.	16	Osc.	20
Ved.	6	Lat.	11	Latv.	17	Umb.	21

8 derivs. of *ter-
9 PWGmc. *gnīdidi
18 PGmc. *bnūidi

133 salt

Hitt.	1	Av.	5	Luv.	7	Goth.	2y
Arm.	2	OCS	2	Lyc.	8	ON	2y
Gk.	2	Lith.	6	TA	2x	OHG	2y
Alb.	3	OE	2y	OPer.	9	Welsh	2z
TB	2x	OI	2z	OPru.	2	Osc.	10
Ved.	4	Lat.	2	Latv.	2	Umb.	2

2 *sal-
2x PToch. *salʸẹye
2y PGmc. *saltą
2z PCelt. *saleno-

We coded the substates of 2 separately, since otherwise the character is uninformative. (However, it is reasonable to supposed that 2x–z replaced unextended 2 directly.)

134 sand

Hitt.	1	Av.	6	Luv.	11	Goth.	15
Arm.	2	OCS	7	Lyc.	12	ON	2
Gk.	2	Lith.	8	TA	4	OHG	2
Alb.	3	OE	2	OPer.	13	Welsh	16
TB	4	OI	9	OPru.	14	Osc.	17
Ved.	5	Lat.	10	Latv.	8	Umb.	18

2 *sámh$_2$d^{h}os (see notes)
4 PToch. *warVñc-
8 PEBalt. *smiltis

We adopt the hypothesis that Gk. ἄμμος is the product of lexical analogy between ἄμαθος, which is clearly related to Gmc. *sandaz, and an unrelated word ψάμμος (see Frisk 1960, 1970 s.vv.); further, that Arm. *awaz* likewise belongs to this cognate set

(though *-r* rather than *-z* should probably be expected as a reflex of *d^h; see also Olsen 1999:24).
The vowels of the second syllables of the Tocharian words do not match; since both words are poorly attested, it is difficult to know what to make of that.

135 say [polymorphic]

Hitt.	1	Av.	6	Luv.	11	Goth.	15
Arm.	2	OCS	7	Lyc.	12	ON	8/15
Gk.	3	Lith.	1/8	TA	13	OHG	8/15
Alb.	4	OE	8/15	OPer.	4	Welsh	16
TB	5x	OI	9	OPru.	14	Osc.	10
Ved.	5/6	Lat.	10	Latv.	8	Umb.	10

1 *ter-
4 *ḱḗ$h_1$sti ~ *ḱéh_1s-
5 *wek^w-
5x denom. of *wok^w- ‘voice’
6 *mléwHti ~ *mluH-
8 *sek^w-
10 PItal. *deyket (*deyḱ- ‘show’)
15 PGmc. *kwiþidi (*kweþa-)

The polymorphism of this character is complex and extensive; especially striking are the distributions of states 1 (Hittite and Lithuanian) and 4 (Albanian and Old Persian). It seems very likely that PIE and many of its daughters had several verbs meaning ‘say’. We have coded states 5 and 5x separately, since the latter represents a derivative of a derivative of the basic verb.

136 scratch

Hitt.	1	Av.	7	Luv.	13	Goth.	19
Arm.	2	OCS	8	Lyc.	14	ON	12
Gk.	3	Lith.	9	TA	15	OHG	20
Alb.	4	OE	10	OPer.	16	Welsh	21
TB	5	OI	11	OPru.	17	Osc.	22
Ved.	6	Lat.	12	Latv.	18	Umb.	23

12 *skab^h-

137 sea [polymorphic]

Hitt.	1	Av.	7	Luv.	11	Goth.	8
Arm.	2	OCS	8	Lyc.	12	ON	10
Gk.	3	Lith.	9	TA	13 [loan]	OHG	8/10
Alb.	4	OE	10	OPer.	7	Welsh	8
TB	5 [loan]	OI	8	OPru.	9	Osc.	14
Ved.	6	Lat.	8	Latv.	9	Umb.	15

7 PIran. *zrayah
8 *móri ~ *mréy-
9 PBalt. *jūrā
10 PGmc. *saiwiz

The polymorphism is confined to Germanic and is leaf-connected.

138 see

Hitt.	1	Av.	7	Luv.	12	Goth.	10
Arm.	2	OCS	8	Lyc.	13	ON	10
Gk.	3	Lith.	9	TA	5	OHG	10
Alb.	4	OE	10	OPer.	7	Welsh	15
TB	5	OI	11	OPru.	8	Osc.	16
Ved.	6	Lat.	8	Latv.	14	Umb.	8

5 PToch. *ləka(ṣə)
7 PIran. *vainati
8 *wid-éh$_1$-, stative of *weyd- ‘catch sight of’
10 PGmc. *sih^{w}idi (*seh^{w}a-)

On the Albanian form see Demiraj 1997:57.

139 seed [ineffectively polymorphic; probably with parallel development]

Hitt.	1	Av.	8	Luv.	1	Goth.	12
Arm.	2	OCS	9a	Lyc.	10	ON	12
Gk.	3	Lith.	9b	TA	5/6	OHG	9a
Alb.	4	OE	9c	OPer.	11	Welsh	9e
TB	5/6	OI	9d	OPru.	9a	Osc.	13
Ved.	7	Lat.	9a	Latv.	9b	Umb.	14

1 PAnat. *warwalan
5 PToch. *sarm¡
6 PToch. *śəktal^{y}e
12 PGmc. *fraiwą
9 derivs. of *seh$_1$- ‘sow’
9a *séh$_1$mn̥ ~ *sh$_1$mén-
9b PEBalt. *sēklā
9c – e (other derivs.)

No relation between the Armenian, Greek, and Tocharian words can be demonstrated. The Tocharian polymorphism is local and leaf-connected. Since states 5 and 6 always occur together, we have coded 5/6 as a single state.

The distribution of states 9a – e poses interesting problems. Because these derivatives of 'sow' appear to be independent, we have coded them separately; but the character is still incompatible with any plausible tree for Germanic.

140 sew

Hitt.	1	Av.	7	Luv.	9	Goth.	6
Arm.	2	OCS	6	Lyc.	10	ON	6x
Gk.	3	Lith.	6	TA	11	OHG	14
Alb.	4	OE	6	OPer.	12	Welsh	15
TB	5	OI	8	OPru.	13	Osc.	16
Ved.	6	Lat.	6	Latv.	6	Umb.	17

6 *siHw- 6x *saumīþi, deriv. of PGmc. *saumaz, itself a deriv. of 6

We have coded states 6 and 6x separately. (The character is uninformative no matter which choice is made.)

141 sharp [polymorphic]

Hitt.	1	Av.	5b	Luv.	9	Goth.	6
Arm.	2	OCS	3c	Lyc.	10	ON	6/7
Gk.	3a	Lith.	3c	TA	11	OHG	6/7
Alb.	4	OE	6/7	OPer.	5b	Welsh	13
TB	3b	OI	8	OPru.	12	Osc.	14
Ved.	5a	Lat.	3d	Latv.	3e	Umb.	15

3a–e derivs. of *h_2eḱ- 6 PGmc. *hwassaz

3c PBS *aštrus 7 PNWGmc. *skarpaz

5a–b derivs. of *tig-

5b *tigrós

We have coded the various derivatives of 3 and 5 separately.

The polymorphism is confined to Northwest Germanic and is leaf-connected.

142 short

Hitt.	1	Av.	3	Luv.	1	Goth.	15
Arm.	2	OCS	7	Lyc.	11	ON	16
Gk.	3	Lith.	8	TA	12	OHG	16
Alb.	4 [loan]	OE	9	OPer.	13	Welsh	10
TB	5	OI	10	OPru.	14	Osc.	17
Ved.	6	Lat.	3	Latv.	14	Umb.	18

1 PAnat. *mannenk^{w}o-
3 *mrégʰus ~ *mr̥gʰéw-
10 PCelt. *birros
14 PBalt. *insas
16 PNWGmc. *skamm-

143 sing

Hitt.	1	Av.	7	Luv.	11	Goth.	9
Arm.	2	OCS	5	Lyc.	12	ON	9
Gk.	3	Lith.	8	TA	5	OHG	9
Alb.	4 [loan]	OE	9	OPer.	13	Welsh	10
TB	5	OI	10	OPru.	14	Osc.	16
Ved.	6	Lat.	10	Latv.	15	Umb.	10

5 *peyH-
9 PGmc. *sing^{w}idi
10 PItCelt. *kaneti

144 sit [polymorphic, with parallel development]

Hitt.	1	Av.	1	Luv.	1	Goth.	2b
Arm.	2a	OCS	2a	Lyc.	5	ON	2b
Gk.	1	Lith.	2a	TA	4	OHG	2b
Alb.	3	OE	2b	OPer.	6	Welsh	2e
TB	1/4	OI	2c	OPru.	2d	Osc.	7
Ved.	1	Lat.	2a	Latv.	2a	Umb.	2a

1 *ḗsor
2 *sed- ‘sit down’ (eventive)
4 PToch. *ṣəm^{y}ə(ṣə)
2a derived stative *sed-éh$_1$-
2b pres. *sed-ye/o-
2c – e (other)

The parallel development in this character consists in adapting forms of the eventive root *sed-, and of the Tocharian root that apparently replaced it, to replace inherited stative *ēs-. We have accordingly coded the states of 2 separately; but parallel development (of state 2a) must still be posited.

145 skin [polymorphic]

Hitt.	1	Av.	7	Luv.	12	Goth.	15
Arm.	2	OCS	8	Lyc.	13	ON	10
Gk.	3	Lith.	9	TA	5	OHG	10/15
Alb.	4	OE	10	OPer.	14	Welsh	16
TB	5	OI	11	OPru.	10	Osc.	17
Ved.	6	Lat.	10	Latv.	9	Umb.	18

5 PToch. *yëtˢë
10 derivs. of *kewH-
9 PEBalt. *ādā
15 PGmc. *fellą (cf. Lat. *pellis* ‘hide’)

It is not clear whether the Avestan word belongs with state 10; see Bartholomae 1979 s.v., Buck 1949:201.

The polymorphism is confined to Germanic and is leaf-connected.

146 sky

Forms a polymorphic set with 23 cloud (q.v.) and 57 fog.

147 sleep [with parallel development]

Hitt.	1	Av.	6	Luv.	11	Goth.	8
Arm.	2	OCS	6	Lyc.	12	ON	6
Gk.	3	Lith.	7	TA	5	OHG	8
Alb.	4	OE	8	OPer.	13	Welsh	6x
TB	5	OI	9	OPru.	7	Osc.	15
Ved.	1	Lat.	10	Latv.	14	Umb.	16

1 *sésti
7 PBalt. *meig-
5 PToch. *kləns-
8 PGmc. *slēpidi
6 *swep- ‘fall asleep’
6x deriv. of noun *swépnos ‘sleep’

We have coded states 6 and 6x separately.

The parallel development consists in the replacement of stative *ses- by eventive *swep-.

148 small [polymorphic]

Hitt.	1	Av.	7	Luv.	14	Goth.	10
Arm.	2	OCS	8	Lyc.	15	ON	10
Gk.	3	Lith.	9	TA	5	OHG	10/11
Alb.	4	OE	10/11	OPer.	16	Welsh	12
TB	5	OI	12	OPru.	5	Osc.	17
Ved.	6	Lat.	13	Latv.	9	Umb.	18

5 *lik- (?)
9 PEBalt. *mažas
10 PGmc. *līt̄ilaz (with unexplained u-vocalism in the WGmc. forms)
11 PGmc. *smalaz
12 PCelt. *biggos

It is not certain that the Tocharian and Old Prussian forms are related; for an alternative possibility see Adams 1999 s.v. *lykaśke.*

The polymorphism is confined to West Germanic and is leaf-connected.

149 smell

Hitt.	1	Av.	6	Luv.	11	Goth.	15
Arm.	2	OCS	7	Lyc.	12	ON	16
Gk.	2	Lith.	8	TA	4	OHG	9
Alb.	3	OE	9	OPer.	13	Welsh	17
TB	4	OI	10	OPru.	14	Osc.	18
Ved.	5	Lat.	2	Latv.	2	Umb.	19

2 *(H)od-
4 PToch. *wərṣṣə(ṣə)
9 PWGmc. *stink^{w}idi

150 smoke [polymorphic, but not effectively so]

Hitt.	1a	Av.	6	Luv.	10	Goth.	14
Arm.	2	OCS	1b	Lyc.	11	ON	7
Gk.	3	Lith.	1b	TA	12	OHG	7
Alb.	4	OE	7/8a	OPer.	13	Welsh	8b
TB	5	OI	9	OPru.	1b	Osc.	15
Ved.	1b	Lat.	1b	Latv.	1b	Umb.	16

1 derivs. of *d^{h}uh$_2$-
  1a *d^{h}uh$_2$wey-
  1b *d^{h}uh$_2$mós
7 PGmc. *reuk- ~ *rauk-
8a–b derivs. of *smewK- (see below)

Though there is clearly some connection between the Old English and Welsh forms, the root-final consonants do not match (the OE form reflecting PIE *-g- or *-ǵ-, the Welsh

form PIE *-k- or *-ḱ-); we have therefore coded them separately, and that makes the OE polymorphism ineffective. We have also coded the derivatives of 1 separately, since they appear to be independent.

151 smooth

Hitt.	1	Av.	7	Luv.	11	Goth.	16
Arm.	2	OCS	8	Lyc.	12	ON	16
Gk.	3	Lith.	8	TA	13	OHG	16
Alb.	4	OE	9	OPer.	14	Welsh	17
TB	5	OI	10	OPru.	15	Osc.	18
Ved.	6	Lat.	3	Latv.	8	Umb.	19

3 *ley-w- 16 PGmc. *slehtaz

8 Balto-Slavic *glād- ~ *glud- (details very unclear).

152 snake [polymorphic; with parallel development?]

[two characters by split and conflated split coding; polymorphism or parallel development still present]

Hitt.	1	Av.	3	Luv.	11	Goth.	8/9
Arm.	2	OCS	6	Lyc.	12	ON	8/9
Gk.	3	Lith.	7	TA	5	OHG	8/9
Alb.	4	OE	8/9	OPer.	13	Welsh	9
TB	2/5	OI	9	OPru.	10	Osc.	15
Ved.	3	Lat.	10	Latv.	14	Umb.	16

2 *awǵ- 8 PGmc. *wurmiz ‘worm’

3 *$h_3ég^{wh}is$ 9 *neh_1tri- (vel sim.)

5 PToch. *arṣaklo 10 *$ang^{w(h)}is$

The polymorphisms are confined to Tocharian and Germanic and are leaf-connected. We employ split coding for the Germanic polymorphism 8/9 and the Celtic state 9, and conflated split coding for Tocharian and Armenian states, with the conflation 2/5 ∪ 5.

The distribution of states 3 and 10 suggests either some further polymorphism at internal nodes or parallel development—it is difficult to determine which.

Note that Welsh *sarff* is a loan; on Albanian *gjarpër* see Demiraj 1997:183-4.

153 snow AND 415 winter [polymorphic set; see notes for coding]

Hitt.	1, 2	Av.	5, 2	Luv.	8, 9	Goth.	6a, 7
Arm.	2, 2	OCS	6a, 2	Lyc.	10, 11	ON	6a, 7
Gk.	2, 2	Lith.	6a, 2	TA	12, 2	OHG	6a, 7
Alb.	3, 2	OE	6a, 7	OPer.	13, 14	Welsh	15, 2
TB	4, 2	OI	6b, 2	OPru.	6a, 2	Osc.	16, 17
Ved.	2, 2	Lat.	6c, 2	Latv.	6a, 2	Umb.	18, 19

2 *ǵʰéyōm ‘winter’ and derivs.

7 PGmc. *wintruz ‘winter’

6 derivs. of verb *sneygʷʰ- ‘snow’

6a *snoygʷʰos

6b, c (other)

We have adopted both codings for superstate 6; the result is that 153 ‘snow’ is two characters, both of which exhibit parallel development of state 2.

The semantic expansion of state 2 (which can actually be documented in Greek) is a southern areal phenomenon. In those languages that exhibit it there is secondary differentiation of the words for ‘snow’ and ‘winter’, typically by derivational suffixation of the latter; but since the suffixes and suffix complexes are unique (pointing to independent development), we have not coded the forms separately.

Note that 415 ‘winter’ is an unexceptional monomorphic character which can be used as input to the algorithm.

154 some

Hitt.	1a	Av.	5	Luv.	7	Goth.	4b
Arm.	1b	OCS	1d	Lyc.	8	ON	4b
Gk.	2	Lith.	1e	TA	4a	OHG	4b
Alb.	3	OE	4b	OPer.	1c	Welsh	11
TB	4a	OI	6x	OPru.	9	Osc.	12
Ved.	1c	Lat.	6+1	Latv.	10	Umb.	13

1a–e derivs. of indefinite *kʷi- ~ *kʷo-, including phrases

4 derivs. of *sem- ‘one’

4a PToch. *ṣemẹ

4b PGmc. *sumai

6 derivs. of *ályos ‘other’

6x reduplicated

6+1 compound with 1

On the Armenian form see Olsen 1999:806 with references.

Since the reconstructable meanings of the states argue strongly argue parallel development, we have coded all distinguishable states separately.

155 spit

Hitt.	1	Av.	3	Luv.	8	Goth.	3
Arm.	2	OCS	3	Lyc.	9	ON	3
Gk.	3	Lith.	3	TA	10	OHG	3
Alb.	4	OE	3	OPer.	11	Welsh	13
TB	5	OI	7	OPru.	12	Osc.	14
Ved.	6	Lat.	3	Latv.	3	Umb.	15

3 *spyewH- and derivatives

We have not coded the derivatives of the basic verb separately because they appear to be unique.

The shape of the Vedic word does not fit set 3; we suggest that it is onomatopoeic.

156 split [polymorphic]

[two characters, both polymorphic]

Hitt.	1	Av.	6	Luv.	10	Goth.	14
Arm.	1	OCS	7	Lyc.	11	ON	8
Gk.	2	Lith.	1x	TA	4	OHG	8
Alb.	3	OE	8	OPer.	12	Welsh	1
TB	4	OI	9	OPru.	13	Osc.	15
Ved.	5	Lat.	2/5	Latv.	1x	Umb.	16

1 *sḱelH-

1x pres. *sḱélyeti

2 *sḱeyd- (pres. *sḱinédsti)

4 PToch. *kawtna(ṣə)

5 *b^{h}eyd- (pres. *b^{h}inédsti)

8 PNWGmc. *kliubidi (*kleuba-)

We employ both codings for superstate 1.

We reluctantly accept the hypothesis that Gk. σχίζει belongs with Lat. *scindit* (and Ved. *c^{h}inátti* ‘cuts off’); replacement of the inherited nasal-infixed present is normal in Greek, but the aspiration of the second consonant is difficult to account for.

Though the overt polymorphism is confined to Latin, the distribution of states suggests polymorphism or parallel development elsewhere in the tree. Our remarks on 27 ‘cut’ (see above) apply to this character as well.

157 squeeze

Hitt.	1	Av.	6	Luv.	12	Goth.	9
Arm.	2	OCS	7	Lyc.	13	ON	9
Gk.	3	Lith.	8	TA	14	OHG	18
Alb.	4	OE	9	OPer.	15	Welsh	10
TB	5	OI	10	OPru.	16	Osc.	19
Ved.	3	Lat.	11	Latv.	17	Umb.	20

3 *pi-sed-

10 PCelt. *wāsk- ~ *wask-

9 PGmc. *þrinh- and derivs.

158 stand

[two characters]

Hitt.	1	Av.	3	Luv.	3	Goth.	3y
Arm.	2	OCS	3	Lyc.	3	ON	3y
Gk.	3	Lith.	3x	TA	5	OHG	3y
Alb.	4	OE	3y	OPer.	3	Welsh	3
TB	5	OI	3	OPru.	3	Osc.	3z
Ved.	3	Lat.	3z	Latv.	3x	Umb.	3z

3 *steh$_2$-, pres. *stísteh$_2$ti, perf. *stestóh$_2$e, and derivs.

3x PEBalt. *stāv-

3y PGmc. *standidi

3z PItal. *staēt

5 PToch. *kəlʸətər

The stative meaning ‘be in a standing position’ was originally expressed by the perfect stem, but was later shifted to other stems in various branches; we have not coded for that complex of morphological changes.

We have employed both codings for superstate 3, since direct replacement of the inherited verb by the derivatives is very likely.

On the Italic forms see Cowgill 1973.

159 star

[two characters]

Hitt.	1	Av.	1	Luv.	5	Goth.	1y
Arm.	1	OCS	3	Lyc.	6	ON	1y
Gk.	1	Lith.	3	TA	1x	OHG	1y
Alb.	2	OE	1y	OPer.	7	Welsh	1
TB	1x	OI	4	OPru.	8	Osc.	9
Ved.	1	Lat.	1	Latv.	3	Umb.	10

1 *$h_2$stḗr and derivs.
1x PToch. *ścəryẹ
1y PGmc. *sternan-
3 PBS *žvaigždā (vel sim.; see Buck 1949:56)

We have employed both codings for superstate 1.

160 stick

Hitt.	1	Av.	7	Luv.	12	Goth.	17
Arm.	2	OCS	8	Lyc.	13	ON	18
Gk.	3	Lith.	9	TA	14	OHG	19
Alb.	4	OE	10	OPer.	15	Welsh	20
TB	5	OI	11	OPru.	9	Osc.	21
Ved.	6	Lat.	3	Latv.	16	Umb.	22

3 *bak-
9 PBalt. *lazdā

161 stone

Hitt.	1	Av.	6	Luv.	10	Goth.	7
Arm.	2	OCS	6	Lyc.	11	ON	7
Gk.	3	Lith.	6	TA	12	OHG	7
Alb.	4	OE	7	OPer.	6	Welsh	14
TB	5	OI	8	OPru.	13	Osc.	15
Ved.	6	Lat.	9	Latv.	6	Umb.	9

6 *$h_2$éḱmō
7 PGmc. *stainaz
9 PItal. *lapid-

The unexplained velar of the Balto-Slavic forms is part of a well-known larger phenomenon and does not cast doubt on the coherence of set 6.

162 straight

Hitt.	1	Av.	6a	Luv.	9	Goth.	6b
Arm.	2	OCS	7	Lyc.	10	ON	6b
Gk.	3	Lith.	8	TA	11	OHG	6b
Alb.	4 [loan]	OE	6b	OPer.	12	Welsh	14
TB	5	OI	6a	OPru.	13	Osc.	15
Ved.	6a	Lat.	6b	Latv.	8	Umb.	16

6 derivs. of *h$_3$reǵ- ‘put in a straight line’

6a *h$_3$réǵ-u- ~ *h$_3$r̥ǵ-éw- (cpd. in OIr.)

6b verbal adj. *h$_3$reǵtós (with remodelled ablaut)

8 PEBalt. *tiesus

We have coded states 6a, 6b separately, since they are independent derivatives of a verb root.

163 suck [polymorphic]

[two characters, one monomorphic]

Hitt.	1	Av.	5	Luv.	7	Goth.	12
Arm.	2	OCS	3b	Lyc.	8	ON	3c
Gk.	2	Lith.	6	TA	9	OHG	3c
Alb.	3a	OE	3c	OPer.	10	Welsh	2/3d
TB	4	OI	2	OPru.	11	Osc.	13
Ved.	2	Lat.	3c	Latv.	6	Umb.	14

2 *d^{h}eh$_1$-

6 PEBalt. *žind-

3 *seuK- / *sūK-, where *K is some palatal stop

3c *sūǵ^h-

Old Irish *súgid* is probably a Latin loanword, to judge from its “weak” inflection (see Thurneysen 1946:574, Quin et al. 1983 s.v. *súigid*).

We have employed both codings for superstate 3, since the reasons for the discrepancy in the root-final stop are very unclear. In the narrower coding the character is monomorphic, since state 3d is unique.

The polymorphism is very extensive but leaf-connected (in Celtic).

164 sun [polymorphic]

[two characters, one monomorphic]

Hitt.	1	Av.	3	Luv.	4b	Goth.	3/3y
Arm.	2	OCS	3	Lyc.	7	ON	3
Gk.	3	Lith.	3x	TA	5	OHG	3y
Alb.	4a	OE	3y	OPer.	8	Welsh	3
TB	5	OI	6	OPru.	3x	Osc.	9
Ved.	3	Lat.	3	Latv.	3x	Umb.	10

3 *seh$_2$wel- and derivs.
3x PBalt. *saulē
3y PGmc. *sunnōn-
4a–b derivs. of *diw- ‘sky’
5 PToch. *kawnə

We have coded states 4a, 4b separately, since they are independent derivatives, but we employ both codings for superstate 3, since direct replacement of the inherited state by the derived states is highly likely; under the broader coding the polymorphism of Gothic disappears.

165 swell

Hitt.	1	Av.	5	Luv.	11	Goth.	17
Arm.	2	OCS	6	Lyc.	12	ON	8
Gk.	2	Lith.	7	TA	13	OHG	8
Alb.	3	OE	8	OPer.	14	Welsh	18
TB	4	OI	9	OPru.	15	Osc.	19
Ved.	5	Lat.	10	Latv.	16	Umb.	20

2 *h$_3$eyd-
5 PIIr. *ćvay-
8 PNWGmc. *swillidi (*swella-)

166 swim

Forms a polymorphic set with 42 fall (q.v.), etc.

167 tail

Hitt.	1	Av.	7	Luv.	12	Goth.	18
Arm.	2	OCS	8	Lyc.	13	ON	19
Gk.	3a	Lith.	9	TA	14	OHG	10
Alb.	4	OE	10	OPer.	15	Welsh	20
TB	5	OI	3b	OPru.	16	Osc.	21
Ved.	6	Lat.	11	Latv.	17	Umb.	22

3a–b derivs. of *órsos ‘arse’ 10 PGmc. *taglą ‘tail-hair (of horses)’

We have coded states 3a, 3b separately, since it is clear that they are very different independent derivatives; the character is therefore uninformative, as it exhibits only one non-unique state.

168 that

Forms a polymorphic set with 70 he (q.v.), etc.

169 there

Forms a polymorphic set with 75 here (q.v.).

170 they

Forms a polymorphic set with 70 he (q.v.), etc.

171 thick

Hitt.	1	Av.	6	Luv.	11	Goth.	17
Arm.	2	OCS	7	Lyc.	12	ON	9
Gk.	3	Lith.	8	TA	13	OHG	9
Alb.	4	OE	9	OPer.	14	Welsh	9
TB	5	OI	9	OPru.	15	Osc.	18
Ved.	3	Lat.	10	Latv.	16	Umb.	19

3 *b^{h}éng^{h}us ~ *b^{h}n̥g^{h}éw- 9 *tégus

The relation between Vedic *st^{h}ūrás* and Lithuanian *stóras* is remote: the root-shapes do not match, and a parallel semantic development *‘coagulated’ → *‘dense’ → ‘thick’ must probably be reconstructed. We have therefore coded them with unique states (the unique Vedic state being automatically suppressed because Vedic also exhibits a shared state for this character). Whether Armenian *stowar* is made to the same root is even more uncertain; see Clackson 1994:43 for discussion.

172 thin

Hitt.	1	Av.	7	Luv.	9	Goth.	14
Arm.	2	OCS	6	Lyc.	10	ON	6
Gk.	3	Lith.	8	TA	11	OHG	6
Alb.	4	OE	6	OPer.	12	Welsh	6
TB	5	OI	6	OPru.	13	Osc.	15
Ved.	6	Lat.	6	Latv.	6	Umb.	16

6 *ténh$_2$us ~ *tn̥h$_2$éw- and derivs.

173 think [polymorphic]

Hitt.	1	Av.	6	Luv.	6	Goth.	9
Arm.	2	OCS	7	Lyc.	13	ON	9
Gk.	3	Lith.	8a	TA	5	OHG	10
Alb.	4 [loan]	OE	9/10	OPer.	6	Welsh	15
TB	5	OI	11	OPru.	14	Osc.	16
Ved.	6	Lat.	12	Latv.	8b	Umb.	17

5 PToch. *pəlskna(ṣə)

6 *ménye̯tor

8a–b derivs. of PBS *dūma- ~ *dōuma-

9 PGmc. *hugiþi (*hugja-; pret. *hugdē)

10 PGmc. *þankīþi

On the Luvian word see Melchert 1994:169, 275.

The East Baltic words are quite different derivatives of a Balto-Slavic stem meaning originally ‘judgment’ or the like; we have therefore coded them separately.

The polymorphism is confined to West Germanic and is leaf-connected.

174 this

Forms a polymorphic set with 70 he (q.v.), etc.

175 thou and 175a thee [polymorphic set]

Hitt.	1, 2	Av.	1, 2	Luv.	1, 2	Goth.	1, 2y
Arm.	1, 2	OCS	1, 2[dat.]	Lyc.	3, 4	ON	1, 2y
Gk.	1, 2	Lith.	1, 2x	TA	1, 2[dat.]	OHG	1, 2y
Alb.	1, 2	OE	1, 2[dat.]	OPer.	1, 2	Welsh	2, 2
TB	1, 2[dat.]	OI	1, 2	OPru.	1, 2x	Osc.	1, 5
Ved.	1, 2	Lat.	1, 2	Latv.	1, 2z	Umb.	6, 2

1 nom. *túh$_2$ (on the Anatolian forms see Melchert 1994:84)

2 acc. *twé ~ *te, or dative (variously formed)

2x extended stem *te-n-

2y emphatic *tége

2z extended stem *te-w-

The accusative form current in the late West Saxon dialect of Old English is the inherited dative; other dialects of Old English preserve the inherited Germanic accusative 2y.

We have coded the substates of 2 separately, but we have not coded the datives separately, since the use of a dative personal pronoun for the accusative is an easy parallel development.

We also have not coded the appearance of the emphatic particle *-ém ~ *-óm, which

exhibits no recognizable pattern. Note that the final *-g* of the Hittite accusative cannot reflect the emphatic particle *-ge (which would have become "-gi").

176 three

Hitt.	1	Av.	1	Luv.	1	Goth.	1
Arm.	1	OCS	1	Lyc.	1	ON	1
Gk.	1	Lith.	1	TA	1	OHG	1
Alb.	1	OE	1	OPer.	1	Welsh	1
TB	1	OI	1	OPru.	1	Osc.	1
Ved.	1	Lat.	1	Latv.	1	Umb.	1

1 *tréyes, fem. *tisrés, neut. *tríh$_2$

177 throw

Hitt.	1	Av.	1	Luv.	10	Goth.	7
Arm.	2	OCS	6	Lyc.	11	ON	7
Gk.	3	Lith.	6	TA	12	OHG	7
Alb.	4	OE	7	OPer.	1	Welsh	13
TB	5	OI	8	OPru.	6	Osc.	14
Ved.	1	Lat.	9	Latv.	6	Umb.	15

1 *sh$_1$iéti (cf. Melchert 1994:154)
6 PBS *meteti
7 PGmc. *wirpidi (*werpa-)

178 tie [polymorphic]

Hitt.	1	Av.	1/6	Luv.	1	Goth.	6
Arm.	2 [loan]	OCS	8	Lyc.	11	ON	6
Gk.	3	Lith.	9	TA	5	OHG	6
Alb.	4	OE	6	OPer.	6	Welsh	10
TB	5	OI	7/10	OPru.	9	Osc.	13
Ved.	1/3/6/7	Lat.	4	Latv.	1	Umb.	14

1 *sh$_2$ey-
3 *deh$_1$-
4 *liǵ-
5 PToch. *kərk-
6 *b^{h}end^h-
7 *ned^h- (or *nad^h-)
9 PBalt. *reiš- ~ *riš-
10 PCelt. *reig- ~ *rig-

The polymorphism of this character is extensive and complex. Our remarks on 27 'cut' (see above) apply here as well.

179 tongue

[two characters]

Hitt.	1	Av.	2uu	Luv.	1	Goth.	2x
Arm.	2s	OCS	2v	Lyc.	5	ON	2x
Gk.	3	Lith.	2w	TA	2t	OHG	2x
Alb.	4	OE	2x	OPer.	2uu	Welsh	2y
TB	2t	OI	2y	OPru.	2v	Osc.	2z
Ved.	2u	Lat.	2	Latv.	6	Umb.	7

1 PAnat. *lalos

2 *dn̥ǵʰwéh$_2$s ~ *dn̥ǵʰuh$_2$-, variously deformed (see Peters 1991):

2s, 2w deformed by lexical analogy with ‘lick’

2t stops metathesized (Ringe 1996:45-6)

2u PIIr. *źiźʰvā́

2uu initial consonant altered further by dissimilation

2v *d- lost

2x extended as an n-stem

2y *d- replaced by *t-*

2z manner of articulation of the stops metathesized

We employ all three codings for superstate 2 (i.e., all the substates coded together; only 2u and 2uu together; and all coded separately).

180 tooth [with parallel development]

Hitt.	1	Av.	2	Luv.	4	Goth.	2
Arm.	2x	OCS	3	Lyc.	5	ON	2
Gk.	2	Lith.	2	TA	3	OHG	2
Alb.	3	OE	2	OPer.	6	Welsh	2
TB	3	OI	2	OPru.	2	Osc.	2
Ved.	2	Lat.	2	Latv.	3	Umb.	7

2 *h$_1$dónts ~ *h$_1$dn̥t- 3 *gómbʰos ‘row of teeth’

2x suffix altered (see Olsen 1999:505 with references)

We have coded state 2x together with state 2.

The parallel development in this character consists in the multiple replacement of state 2 with state 3; note that even the East Baltic subgroup is split.

181 tree

[two characters]

Hitt.	1	Av.	5	Luv.	9	Goth.	14a
Arm.	2	OCS	1	Lyc.	10	ON	1x
Gk.	1	Lith.	6	TA	3	OHG	14b
Alb.	1	OE	1x	OPer.	11	Welsh	7
TB	3	OI	7	OPru.	12	Osc.	15
Ved.	4	Lat.	8	Latv.	13	Umb.	16

1 *dóru ~ *drέw- and derivs.
1x PGmc. *trewą
3 PToch. *stamə
7 PCelt. *k^{w}rennos
14 Gmc. *baXmaz
14a pre-Gothic *bagmaz
14b PWGmc. *baumaz

State 14 is problematic (cf. also ON *baðmr*). If it was really a PGmc. word, then it appears that there was widespread polymorphism in Germanic, though each of the languages settled on one of the words as basic for 'tree'.
We employ both codings for superstate 1 but code states 14a, 14b separately.

182 turn

Hitt.	1	Av.	7	Luv.	11	Goth.	9
Arm.	2	OCS	8	Lyc.	12	ON	13
Gk.	3	Lith.	6	TA	5	OHG	9
Alb.	4	OE	9	OPer.	6	Welsh	14
TB	5	OI	10	OPru.	6	Osc.	15
Ved.	6	Lat.	6	Latv.	6	Umb.	6

5 PToch. *spartwa-
6 *wert-
9 PGmc. *wandīþi

183 two

Hitt.	1	Av.	1	Luv.	2	Goth.	1
Arm.	1	OCS	1	Lyc.	1	ON	1
Gk.	1	Lith.	1	TA	1	OHG	1
Alb.	1	OE	1	OPer.	1	Welsh	1
TB	1	OI	1	OPru.	1	Osc.	3
Ved.	1	Lat.	1	Latv.	1	Umb.	1

1 *duóh$_1$

184 vomit

Hitt.	1	Av.	3	Luv.	9	Goth.	13
Arm.	2	OCS	6	Lyc.	10	ON	7
Gk.	3	Lith.	3	TA	11	OHG	7
Alb.	4	OE	7	OPer.	12	Welsh	8
TB	5	OI	8	OPru.	3	Osc.	14
Ved.	3	Lat.	3	Latv.	3	Umb.	15

3 *wémh$_1$ti 7 PGmc. *spīwidi 8 PCelt. *skei-

185 walk

Forms a polymorphic set with 25 come (q.v.) and 343 go.

186 warm [polymorphic]

Hitt.	1	Av.	2/6	Luv.	9	Goth.	8
Arm.	2	OCS	6	Lyc.	10	ON	8
Gk.	2	Lith.	7	TA	11	OHG	8
Alb.	3	OE	8	OPer.	12	Welsh	6
TB	4	OI	6	OPru.	13	Osc.	14
Ved.	5	Lat.	6	Latv.	7	Umb.	15

2 *g^{wh}r̥mós (with ablaut variously remodelled)

6 derivs. of *tep- 8 PGmc. *warmaz

7 PEBalt. *šiltas

The polymorphism is extensive but leaf-connected (at Avestan). Alternatively, it is possible that parallel development has occurred, since both *tep- and *g^{wh}er- are verb roots.

187 wash [polymorphic]

Hitt.	1	Av.	3	Luv.	9	Goth.	7
Arm.	2	OCS	5	Lyc.	10	ON	7
Gk.	2/3	Lith.	6	TA	4	OHG	8
Alb.	2	OE	7/8	OPer.	11	Welsh	12
TB	4	OI	3	OPru.	5	Osc.	13
Ved.	3	Lat.	2	Latv.	6	Umb.	2

2 *lewh$_3$- 5 PBS *mū- 8 PWGmc. *waskidi

3 *neyg^{w}- 6 PEBalt. *mazgā-

4 PToch. *lika- 7 PGmc. *þwahidi

The West Germanic polymorphism is local and leaf-connected; the polymorphism invol-

ving states 2 and 3 is extensive but still leaf-connected (at Greek).

188 water [polymorphic, with parallel development]

Hitt.	1	Av.	4	Luv.	3	Goth.	1
Arm.	2	OCS	1	Lyc.	6	ON	1
Gk.	1	Lith.	1	TA	1	OHG	1
Alb.	1	OE	1	OPer.	4	Welsh	7
TB	1	OI	1	OPru.	1	Osc.	5
Ved.	1/3	Lat.	5	Latv.	1	Umb.	1

1 *wódr̥ ~ *udén- and derivs.
4 *$h_2$ep- 'running water'
3 *wéh$_1$r̥ 'liquid' (Watkins 1987:401-3)
5 *ak^{w}eh$_2$ ~ *āk^{w}eh$_2$ 'running water'

We adopt the hypothesis that the Oscan word is cognate with the Latin rather than with the Iranian forms.
The polymorphism is confined to the unusual suppletive paradigm of Vedic.
The reconstructable meanings of states 3 (see Watkins ad loc.), 4 (cf. Vedic *ā́pas* 'the (divine) Waters'), and 5 (cf. PGmc. *ah^{w}ō 'river') strongly argue parallel development.

189 we AND 189a us [polymorphic set]

Hitt.	1, 2	Av.	1, 2	Luv.	3, 2	Goth.	1, 2
Arm.	1x, 2	OCS	1y, 2	Lyc.	4, 5	ON	1, 2
Gk.	2, 2	Lith.	1y, 1y	TA	1+2, 1+2	OHG	1, 2
Alb.	2, 2	OE	1, 2	OPer.	1, 6	Welsh	2, 2
TB	1+2, 1+2	OI	2, 2	OPru.	1y, 1y	Osc.	7, 8
Ved.	1, 2	Lat.	2, 2	Latv.	1y, 1y	Umb.	9, 10

1 nom. *wéy and subsequent developments
1x, 1y *w- replaced by *m-
2 acc. *n̥smé, enclitic *nos, and subsequent developments

The replacement of *w- by *m- can be a parallel development, at least in part (cf. also Pali *mayam* 'we', unarguably a direct reflex of Vedic *vayám*); we have therefore coded the Armenian and Balto-Slavic nominatives separately. An obvious model (still surviving in Old Church Slavonic) is the verb endings, in which the 1du. begins with *-v-* but the 1pl. with *-m-*.
The choice of stressed or enclitic forms for generalization in the oblique is clearly a repeatable change; therefore we have not distinguished them in coding.
We have coded the Tocharian forms, in which the initial consonant reflects the nomina-

tive and the rest of the form the oblique enclitics, separately.
On the Celtic and Armenian reflexes of state 2 see Katz 1998:96-105, 186-8.

190 wet [polymorphic]

Hitt.	1	Av.	7	Luv.	14	Goth.	19
Arm.	2	OCS	8	Lyc.	15	ON	10
Gk.	3	Lith.	9	TA	16	OHG	11/19
Alb.	4	OE	10/11	OPer.	17	Welsh	12
TB	5	OI	12	OPru.	18	Osc.	20
Ved.	6	Lat.	13	Latv.	9	Umb.	21

9 PEBalt. *šlapjas
10 PNWGmc. *wātiz
11 PWGmc. *fūht-
12 PCelt. *wlik^{w}us
19 PGmc. *nataz

The polymorphism is confined to Germanic. A triple state 10/11/18 must be posited for Proto-West Germanic, and an otherwise unattested double state 10/18 for Proto-Northwest Germanic.

191 what

Hitt.	1	Av.	1	Luv.	1	Goth.	1
Arm.	1	OCS	1	Lyc.	1	ON	1
Gk.	1	Lith.	1	TA	1	OHG	1
Alb.	1	OE	1	OPer.	2	Welsh	1
TB	1	OI	1	OPru.	1	Osc.	1
Ved.	1	Lat.	1	Latv.	1	Umb.	1

1 *k^{w}íd and/or adj. *k^{w}ód (and subsequent developments)

Since the choice between the two stems is clearly a repeatable change, we have not distinguished them in coding.

192 when [polymorphic]

[two characters, one monomorphic]

Hitt.	1a	Av.	1e	Luv.	1j	Goth.	1g
Arm.	1b	OCS	1f	Lyc.	3	ON	1g
Gk.	1c	Lith.	1e	TA	1k/2	OHG	1g
Alb.	1d	OE	1g	OPer.	4	Welsh	1*l*
TB	2	OI	1h	OPru.	1e	Osc.	5
Ved.	1e	Lat.	1i	Latv.	1e	Umb.	6

1a–*l* derivs. of *k^{w}i- ~ *k^{w}o- ~ *ku-

1e satem *k^{w}od + vowel-initial particle

1g PGmc. *hwan(-)

2 PToch. *ënt- ~ *ənt-

We employ both codings for superstate 1; in the narrower coding the unique substate 1k is automatically suppressed, making the character monomorphic.

193 where [with parallel development]

Hitt.	1a	Av.	1e	Luv.	1i	Goth.	1g
Arm.	1b	OCS	1f	Lyc.	1j	ON	1g
Gk.	1c	Lith.	1b	TA	3	OHG	1g
Alb.	1d	OE	1g	OPer.	4	Welsh	1*l*
TB	2	OI	1h	OPru.	1k	Osc.	1f
Ved.	1e	Lat.	1f	Latv.	1b	Umb.	1f

1a–*l* derivs. of *k^{w}i- ~ *k^{w}o- ~ *ku-

1b *kur(-)

1e PIIr. *kútra

1f *kud^{h}é(±i)

1g PGmc. *h^{w}ar

All derivatives have been coded separately, since otherwise the character is uninformative.

It seems clear that the choice between states 1b and 1f, or perhaps the formation of the former, was a repeatable change.

194 white [polymorphic]

[two monomorphic characters by conflated split coding]

Hitt.	1	Av.	5a	Luv.	9	Goth.	5b
Arm.	2 [loan]	OCS	6a	Lyc.	10	ON	5b
Gk.	3	Lith.	6b	TA	1	OHG	5b
Alb.	4	OE	5b	OPer.	11	Welsh	7
TB	1	OI	7	OPru.	12	Osc.	13
Ved.	1/5a	Lat.	8	Latv.	6b	Umb.	8

1 *h$_{2}$erǵ-

5 derivs. of *ḱwey-

5a PIIr. *ćvaitas

5b PGmc. *hwītaz

6 derivs. of PBS *bel-

6a pre-Slavic *bēlas

6b P(E)Balt. *baltas

7 PCelt. *windos

8 PItal. *alfos < *alb^{h}ós

We have coded states 5a, 5b and states 6a, 6b separately, since they are clearly indepen-

dent derivatives.

The polymorphism is confined to Indo-Iranian and is leaf-connected. We have reduced this to two monomorphic characters by conflated split coding, with 5a ∪ 1/5a coded against 1 in one character and all three coded together in the other.

195 who

Hitt.	1	Av.	1	Luv.	1	Goth.	1
Arm.	1	OCS	1	Lyc.	1	ON	1
Gk.	1	Lith.	1	TA	1	OHG	1
Alb.	1	OE	1	OPer.	1	Welsh	1
TB	1	OI	1	OPru.	1	Osc.	1
Ved.	1	Lat.	1	Latv.	1	Umb.	1

1 *k^{w}éy and/or adj. *k^{w}ós (and subsequent developments)

On the Armenian form see Olsen 1999:806.

Since the choice between the two stems is clearly a repeatable change, we have not distinguished them in coding.

196 wide [polymorphic]

[two characters, both polymorphic]

Hitt.	1a	Av.	1b	Luv.	8	Goth.	5
Arm.	1bx	OCS	4	Lyc.	9	ON	5/6
Gk.	2	Lith.	1b	TA	2x	OHG	5/6
Alb.	3	OE	5/6	OPer.	10	Welsh	1bx
TB	2x	OI	1bx	OPru.	11	Osc.	12
Ved.	1b/2	Lat.	7	Latv.	1b	Umb.	13

1a *p̥lh$_2$-

1b *pláth$_2$us ~ *p̥lth$_2$éw- and derivs.

1bx *p̥lth$_2$n̥ós (cf. Olsen 1999:767)

2 *h$_1$wérus ~ *h$_1$uréw- and derivs.

2x PToch. extension with *-t^{s}t^{s}ë

5 PGmc. *braidaz

6 PNWGmc. *wīdaz

We have coded states 1a and 1b separately, since they exhibit different root-shapes (though some ultimate etymological connection is probable); but we have adopted both codings for (super)state 1b, since it is at least a plausible hypothesis that the derivative in *-nó- replaced the Caland adjective directly, and also for superstate 2.

The NWGmc. polymorphism is local and leaf-connected. The polymorphism between states 1b and 2, as coded here, is extensive but leaf-connected (at Vedic); in fact, it can be

shown that it is even more extensive than our data suggest. For instance, though πλατύς means ‘flat’ in Attic Greek (which is the basis of our coding), it still means ‘wide’ in Homer, who also uses εὐρύς; thus the polymorphism extends at least to Greek as well.

197 wife

Hitt.	1	Av.	3	Luv.	6	Goth.	1
Arm.	1	OCS	1	Lyc.	7	ON	1
Gk.	1	Lith.	4	TA	1	OHG	1
Alb.	2	OE	1	OPer.	8	Welsh	10
TB	1	OI	1	OPru.	1	Osc.	11
Ved.	1	Lat.	5	Latv.	9	Umb.	12

1 *$g^{w}\acute{e}n$ ~ *$g^{w}énh_2$- ~ *$g^{w}néh_2$- ‘woman’ and derivs.

198 wind

[two characters]

Hitt.	1a	Av.	1c	Luv.	5	Goth.	1b
Arm.	2	OCS	1d	Lyc.	6	ON	1b
Gk.	2	Lith.	1e	TA	1b	OHG	1b
Alb.	3	OE	1b	OPer.	7	Welsh	1b
TB	1b	OI	4	OPru.	1d	Osc.	8
Ved.	1c	Lat.	1b	Latv.	1e	Umb.	9

1 derivs. of *h_2weh_1- ‘blow’

1a *$h_2wéh_1$-n̥t-s (vel sim., Melchert 1994:54 with references)

1b “post-laryngeal” *$h_2wēntós$

1c PIIr. *váatas < *$h_2wéh_1$-n̥t-o-s

1d PBS *vētras

1e PEBalt. *vējas

2 *$h_2ónh_1$mos ‘breath’ (Olsen 1999:27; ablaut adjusted in Greek)

We have adopted both codings for superstate 1, since it is very likely that 1a is the inherited word and the other derivatives of ‘blow’ replaced it without the mediation of derivatives of any other root. The resulting impression that state 1c replaced 1b is an illusion so far as the phonology is concerned—that is, the apparently uniform *-ēn- of state 1b reflects parallel development—but not necessarily in morphological terms.

199 wing [polymorphic, but not effectively so]

[two characters]

Hitt.	1/2a	Av.	1x	Luv.	8	Goth.	13
Arm.	3	OCS	6	Lyc.	9	ON	14
Gk.	1+2	Lith.	1y	TA	10	OHG	2b
Alb.	4	OE	2b	OPer.	11	Welsh	2e
TB	5	OI	2c	OPru.	12	Osc.	15
Ved.	1x	Lat.	7	Latv.	1y	Umb.	16

1 derivs. of *per-

1x *pernóm

1y PEBalt. *sparnas

2a–d derivs. of *pet(h_2)- ‘fly’

2b derivs. of PNWGmc. *feþru ‘feather’

We have adopted both codings for superstate 1, but have coded the states of 2 separately, since they are clearly independent derivatives of a verb root. The unique state 2a is thus automatically suppressed, eliminating the polymorphism. The Greek form shows contamination of the two roots; we have treated it as a substate of 1 in coding.

We reject the connection of the Armenian word with state 2 posited by Olsen 1999:51-2.

200 wipe

Hitt.	1	Av.	7	Luv.	1	Goth.	17
Arm.	2	OCS	8	Lyc.	13	ON	18
Gk.	3	Lith.	9	TA	5	OHG	17
Alb.	4	OE	10	OPer.	14	Welsh	19
TB	5	OI	11	OPru.	15	Osc.	20
Ved.	6	Lat.	12	Latv.	16	Umb.	21

1 PAnat. *ómsei

5 PToch. *l^{y}iyask-

17 PGmc. *swirbidi (*swerba-)

201 with [polymorphic]

Hitt.	1	Av.	6/7	Luv.	11	Goth.	9
Arm.	2	OCS	8	Lyc.	12	ON	9
Gk.	3	Lith.	8	TA	5	OHG	9
Alb.	4	OE	9	OPer.	7	Welsh	14
TB	5	OI	10	OPru.	8	Osc.	10
Ved.	6/7	Lat.	10	Latv.	13	Umb.	10

5 PToch. *śəlë
6 PIIr. *smát
7 PIIr. *sad^{h}á
8 PBS *sVn
9 *med^{h}i or *metí
10 *kom

It is not clear that the Balto-Slavic words belong with the Greek form. The latter was originally ξύν (attested in various dialects); the vowel of the PBS word is problematic (cf. Stang 1966:32).

It is also not clear whether the Albanian word belongs with state 6 or state 9 (cf. Demiraj 1997:274-5, but also 55!); we have cautiously assigned it a unique state.

The polymorphism is confined to Indo-Iranian and is leaf-connected.

202 woman

Hitt.	1	Av.	1	Luv.	1	Goth.	1
Arm.	1	OCS	1	Lyc.	7	ON	1
Gk.	1	Lith.	4	TA	3	OHG	5
Alb.	2	OE	5	OPer.	8	Welsh	1
TB	3	OI	1	OPru.	1	Osc.	10
Ved.	1	Lat.	6	Latv.	9	Umb.	11

1 *g^{w}ḗn ~ *g^{w}énh$_2$- ~ *g^{w}néh$_2$- and derivs.
3 PToch. *k^{w}l^{y}iye
5 PWGmc. *wīb

203 woods [polymorphic]

Hitt.	1	Av.	7	Luv.	13	Goth.	17
Arm.	2	OCS	8	Lyc.	14	ON	10
Gk.	3	Lith.	9	TA	5	OHG	11
Alb.	4	OE	10/11	OPer.	15	Welsh	10
TB	5	OI	10	OPru.	16	Osc.	18
Ved.	6	Lat.	12	Latv.	16	Umb.	19

5 PToch. *wərtto
10 *wid^{h}us
11 PWGmc. *wald
16 PBalt. *medjan

Note that Tocharian A *kārāś* is a loanword.

The polymorphism is confined to West Germanic and is leaf-connected.

204 worm [polymorphic]

Hitt.	1	Av.	6	Luv.	8	Goth.	13
Arm.	2	OCS	4	Lyc.	9	ON	7/13
Gk.	3	Lith.	4	TA	5	OHG	7
Alb.	4	OE	7	OPer.	10	Welsh	4
TB	5	OI	4	OPru.	11	Osc.	14
Ved.	4	Lat.	7	Latv.	12	Umb.	15

4 *k^{w}r̥mis 7 *wr̥mis

5 PToch. *w^{y}elə 13 PGmc. *maþ-

The polymorphism is confined to Germanic and is leaf-connected.

205 ye AND 205a you [polymorphic set]

Hitt.	1, 1	Av.	2, 1	Luv.	5, 1	Goth.	2, 1
Arm.	2, 3	OCS	1, 1	Lyc.	6, 7	ON	2, 1
Gk.	1, 1	Lith.	2, 2	TA	2+1, 2+1	OHG	2, 1
Alb.	4, 4	OE	2, 1	OPer.	8, 9	Welsh	1, 1
TB	2+1, 2+1	OI	1, 1	OPru.	2, 1	Osc.	1, 10
Ved.	2, 1	Lat.	1, 1	Latv.	2, 2	Umb.	11, 12

1 acc. *uswé, enclitic *wos, and subsequent developments

2 nom.*yū́ and subsequent developments

Our coding relies heavily on the enlightening discussion of these forms in Katz 1998. We regard the Armenian oblique stem as still not satisfactorily explained and have therefore assigned it a unique state. On the difficulties surrounding the interpretation of Albanian *ju,* which we have also coded separately, see Demiraj 1997:209 with references.

206 year [polymorphic]

[two characters, both polymorphic]

Hitt.	1	Av.	4	Luv.	1x	Goth.	4x/8
Arm.	2	OCS	5	Lyc.	1x	ON	4x
Gk.	1	Lith.	6	TA	3	OHG	4x
Alb.	1	OE	4x	OPer.	9	Welsh	7
TB	3	OI	7	OPru.	6	Osc.	8
Ved.	1	Lat.	8	Latv.	10	Umb.	8

1 *wet- and derivs.
    1x PLuv. *utsis
3 PToch. *pʸəkwəl
4 *yóh$_1$r̥ ‘period of time’ (cf. Greek ὥρᾱ)
    4x PGmc. *jērą
6 PBalt. *metan
7 PCelt. *bleidanī
8 *atnos

We have employed both codings for superstate 1, but have coded states 4 and 4x separately, since they seem to be parallel developments of a word of originally different meaning.
The polymorphism is confined to Germanic and is leaf-connected.

207 yellow

[two characters]

Hitt.	1	Av.	6x	Luv.	1	Goth.	12
Arm.	2	OCS	6	Lyc.	9	ON	6
Gk.	3	Lith.	6y	TA	10	OHG	6z
Alb.	4 [loan]	OE	6z	OPer.	11	Welsh	13
TB	5	OI	7	OPru.	6y	Osc.	14
Ved.	6x	Lat.	8	Latv.	6y	Umb.	15

1 PAnat. *HaH$_1$̥went-
6 derivs. of *ǵʰel-
    6x PIIr. *źʰális
    6y PBalt. *gelt-
    6z PWGmc. *gelw

The unexplained velar of the Baltic forms is part of a well-known larger phenomenon and does not cast doubt on the coherence of set 6.
We have adopted both codings for superstate 6.

301 arm

Hitt.	1	Av.	5	Luv.	11	Goth.	8
Arm.	2 [loan]	OCS	6	Lyc.	12	ON	8
Gk.	3	Lith.	7	TA	5	OHG	8
Alb.	4	OE	8	OPer.	13	Welsh	14 [loan]
TB	5	OI	9	OPru.	8	Osc.	15
Ved.	5	Lat.	10 [loan]	Latv.	7	Umb.	16

5 *bʰāǵʰus
7 PBS *rankā ‘hand’
8 *arHmos ~ *r̥Hmos ‘joint’

302 arrow [polymorphic, with parallel development]

Hitt.	1	Av.	5	Luv.	10	Goth.	7
Arm.	1	OCS	6	Lyc.	11	ON	7
Gk.	2	Lith.	6	TA	4	OHG	6
Alb.	3 [loan]	OE	6/7	OPer.	12	Welsh	15 [loan]
TB	4	OI	8 [loan]	OPru.	13	Osc.	16
Ved.	5	Lat.	9	Latv.	14	Umb.	17

1 *ned- ~ *nod- 'reed'

4 PToch. *pərë- (?)

5 *ísus

6 *streh$_1$leh$_2$

7 PGmc. *arh^{w}ō

The polymorphism is leaf-connected. Both the meaning of the preform for state 1 and the distribution of state 6 (unless the latter reflects borrowing) suggest parallel development.

303 ask [polymorphic]

[two characters, both polymorphic]

Hitt.	1	Av.	2	Luv.	8	Goth.	2x
Arm.	2	OCS	2w	Lyc.	9	ON	2y
Gk.	3	Lith.	5	TA	2v	OHG	2z/6
Alb.	4	OE	2x/6	OPer.	2	Welsh	11
TB	2v	OI	2	OPru.	10	Osc.	12
Ved.	2	Lat.	7	Latv.	2w	Umb.	13

2 *preḱ-, pres. *pr̥sḱéti

2v PToch. pres. *prëks-

2w intensive *proḱéyeti

2x PGmc. pres. *frigniþi (*fregna-)

2y, 2z other derivs.

6 PWGmc. *aiskōþi

The original present is extended in Armenian and compounded in Old Irish; we have not coded those forms separately.

We employ both codings for superstate 2.

The polymorphism is confined to West Germanic and is leaf-connected.

304 autumn

Hitt.	1	Av.	7	Luv.	12	Goth.	3
Arm.	2	OCS	3	Lyc.	13	ON	16
Gk.	3	Lith.	8	TA	14	OHG	9
Alb.	4	OE	9	OPer.	15	Welsh	17
TB	5	OI	10	OPru.	3	Osc.	18
Ved.	6	Lat.	11	Latv.	8	Umb.	19

3 *ósr̥, *esen- and derivs.
8 PEBalt. *ruden-
9 PWGmc. *har(u)bist

305 be awake

Hitt.	1	Av.	3	Luv.	9	Goth.	7a
Arm.	2	OCS	6	Lyc.	10	ON	7a
Gk.	3	Lith.	6	TA	11	OHG	7a
Alb.	4	OE	7a	OPer.	12	Welsh	14
TB	5	OI	8	OPru.	6	Osc.	15
Ved.	3	Lat.	7b	Latv.	13	Umb.	16

3 *$h_1$geh$_1$góre
6 PBS *bud- < *b^hud^h- ‘wake up’
7 derivs. of *weǵ- (*weg-?)
7a PGmc. *wakaiþi
7b deriv. of Lat. *vigil* ‘awake’

On the Gothic form see Krause 1953:230.
We have coded states 7a, 7b separately.

306 ax [polymorphic, with parallel development]

Hitt.	1	Av.	7	Luv.	12	Goth.	3
Arm.	2 [loan]	OCS	8/9	Lyc.	13	ON	3
Gk.	3/4	Lith.	10	TA	6 [loan]	OHG	3/9
Alb.	5	OE	3	OPer.	14	Welsh	11a
TB	6 [loan]	OI	11a	OPru.	11b	Osc.	15
Ved.	4	Lat.	8	Latv.	10	Umb.	16

3 *ag^{w}es-
4 *peleḱus
6 PToch. *peretə
8 derivs. of *sek- ‘cut’ with unusual suffix *-ūr-
9 derivs. of *$b^harsd^heh_2$ ‘beard’
10 PEBalt. *kirvjas
11 derivs. of *b^heyH- ‘strike’
11a PCelt. *bielis (vel sim.)
11b *b^hiH-l-

We have coded states 11a, 11b separately, since they are derivationally distinct.

The shape of the Celtic suffix remains unclear, as the attested forms do not match. The Greek reflex of state 3 is also anomalous (we expect -ψ-, not -ξ-).

TheTocharian word was borrowed from some northeast Iranian reflex of state 4 *before* the Proto-Tocharian period; thus we assign both Tocharian languages the same state, but a different state from 4.

The polymorphism of this character is very complex and extensive. The reconstructable meanings of states 8, 9, and 11 strongly argue parallel development; further, the phonological anomalies of some reflexes (see above) and the odd shapes of the preforms for states 3 and 4 suggest undetected borrowing of words denoting an important trade and culture item.

307 axle

Hitt.	1	Av.	6	Luv.	8	Goth.	12
Arm.	2	OCS	3	Lyc.	9	ON	3
Gk.	3	Lith.	3	TA	10	OHG	3
Alb.	4	OE	3	OPer.	11	Welsh	3
TB	5	OI	7	OPru.	3	Osc.	13
Ved.	3	Lat.	3	Latv.	3	Umb.	14

3 *h_2eǵ-s-

308 be [polymorphic]

[two characters, both polymorphic]

Hitt.	1	Av.	1	Luv.	1	Goth.	1/5
Arm.	1	OCS	1	Lyc.	1	ON	1/5
Gk.	1	Lith.	1/3	TA	1/2/6	OHG	1/4/5
Alb.	1	OE	1/4/5	OPer.	1	Welsh	1
TB	1/2/6	OI	1/4	OPru.	1	Osc.	1/4
Ved.	1	Lat.	1/4	Latv.	1/3	Umb.	1/4

1 *$h_1$ésti, opt. *$h_1$siéh$_1$d, etc.
2 PToch. nësə(ṣə)
3 PEBalt. *īra
4 derivs. of *b^{h}uh$_2$- ‘become’
5 PGmc. *wesaną < *$h_2$wes- ‘stay overnight’
6 PToch. *məsketər ‘be (in a place)’

In accordance with our decision regarding suppletive verbs, only forms of the present stem(s) have been coded, except for Welsh; but this verb is suppletive even in the present in many languages. In the Italic languages state 4 is represented in the present system by Lat. *foret,* Osc. **fusíd,** etc.; in OIr. it is represented by the consuetudinal present and imperative. State 6 reflects a separate verb with partly overlapping functions.

We have employed split coding for the polymorphisms 1/2/6 and 1/3, which are confined to Tocharian and East Baltic respectively.

309 bear

Hitt.	1	Av.	1	Luv.	7	Goth.	11
Arm.	1	OCS	3	Lyc.	8	ON	5
Gk.	1	Lith.	4	TA	9	OHG	5
Alb.	1	OE	5	OPer.	10	Welsh	1
TB	2	OI	6	OPru.	4	Osc.	12
Ved.	1	Lat.	1	Latv.	4	Umb.	13

1 *$h_2\underset{\circ}{\acute{\imath}}t\acute{k}os$ 5 PNWGmc. *beran-

4 PBalt. *lākijas

310 beard

Hitt.	1	Av.	4	Luv.	7	Goth.	11
Arm.	1	OCS	5	Lyc.	8	ON	12
Gk.	2	Lith.	5	TA	9	OHG	5
Alb.	1	OE	5	OPer.	10	Welsh	13 [loan]
TB	3	OI	6	OPru.	5	Osc.	14
Ved.	1	Lat.	5	Latv.	5	Umb.	15

1 *smáḱru (*sméḱru ?) 5 *$b^harsd^heh_2$

311 bee

Hitt.	1	Av.	5	Luv.	8	Goth.	12
Arm.	2a	OCS	6	Lyc.	9	ON	6
Gk.	2b	Lith.	6x	TA	10 [loan]	OHG	6
Alb.	2c	OE	6	OPer.	11	Welsh	13
TB	3	OI	6	OPru.	6x	Osc.	14
Ved.	4	Lat.	7	Latv.	6x	Umb.	15

2a–c derivs. of *mélit ‘honey’ 6 derivs. of *b^hey-

6x PBalt. *bitē

We have coded states 2a–c separately, since they appear to reflect independent derivation. In consequence we have also coded 6 and 6x separately, since if they are coded together the character is uninformative.

312 be born

Hitt.	1	Av.	2	Luv.	8	Goth.	7
Arm.	2	OCS	5	Lyc.	9	ON	7
Gk.	2	Lith.	6	TA	4	OHG	7
Alb.	3	OE	7	OPer.	10	Welsh	2
TB	4	OI	2	OPru.	6	Osc.	2
Ved.	2	Lat.	2	Latv.	6	Umb.	11

2 *ǵenh$_1$-, pres. *ǵn̥h$_1$yétor
6 PBalt. *gem-, pres. *gimsta
4 PToch. *təmnəstər
7 PGmc. *beradai ‘is carried’ and syntactic replacements of the same

The original present of state 2 has been replaced in various daughters; since the replacements are unique, we have not coded them separately.

313 bow

[two characters]

Hitt.	1	Av.	6x	Luv.	11	Goth.	15
Arm.	2	OCS	7	Lyc.	12	ON	8
Gk.	3	Lith.	7	TA	13 [loan]	OHG	8
Alb.	4 [loan]	OE	8	OPer.	6x	Welsh	16 [loan]
TB	5	OI	9 [loan]	OPru.	14	Osc.	17
Ved.	6	Lat.	10	Latv.	7	Umb.	18

6 PIIr. *dʰánvr̥
6x PIr. *θanvr̥ (θ- ← *θanǰ- ‘draw’)
7 PBS *lankas
8 PNWGmc. *bogan-

On the initial consonant of the Iranian form cf. Mayrhofer 1992 s.v. *dhánuṣ-*. We have adopted both codings for superstate 6, since it is virtually certain that 6x arose directly from 6 by analogical replacement of the initial consonant.

314 branch [polymorphic]

Hitt.	1	Av.	8	Luv.	13	Goth.	2
Arm.	2	OCS	7b	Lyc.	14	ON	18
Gk.	3	Lith.	6	TA	5	OHG	2/9/10
Alb.	4	OE	9/10	OPer.	15	Welsh	19
TB	5	OI	11	OPru.	16	Osc.	20
Ved.	6/7a	Lat.	12	Latv.	17	Umb.	21

2 *h$_3$ósdos
5 PToch. *kërakə
6 *ḱokh$_2$eh$_2$ (*-ō-; orig. collective?)
7a, 7b derivs of *weyh$_1$- ‘plait’
9 PWGmc. *telg-
10 PWGmc. *twig / *twīg

The Tocharian A forms appears to have been extended with a suffix *-ẹye.
Since states 9 and 10 always occur together, we have coded 9/10 as a single state. We have coded states 7a, 7b separately because they appear to represent independent derivatives.

315 break

[two characters]

Hitt.	1	Av.	6	Luv.	10	Goth.	9a
Arm.	2	OCS	7	Lyc.	11	ON	13
Gk.	3	Lith.	8	TA	5	OHG	9a
Alb.	4	OE	9a	OPer.	12	Welsh	14
TB	5	OI	2	OPru.	7	Osc.	15
Ved.	2	Lat.	9b	Latv.	8	Umb.	16

2 *b^{h}eg-
5 PToch. *kawtna(ṣə)
7 *lem-
8 PEBalt. *laužja
9 *b^{h}rVg-
9a PGmc. *brikidi (*breka-)
9b *b^{h}rag-

We accept the usual view that Old Irish *boingid* belongs with state 2.
We have adopted both codings for superstate 9, since a direct connection between the two substates is probable in spite of the puzzling difference in vowels.

316 bronze

Hitt.	1	Av.	7	Luv.	11	Goth.	7
Arm.	2 [loan]	OCS	8	Lyc.	12	ON	7
Gk.	3	Lith.	9 [loan]	TA	13	OHG	7
Alb.	4 [loan]	OE	7	OPer.	14	Welsh	10
TB	5	OI	10	OPru.	15	Osc.	7
Ved.	6	Lat.	7	Latv.	16 [loan]	Umb.	7

7 *áyos
10 PCelt. *omiom

It is likely that *áyas* means ‘bronze’ in several instances in the Rigveda; in that case Vedic too would share state 7.

317 brother

[two characters]

Hitt.	1	Av.	2	Luv.	1	Goth.	2
Arm.	2	OCS	2	Lyc.	1	ON	2
Gk.	3	Lith.	2x	TA	2	OHG	2
Alb.	4	OE	2	OPer.	2	Welsh	2
TB	2	OI	2	OPru.	2	Osc.	2
Ved.	2	Lat.	2	Latv.	2x	Umb.	2

1 PAnat. *negnas

2 *$b^hréh_2tēr$

2x PEBalt. deriv. *brāljas

We have adopted both codings for superstate 2, since it is likely that the East Baltic innovation (diminutive?) replaced the inherited term directly.

318 brother-in-law

Hitt.	1	Av.	5	Luv.	8	Goth.	13
Arm.	2	OCS	2	Lyc.	9	ON	14
Gk.	2	Lith.	6	TA	10	OHG	15
Alb.	3	OE	2	OPer.	11	Welsh	16
TB	4	OI	7	OPru.	12	Osc.	17
Ved.	2	Lat.	2	Latv.	6	Umb.	18

2 *$dayh_2wḗr$

6 PEBalt. *svainjas

The alternative Lithuanian word is borrowed from German; the Welsh term is a loan-translation from English (and so for all the in-law terms).

319 bull, 322 cattle, 326 cow, AND 379 ox [polymorphic set]

	319 bull	379 ox	322 cattle	326 cow
Hitt.	1	2	3	4
Arm.	5	6	7	8
Gk.	9	8	8	8
Alb.	10	10	11	12 [loan]
TB	8+13	14	8/14	8
Ved.	13/14	8	8	8/15
Av.	14	8	8	8
OCS	16	17	8	19
Lith.	20 [loan]	21	22	19
OE	23	14	24/25	8
OI	9	26	8	8
Lat.	9	8	8	15
Luv.	27	28	29	8
Lyc.	30	31	32	8
TA	8+13	14	8	8
OPer.	33	34	35	8
OPru.	36	19	37	38
Latv.	39 [loan]	13	40	8
Goth.	41	14	42	43
ON	44	14	24(+37)	8
OHG	23	14	25	8
Welsh	9	14	45	8
Osc.	9	46	47	48
Umb.	9	49	8	50

8 *g^{w}ṓws ‘bovine’, pl. *g^{w}ówes
9 *tawros ‘bull’
13 *wr̥sḗn ‘bull’ and derivs.
14 *uksḗn ‘bull’
15 *waḱéh$_2$ ‘cow’
19 PBS *kārv-
23 PWG *farr ‘bull’
24 PNWG *nautą ‘bovine’
25 PWG *hrinþizu ‘cattle’ (pl.)
38 *péḱu ‘cattle’ (coll.)

Though state 10 recurs, it is confined to Albanian.

The East Baltic terms for ‘bull’ appear to have been borrowed from German separately (not at the Proto-East-Baltic stage). OCS *nuta,* the alternative term for ‘cattle’, is a Germanic loanword. On the Albanian words cf. Demiraj 1997 s.vv.

The polymorphism of 319 ‘bull’ could be eliminated by conflated split coding, with

13/14 ∪ 14 coded against 8+13 in one character and all three coded together in the other (on the reasonable hypothesis that 8+13 replaced 13 directly in Tocharian); however, the character still cannot be used as input to the algorithm, since there is reason to suspect multiple hidden polymorphism at many internal nodes (see below).

There is a strong likelihood that state 9 reflects a very early loan (cf. Proto-Semitic *θawru), but the distribution of its cognate set—including words with shifted meaning, like Russian *tur* 'aurochs'—suggests borrowing into Nuclear IE at the latest. States 13 and 14 were already present as words for 'bull' at that date (cf. the Tocharian terms); thus a triple polymorphism, surviving as such in no attested language, must apparently be posited for 319 'bull' at many internal nodes. Specialization of words meaning 'bull' and '(head of) cattle' to mean 'ox' and 'cow' has also given rise to extensive parallel development.

320 buy

Hitt.	1	Av.	4	Luv.	9	Goth.	7
Arm.	1x	OCS	5 [loan]	Lyc.	10	ON	14 [loan]
Gk.	1y	Lith.	6	TA	11	OHG	15 [loan]
Alb.	2	OE	7	OPer.	12	Welsh	3
TB	3	OI	3	OPru.	13	Osc.	8
Ved.	3	Lat.	8	Latv.	6	Umb.	8

1 *wes-

1x, 1y derivs. of derived nominals

3 *$k^{w}reyh_2$- (pres. *$k^{w}rinéh_2ti$)

6 PEBalt. *perka

7 PGmc. *bugiþi (*bugja-)

8 PItal. *emet

The members of superstate 1 have been coded separately, since the Hittite form is a basic verb while the Greek and Armenian words are denominatives derived from (different) nominals which are in turn derived from that verb.

The prehistory of the Old Norse and Old High German words is partly obscure, but it seems clear that they are ultimately derived from a Germanic borrowing of Latin *caupō* 'merchant, peddlar'; the inflection of this verb does not match from language to language, so that further borrowing within Germanic is very likely.

321 carry

[two characters]

Hitt.	1	Av.	2	Luv.	1	Goth.	2
Arm.	2	OCS	4x	Lyc.	5	ON	2
Gk.	2	Lith.	4	TA	2	OHG	7
Alb.	3	OE	2	OPer.	2	Welsh	8
TB	2	OI	2	OPru.	6	Osc.	2
Ved.	2	Lat.	2	Latv.	4	Umb.	2

1 PAnat. *pe-d-

2 *b^{h}éreti

4 PBS *nešeti

4x deriv. of 4

Though the Old Prussian word superficially resembles the Anatolian forms, we can find no evidence that it should be analyzed the same way (i.e., as the prefix *pe- plus the root *deh$_3$- 'take'); thus we do not judge it cognate with them.

We have employed both codings of superstate 4, since direct replacement is likely.

322 cattle

Forms a polymorphic set with 319 bull (q.v.), 326 cow, and 379 ox.

323 collect [polymorphic]

[two characters, both polymorphic]

Hitt.	1	Av.	5	Luv.	10	Goth.	1
Arm.	2	OCS	6	Lyc.	11	ON	1/8
Gk.	3	Lith.	7	TA	4	OHG	1/8
Alb.	3	OE	1/8	OPer.	12	Welsh	9
TB	4	OI	9	OPru.	7	Osc.	13
Ved.	5	Lat.	3	Latv.	1x	Umb.	14

1 *lésti

1x deriv. of 1

3 *légeti

4 PToch. *krëwp-

5 PIIr. *činấuti

7 PBalt. *renka

8 PNWGmc. *samnōþi

9 cpds. of PCelt. *ela-

We have employed both codings for superstate 1, since 1x appears to be a deverbative derivative that could have replaced the basic verb directly.

Though the overt polymorphism is confined to Germanic, it appears that other internal nodes must also be assigned two states in all of the more likely trees.

324 comb

Hitt.	1	Av.	7	Luv.	11	Goth.	17
Arm.	2	OCS	8a	Lyc.	12	ON	10
Gk.	3	Lith.	9	TA	13	OHG	10
Alb.	4	OE	10	OPer.	14	Welsh	18
TB	5	OI	8b	OPru.	15	Osc.	19
Ved.	6	Lat.	3	Latv.	16 [loan]	Umb.	3

3 *péḱtn̥ ~ *pḱtén-

8a, 8b derivs. of verb *kes- ‘comb’

10 PGmc. *kambaz (< *ǵómbʰos ‘row of teeth’)

States 8a, 8b clearly represent independent derivatives; we have therefore coded them separately.

325 cook

Hitt.	1	Av.	3	Luv.	9	Goth.	14
Arm.	2	OCS	5	Lyc.	10	ON	15
Gk.	3	Lith.	6	TA	3	OHG	16 [loan]
Alb.	4	OE	7	OPer.	11	Welsh	17 [loan]
TB	3	OI	8	OPru.	12	Osc.	18
Ved.	3	Lat.	3	Latv.	13 [loan]	Umb.	19

3 *pékʷeti

The variable inflection of the Latvian word strongly suggests that it is a Slavic loan (cf. Endzelīns 1923:635).

326 cow

Forms a polymorphic set with 319 bull (q.v.), 322 cattle, and 379 ox.

327 darkness

Hitt.	1a	Av.	6a	Luv.	8	Goth.	12
Arm.	2 [loan]	OCS	6a	Lyc.	9	ON	13
Gk.	3	Lith.	6a	TA	5	OHG	1b
Alb.	4	OE	7	OPer.	10	Welsh	6b
TB	5	OI	6b	OPru.	11	Osc.	14
Ved.	6a	Lat.	6a	Latv.	6a	Umb.	15

1a, 1b derivs. of *dʰn̥g- ‘dark(-colored)’

5 PToch. *ṛkəm-

6 derivs. of *temH-

6a *témHs ~ *tᵃHés-

6b PCelt. *tem-el-

Under 6a we include further extensions of the inherited s-stem.
Since the derivatives of superstate 1 and those of superstate 6 are clearly independent, we have coded them all separately.

328 daughter

Hitt.	1	Av.	2	Luv.	2	Goth.	2
Arm.	2	OCS	2	Lyc.	2	ON	2
Gk.	2	Lith.	2	TA	2	OHG	2
Alb.	3	OE	2	OPer.	6	Welsh	8
TB	2	OI	4	OPru.	2	Osc.	2
Ved.	2	Lat.	5	Latv.	7	Umb.	9

2 *$d^hugh_2t\acute{e}r$

329 daughter-in-law

Hitt.	1	Av.	4	Luv.	7	Goth.	12
Arm.	2	OCS	2	Lyc.	8	ON	2
Gk.	2	Lith.	5	TA	9	OHG	2
Alb.	2	OE	2	OPer.	10	Welsh	13
TB	3	OI	6	OPru.	5	Osc.	14
Ved.	2	Lat.	2	Latv.	11	Umb.	15

2 *snusós 5 PBalt. *martī

330 door [polymorphic]

Hitt.	1	Av.	2	Luv.	3	Goth.	2/7
Arm.	2	OCS	2	Lyc.	4	ON	2/7
Gk.	2	Lith.	2	TA	5	OHG	2
Alb.	2	OE	2	OPer.	2	Welsh	2
TB	2	OI	2	OPru.	6	Osc.	8
Ved.	2	Lat.	2	Latv.	2	Umb.	9

2 *$d^hwór$- ~ *d^hur- 7 PGmc. *hurdiz

The initial *d-* of the Vedic cognate reflects the influence of ‘two’; the Iranian merger of *d and *d^h has eliminated potential evidence for that lexical analogy.
The polymorphism is confined to Germanic and is leaf-connected.

331 drive AND 361 lead [polymorphic set; see notes for coding]

Hitt.	1b, 1a	Av.	3, 1c/8x	Luv.	13, 1b	Goth.	10, 12
Arm.	2, 3	OCS	9, 8	Lyc.	14, 15	ON	18, 11
Gk.	4, 3	Lith.	9, 8	TA	16, 3	OHG	10, 11
Alb.	5, 6	OE	10, 11	OPer.	17, 1c	Welsh	19, 20
TB	7, 3	OI	3, 8	OPru.	9, 8	Osc.	21, 22
Ved.	3, 1c	Lat.	3, 12	Latv.	9, 8	Umb.	3, 23

1 *noyh$_1$- ~ *neyh$_1$- ‘lead’
- 1a hi-conjugation
- 1b hi-conj., reduplicated
- 1c thematic present

3 *h$_2$égeti ‘drive’

8 *wédʰeti ‘lead’; 8x intensive (or causative?)

9 PBS *gen- ~ *gun- ‘drive’

10 PGmc. *drībidi ‘drive’

11 PNWGmc. *laidīþi ‘lead’

12 *déwketi ‘lead’

331 ‘drive’ is monomorphic and can be used as input to the algorithm. For 361 ‘lead’ we employ both codings for state 1 and its substates, giving two characters; but 8 and 8x are coded together because the latter is unique.

The meaning ‘drive’ is validated for state 3 by the fact that the root *h$_2$eǵ- is the basis for derivatives meaning ‘axle’ and *‘pasture’ → ‘field’ even in Greek, the most archaic language in which the verb means ‘lead’ (see characters 307 and 337). That 12 was the inherited state in Germanic is demonstrated by fossilized compounds in the West Germanic languages (e.g. OE *heretoga,* OHG *herizogo* ‘army-leader’).

The distribution of states 1, 8, and 12 is incompatible with all the better trees, since it groups Italic and Germanic together, Anatolian and Indo-Iranian together (!), and Celtic and Balto-Slavic together (!!).

332 duck [with parallel development]

Hitt.	1	Av.	6	Luv.	9	Goth.	14
Arm.	2	OCS	7	Lyc.	10	ON	7
Gk.	1	Lith.	7	TA	11	OHG	7
Alb.	3	OE	7	OPer.	12	Welsh	15
TB	4	OI	8	OPru.	7	Osc.	16
Ved.	5	Lat.	7	Latv.	13	Umb.	17

1 *sneh$_2$n̥tih$_2$ (vel sim.) ‘swimming (fem.)’

7 *h$_2$énh$_2$t-s ~ *h$_2$n̥h$_2$t-

On the cognates assigned to state 1 see Rix 1991 and Katz 2004. The meaning of the protoform strongly argues parallel development.

333 eight

Hitt.	1	Av.	2	Luv.	3	Goth.	2
Arm.	2	OCS	2	Lyc.	2	ON	2
Gk.	2	Lith.	2	TA	2	OHG	2
Alb.	2	OE	2	OPer.	4	Welsh	2
TB	2	OI	2	OPru.	2	Osc.	5
Ved.	2	Lat.	2	Latv.	2	Umb.	6

2 *oḱtṓw

334 elbow

[two characters]

Hitt.	1	Av.	6	Luv.	10	Goth.	14
Arm.	2	OCS	7	Lyc.	11	ON	8x
Gk.	3	Lith.	7	TA	12	OHG	8x
Alb.	4	OE	8x	OPer.	13	Welsh	8y
TB	5	OI	8	OPru.	7	Osc.	15
Ved.	6	Lat.	9	Latv.	7	Umb.	16

6 PIIr. *ar(a)tn-

7 PBS *alku-

8 *olĭ̄n-

8x cpd. with PNWGmc. *bogan- ‘bow’

8y cpd. with Welsh *penn* ‘head’

All the shared states might be derivatives of an inherited form, but since it cannot be reconstructed, we have kept them separate. We employ both codings of superstate 8, as direct replacement of a simplex by compounds is likely.

On the Indo-Iranian forms see Szemerényi 1966:196-9; it is not clear whether Old Persian *aršniš* ‘cubit’ still meant ‘elbow’ as well.

335 eyebrow

Hitt.	1	Av.	3	Luv.	7	Goth.	11
Arm.	2	OCS	3	Lyc.	8	ON	3
Gk.	3	Lith.	5	TA	3	OHG	3
Alb.	4	OE	3	OPer.	9	Welsh	12
TB	3	OI	3	OPru.	3	Osc.	13
Ved.	3	Lat.	6	Latv.	10	Umb.	14

3 *h_3b^hruH- and derivs.

The Old Prussian form appears to have been mangled by a German copyist.

336 father-in-law

Hitt.	1	Av.	4	Luv.	8	Goth.	4
Arm.	2	OCS	4	Lyc.	9	ON	14
Gk.	3	Lith.	6	TA	10	OHG	4
Alb.	4	OE	4	OPer.	11	Welsh	15
TB	5	OI	7	OPru.	12	Osc.	16
Ved.	4	Lat.	4	Latv.	13	Umb.	17

4 *swéḱuros

The velar stop of the Old Church Slavonic form is surprising (cf. older Lithuanian *šẽšuras*); very early borrowing from pre-Proto-Germanic is at least possible.
The Armenian word is a compound meaning ‘mother-in-law’s husband’.

337 field [polymorphic]

[two monomorphic characters by conflated split coding]

Hitt.	1	Av.	6	Luv.	10	Goth.	2
Arm.	2	OCS	7	Lyc.	11	ON	2
Gk.	2	Lith.	8	TA	12	OHG	2
Alb.	3a	OE	2	OPer.	13	Welsh	14
TB	4	OI	9	OPru.	8	Osc.	15
Ved.	5	Lat.	3b	Latv.	8	Umb.	2/3b

2 *$h_2$égros ‘pasture’ 3a–b derivs. of *h_2er_3- ‘plow’
4 PToch. *miṣ- (?) 3b *h_2er_3-wo-
8 *lowkos ‘clearing’

On the Armenian form see Olsen 1999:30 with references. Tocharian A *miṣi* means ‘community’ and should be deleted from the wordlist.
We have coded the substates of 3 separately, as they are independent derivatives.
The polymorphism is confined to Italic and is leaf-connected. We have reduced this character to two monomorphic characters by conflated split coding, with 3b ∪ 2/3b coded against 2 in one character and all three together in the other.

338 finger

Hitt.	1	Av.	7	Luv.	12	Goth.	9
Arm.	2	OCS	8	Lyc.	13	ON	9
Gk.	3	Lith.	8	TA	5	OHG	9
Alb.	4	OE	9	OPer.	14	Welsh	15
TB	5	OI	10	OPru.	8	Osc.	16
Ved.	6	Lat.	11	Latv.	8	Umb.	17

5 PToch. *prar- 8 PBS *pirštas 9 PGmc. *fingraz

339 fly [noun]

Hitt.	1	Av.	4	Luv.	7	Goth.	11
Arm.	2	OCS	2	Lyc.	8	ON	5
Gk.	2	Lith.	2	TA	9	OHG	5
Alb.	2	OE	5	OPer.	10	Welsh	6
TB	3	OI	6	OPru.	2	Osc.	12
Ved.	4	Lat.	2	Latv.	2	Umb.	13

2 *mus- and related forms 5 derivs. of PGmc. *fleuganą ‘to fly’

4 PIIr. *makši- 6 PCelt. *kuli-

The Armenian and Albanian forms are somewhat divergent in shape, but that is not necessarily unexpected in the name of an economically unimportant animal. See e.g. Demiraj 1997:240 with references.

340 follow

Hitt.	1	Av.	3	Luv.	8	Goth.	12
Arm.	2	OCS	6	Lyc.	9	ON	7
Gk.	3	Lith.	3	TA	3	OHG	7
Alb.	4	OE	7	OPer.	10	Welsh	13
TB	5	OI	3	OPru.	11	Osc.	14
Ved.	3	Lat.	3	Latv.	3	Umb.	15

3 *sék^{w}etor 7 PNWGmc. *fulgēþi

On the failure of schwa-rounding to occur in the TA form cf. Ringe 1996:150.

341 free

Hitt.	1	Av.	7	Luv.	12	Goth.	10
Arm.	2 [loan]	OCS	8	Lyc.	1	ON	10
Gk.	3	Lith.	9	TA	13	OHG	10
Alb.	4	OE	10	OPer.	14	Welsh	10
TB	5	OI	11	OPru.	15	Osc.	3
Ved.	6	Lat.	3	Latv.	16	Umb.	17

1 PAnat. *arawos
10 *priHós ‘beloved’ and cpd.
3 *$h_1$léwd^{h}eros

The startling shift of ‘beloved’ to ‘free’ strongly suggests loan-translation reflecting very early contact between Celtic and Germanic (cf. Feist 1939 s.v. *freis* with references). The distribution of the Mediterranean word (state 3) might also be a contact phenomenon of some sort.

342 furrow

Hitt.	1	Av.	7	Luv.	13	Goth.	18
Arm.	2	OCS	8	Lyc.	14	ON	19
Gk.	3	Lith.	9	TA	15	OHG	10
Alb.	4 [loan]	OE	10	OPer.	16	Welsh	10
TB	5	OI	11	OPru.	17	Osc.	20
Ved.	6	Lat.	12	Latv.	9	Umb.	21

9 PEBalt. *vagā
10 *pr̥k-

343 go

Forms a polymorphic set with 25 come (q.v.) and 185 walk.

344 goat

Hitt.	1	Av.	6	Luv.	11	Goth.	8
Arm.	2	OCS	7	Lyc.	12	ON	8
Gk.	3	Lith.	4	TA	5	OHG	8
Alb.	4	OE	8	OPer.	13	Welsh	9
TB	5	OI	9	OPru.	4	Osc.	15
Ved.	4	Lat.	10	Latv.	14 [loan]	Umb.	10

4 *aǵ-
9 PCelt. *gabros
5 PToch. *asə
10 PItal. *kapros
8 PGmc. *gait-

We have accepted the usual etymology of the Albanian word, with some hesitation; see Demiraj 1997:160 for discussion, and note that the alternative would assign state 2 (*ayǵ-) to Albanian.

345 gold

Hitt.	1	Av.	6a	Luv.	9	Goth.	6c
Arm.	2	OCS	6b	Lyc.	10	ON	6c
Gk.	3	Lith.	7	TA	5	OHG	6c
Alb.	4 [loan]	OE	6c	OPer.	6a	Welsh	11[loan]
TB	5	OI	8 [loan]	OPru.	7	Osc.	12
Ved.	6a	Lat.	7	Latv.	6d	Umb.	13

6 derivs. of *ǵʰel- ‘yellow’
- 6a PIIr. *źʰl̥anyam
- 6b PSlav. *zolto
- 6c PGmc. *gulþą
- 6d pre-Latv. *zeltas

5 PToch. *wʸəsa

7 *awsom

We have coded states 6a–d separately, since they are independent derivatives.

346 goose

Hitt.	1	Av.	6	Luv.	8	Goth.	12
Arm.	2	OCS	3	Lyc.	9	ON	3
Gk.	3	Lith.	3	TA	10	OHG	3
Alb.	4	OE	3	OPer.	11	Welsh	7
TB	5	OI	7	OPru.	3	Osc.	13
Ved.	3	Lat.	3	Latv.	3	Umb.	14

3 *ǵʰans-

7 PCelt. *gigdos (Pedersen 1909:102-3)

The initial velar of the Old Church Slavonic form is surprising, in view of the initial palatal in all the Baltic forms; early borrowing from Germanic is at least possible.

347 grain [polymorphic, with parallel development]

[two monomorphic characters by conflated split coding]

Hitt.	1	Av.	6	Luv.	13	Goth.	9
Arm.	2	OCS	7	Lyc.	14	ON	9
Gk.	3	Lith.	6/8	TA	5	OHG	9
Alb.	4	OE	9	OPer.	15	Welsh	11
TB	5	OI	10a/11	OPru.	9/10b	Osc.	16
Ved.	6	Lat.	12	Latv.	8	Umb.	17

5 PToch. *wʸəsarë

6 *yéwos

8 PEBalt. *graud- ~ *grūd-

9 *ǵr̥h$_2$nóm

10a, 10b derivs. of *h$_2$erh$_3$- ‘plow’

11 PCelt. *itu

We have coded states 10a, 10b separately, since they are independent derivatives; the Old Irish and Old Prussian polymorphisms thus become ineffective.

The East Baltic polymorphism is local and leaf-connected. We have reduced the character to two monomorphic characters by conflated split coding, with 8 ∪ 6/8 coded against 6 in one character and all three coded together in the other.

However, note that the distributions of states 6 and 9, which split the Baltic subgroup, enforce recognition of parallel development, or else an additional polymorphism at internal nodes.

348 grind

Hitt.	1	Av.	6	Luv.	8	Goth.	1
Arm.	2	OCS	1	Lyc.	9	ON	1
Gk.	2	Lith.	1	TA	10	OHG	1
Alb.	3	OE	7	OPer.	11	Welsh	1
TB	4	OI	1	OPru.	12	Osc.	13
Ved.	5	Lat.	1	Latv.	1	Umb.	1

1 *molh$_2$- ~ *melh$_2$-

2 *h$_2$elh$_1$- (*alh$_1$- ?)

349 half

Hitt.	1	Av.	7	Luv.	13	Goth.	10
Arm.	2	OCS	8	Lyc.	14	ON	10
Gk.	3	Lith.	9	TA	15	OHG	10
Alb.	4	OE	10	OPer.	16	Welsh	18
TB	5	OI	11	OPru.	17	Osc.	19
Ved.	6	Lat.	12	Latv.	9	Umb.	20

9 PEBalt. *pus- 10 PGmc. *halbaz

350 have

Forms a polymorphic set with 77 hold (q.v.).

351 hide [polymorphic]

Hitt.	1	Av.	6	Luv.	11	Goth.	14
Arm.	2	OCS	7	Lyc.	12	ON	9/14
Gk.	3	Lith.	8	TA	5	OHG	9
Alb.	4	OE	9/10a	OPer.	6	Welsh	9/10b
TB	5	OI	9	OPru.	13	Osc.	15
Ved.	6	Lat.	9	Latv.	8	Umb.	16

5 PToch. *tpukəsk- (*tukəsk- ?) 9 *kéleti and derivs.

6 PIIr. *gūź^{h}- 10a, 10b derivs. of *kewd^{h}-

8 PEBalt. *slepja 14 PGmc. *filhidi (*felha-)

We have coded states 10a, 10b separately because of the unexplained anomaly in the vocalism of the OE root (*hȳd-* < *hūd-ij- < *kūd^{h}-, not *kewd^{h}-), which strongly suggests that its connection with apparent cognates elsewhere (including Homeric Gk. κεύθειν 'cover, conceal') is indirect. The polymorphism of OE and Welsh thereby becomes ineffective.

The remaining polymorphism is confined to Germanic and is leaf-connected.

352 honey AND 405 sweet [polymorphic set]

Hitt.	1, 1x	Av.	7, 8	Luv.	1, 12	Goth.	1, 19
Arm.	1, 2	OCS	5, 9	Lyc.	13, 14	ON	10, 6b
Gk.	1, 3	Lith.	5, 9	TA	15, 6a	OHG	10, 6b
Alb.	1, 4	OE	10, 6b	OPer.	16, 17	Welsh	1, 1y
TB	5, 6a	OI	1, 1y	OPru.	5, 18	Osc.	20, 21
Ved.	5, 5x	Lat.	1, 11	Latv.	5, 9	Umb.	22, 23

1 *mélit 'honey' 6 *swād- ~ *swad- ~ *sud- 'pleasant'

1x *mlitús 'sweet' 6a *swadrós

1y PCelt. *melissis 'sweet' 6b PNWGmc. *swōtijaz

5 *méd^{h}u 'sweet' (neut.) 9 PBS *saldus 'sweet'

5x recent deriv. adj. 10 PNWGmc. *hunagą 'honey'

The meaning of state 5 is validated by the survival of an adj. *mád^{h}us* 'sweet' in Vedic, though the specialization of the neut. to refer to honey (and alcoholic drinks: cf. OE

meodu ‘mead’, Gk. μέθυ ‘wine’, etc.) was early and/or widespread. The meaning of state 6 is established by the earlier-attested languages, in both the adj. and the related verbs. Despite the general similarity of Gk. γλυκύς and Lat. *dulcis,* any attempt to posit regular sound correspondences encounters so many difficulties that we have preferred to reject the connection. The Luvian word appears to be a participle (see Melchert 1993 s.v.); whether it has any connection with state 5 is unclear.

We code 1x, 1y separately, but use both codings for superstate 6; this yields two alternative codings for 405 ‘sweet’. (Substates 5x and 5 do not occur in the same character.) Both codings of 405 ‘sweet’ are monomorphic and can be used as input to the algorithm.

353 horse

Hitt.	1	Av.	3	Luv.	3	Goth.	3
Arm.	2	OCS	5	Lyc.	3	ON	7
Gk.	3	Lith.	6	TA	3	OHG	7
Alb.	4 [loan]	OE	7	OPer.	3	Welsh	10
TB	3	OI	3	OPru.	8	Osc.	11
Ved.	3	Lat.	3	Latv.	9	Umb.	12

3 *éḱwos 7 PNWGmc. *hrossą

The Greek word has been severely deformed, but still seems to belong with the cognate set coded as 3. Note that its initial *h-,* at least, is a very recent innovation, to judge from names like Ἄλκιππος (not “Ἄλχιππος”).

Welsh *ceffyl* is a Latin loan (though *march* is a native word).

354 house [polymorphic (ineffectively), with parallel development]

[two characters]

Hitt.	1	Av.	2x	Luv.	1	Goth.	6b
Arm.	2	OCS	2	Lyc.	1	ON	8
Gk.	3	Lith.	7	TA	5	OHG	8
Alb.	4 [loan]	OE	8	OPer.	2x	Welsh	9
TB	5	OI	9	OPru.	7	Osc.	10
Ved.	2/6a	Lat.	2	Latv.	2	Umb.	11

1 PAnat. *pḗr ~ *pr̥n-
2 *dom-
2x PIr. *dmānam
5 PToch. *wostə (< *wā́stu ‘settlement’)
6 set orig. meaning ‘enclosure’
6a *gʰr̥dʰós
6b *gʰórdʰos
7 PBalt. *butan
8 PNWGmc. *hūsą
9 PCelt. *tegos (← ‘roof’)

We have coded states 6a, 6b separately, since they are clearly different formations from the same root; the Vedic polymorphism thereby becomes ineffective. However, we employ both codings for superstate 2.
The distribution of states 2 and 7, splitting the East Baltic subgroup, strongly argues parallel development.

355 hundred

Hitt.	1	Av.	3	Luv.	5	Goth.	3
Arm.	2	OCS	3	Lyc.	6	ON	3
Gk.	3	Lith.	3	TA	3	OHG	9
Alb.	4 [loan]	OE	3	OPer.	7	Welsh	3
TB	3	OI	3	OPru.	8	Osc.	10
Ved.	3	Lat.	3	Latv.	3	Umb.	11

3 *ḱm̥tóm and derivs.

The first vowel of the OCS word is unexpected; a loan from some Iranian language is at least possible.

356 jaw

Hitt.	1	Av.	2 or 2x	Luv.	9	Goth.	14
Arm.	2y	OCS	5	Lyc.	10	ON	6b
Gk.	2z	Lith.	2w	TA	2v	OHG	2u
Alb.	3	OE	6a	OPer.	11	Welsh	2
TB	4	OI	7	OPru.	12	Osc.	15
Ved.	2x	Lat.	8	Latv.	13	Umb.	16

2 *ǵḗnus ~ *ǵénu- and derivs.
2x unexpected PIIr. or pre-Skt. *ź^{h}- (as if < *ǵ^{h}-)
6a, 6b derivs. of PGmc. *kef- ~ *kaf- (‘chew’?)

We have coded states 6a, 6b separately, since they are independent derivatives.
For superstate 2 we could have adopted both codings, since it is likely that the Indo-Ira-

nian form with an innovative initial consonant (like all the derivatives) replaced the inherited word directly. However, because PIIr. *ź and *ź^{h} merged in Iranian, we cannot tell whether Avestan should be assigned state 2 or state 2x. Thus all the suffixed substates of 2 *could be* unique, and in that case offer no information about the tree. We accordingly code superstate 2 as a single state.

357 join

Hitt.	1	Av.	6	Luv.	10	Goth.	15
Arm.	2 [loan]	OCS	7	Lyc.	11	ON	16
Gk.	3	Lith.	6	TA	5	OHG	8
Alb.	4	OE	8	OPer.	12	Welsh	17
TB	5	OI	9	OPru.	13	Osc.	18
Ved.	6	Lat.	6	Latv.	14	Umb.	19

5 PToch. *t^{s}uwəsk-
6 *yewg- (pres. *yunégti)
8 PWGmc. *fōgiþi

The Armenian verb is derived from a noun *zoygk^{h}* 'pair' borrowed from Syriac, which in turn borrowed the word from Greek; see Olsen 1999:931 and (on the derivational pattern) 15-7.

358 king

Hitt.	1	Av.	7	Luv.	11	Goth.	14
Arm.	2	OCS	8 [loans]	Lyc.	11	ON	10
Gk.	3	Lith.	9 [loan]	TA	5	OHG	10
Alb.	4	OE	10	OPer.	7	Welsh	15
TB	5	OI	6	OPru.	12 [loan]	Osc.	16
Ved.	6	Lat.	6	Latv.	13 [loan]	Umb.	17

5 PToch. *wəlo, *lant-
6 *h$_{3}$rḗǵs
7 PIr. *xšayah and deriv.
10 PNWGmc. *kuningaz
11 PLuv. *Hantowot-

359 knot

Hitt.	1	Av.	7	Luv.	13	Goth.	18
Arm.	2	OCS	8	Lyc.	14	ON	10
Gk.	3	Lith.	9	TA	15	OHG	10
Alb.	4	OE	10	OPer.	16	Welsh	19
TB	5	OI	11	OPru.	17	Osc.	20
Ved.	6	Lat.	12	Latv.	9	Umb.	21

9 derivs. of *mezg- ‘tie’ 10 PNWGmc. *knu…

The Germanic words appear to reflect sound symbolism; we have coded them together because they appear to share enough phonological material to reflect common ancestry, but they could be independent developments.

360 lamb [with parallel development]

Hitt.	1	Av.	5	Luv.	9	Goth.	8
Arm.	2	OCS	6	Lyc.	10	ON	8
Gk.	2	Lith.	7	TA	11	OHG	8
Alb.	3	OE	8	OPer.	12	Welsh	6
TB	4	OI	6	OPru.	7	Osc.	13
Ved.	2	Lat.	6	Latv.	7	Umb.	14

2 *wr̥h$_1$én- 7 PBalt. *erj-

6 *ag^{w}nós 8 PGmc. *lambaz, *lambiz-

The preform of state 6 is not secure; the Celtic forms seem to demand *g^{wh}, while the others demand *g^{w}. Note that the same word appears in Greek (though not in Classical Attic, the basis of our coding); thus it seems clear that polymorphism or parallel development is widespread in the tree.

361 lead

Forms a polymorphic set with 331 drive (q.v.).

362 leave

[two characters]

Hitt.	1	Av.	2	Luv.	7	Goth.	3b
Arm.	2	OCS	5	Lyc.	8	ON	3b
Gk.	2	Lith.	2	TA	4	OHG	3b
Alb.	3a	OE	3b	OPer.	9	Welsh	12
TB	4	OI	6	OPru.	10	Osc.	13
Ved.	2	Lat.	2	Latv.	11	Umb.	14

2 *leyk^{w}- (pres. *linék^{w}ti) 4 PToch. *arṣə(ṣə)

3 *leh$_1$d-

3a present with nasal suffix

3b PGmc. *lētidi

We have employed both codings for superstate 3, since it is a basic verb.

Though the Old Irish word resembles set 2, it is difficult to account for its root vocalism and stem vowel on the hypothesis that it is a cognate of that set. The OCS and Latvian compounds also resemble one another, but the stem formation is different; it seems likely that the Latvian word is a "loan translation" based on Russian.

363 lick

Hitt.	1	Av.	2	Luv.	5	Goth.	2
Arm.	2	OCS	2	Lyc.	6	ON	2
Gk.	2	Lith.	2	TA	7	OHG	2
Alb.	3	OE	2	OPer.	8	Welsh	2
TB	4	OI	2	OPru.	9	Osc.	10
Ved.	2	Lat.	2	Latv.	2	Umb.	11

2 *léyǵ^{h}ti and derivs.

The inherited verb has been deformed by sound symbolism in many daughters; for example, that is probably the source of the Old Norse initial *s*- (see e.g. Feist 1939:91, de Vries 1962 s.v. *sleikja*).

364 lift [polymorphic]

[two monomorphic characters by conflated split coding]

Hitt.	1	Av.	8	Luv.	13	Goth.	11
Arm.	2	OCS	9	Lyc.	14	ON	11
Gk.	3	Lith.	10	TA	5	OHG	11
Alb.	4	OE	11	OPer.	15	Welsh	17
TB	5/6x	OI	12	OPru.	16	Osc.	18
Ved.	7	Lat.	6	Latv.	10	Umb.	19

5 PToch. *musnatər

6 *tl̥néh$_2$ti

6x PToch. *tə́ləṣṣə(ṣə)

10 PEBalt. *kelja

11 PGmc. *habidi (*habja-)

The polymorphism is confined to Tocharian and is leaf-connected. We have resolved this polymorphism by conflated split coding.

365 light [polymorphic, but not effectively so]

Hitt.	1	Av.	1	Luv.	5	Goth.	1
Arm.	1	OCS	4	Lyc.	6	ON	1
Gk.	2a	Lith.	4	TA	1	OHG	1
Alb.	3	OE	1	OPer.	7	Welsh	1
TB	1	OI	1	OPru.	8	Osc.	10
Ved.	1/2b	Lat.	1	Latv.	9	Umb.	11

1 derivs. of *lewk-

2a, 2b derivs. of *b^{h}eh$_2$- ‘shine’

4 derivs. of PBS *šveit-

We have coded states 2a, 2b separately, because the shape of the root is actually somewhat different (cf. Homeric Gk. φάος < *φάϝος, root φαϝ- also in pres. πιφαύσκειν ‘make clear, declare’); the Vedic polymorphism thereby becomes ineffective.

366 lip [polymorphic]

Hitt.	1	Av.	6	Luv.	11	Goth.	9
Arm.	2	OCS	6	Lyc.	12	ON	9
Gk.	3	Lith.	7	TA	5	OHG	8
Alb.	4	OE	8/9	OPer.	13	Welsh	14
TB	5	OI	10	OPru.	9	Osc.	15
Ved.	6	Lat.	8	Latv.	7	Umb.	16

5 PToch. *lʸəmẹnë (dual)
6 *austh$_2$o- (*ou-?)
7 PEBalt. *lūpā
8 *leb-
9 *wer-

The forms belonging to state 9 exhibit a variety of suffixes which do not match.
Though the overt polymorphism is confined to Old English, the distribution of the states shared by OE is striking, including not only Germanic but also Latin and Old Prussian. Parallel development is possible (cf. Hitt. *lilipai* '(s)he licks', which suggests that state 8 might represent a verb root), but the situation remains unclear.

367 livestock

Hitt.	1	Av.	6	Luv.	10	Goth.	16
Arm.	2 [loan]	OCS	7	Lyc.	11	ON	6
Gk.	3	Lith.	8	TA	12	OHG	6
Alb.	4	OE	6	OPer.	13	Welsh	17
TB	5	OI	9	OPru.	14	Osc.	18
Ved.	6	Lat.	6	Latv.	15	Umb.	6

6 *pé$\acute{k}$u(s)

368 make [polymorphic]

Hitt.	1	Av.	6	Luv.	1	Goth.	2b
Arm.	2a	OCS	7	Lyc.	1	ON	13
Gk.	3	Lith.	8	TA	1	OHG	2b/9
Alb.	4	OE	2b/9	OPer.	6	Welsh	10
TB	5	OI	10	OPru.	12	Osc.	11
Ved.	6	Lat.	11	Latv.	8	Umb.	11

1 *h$_1$yeh$_1$-
2 derivs. of *werǵ-
2a *worǵeyeti
2b *wr̥ǵyéti
6 PIIr. *kr̥náuti
8 PEBalt. *darā
9 PWGmc. *makōþi
10 PCelt. *gnī-
11 PItal. *fakit (*fakyo-)

On the lexical analogies that have deformed the Welsh word see Pedersen 1913:544-6, Schumacher 2004:345-6.
We have coded states 2a, 2b separately, since they are very different derivatives (state 2a could even be denominative).
The polymorphism is confined to Germanic and is leaf-connected.

369 middle

Hitt.	1	Av.	2	Luv.	6	Goth.	2
Arm.	2	OCS	4	Lyc.	7	ON	2
Gk.	2	Lith.	5	TA	3	OHG	2
Alb.	2	OE	2	OPer.	8	Welsh	10 [loan]
TB	3	OI	2	OPru.	9	Osc.	2
Ved.	2	Lat.	2	Latv.	5	Umb.	11

2 *méd^{h}yos and derivs.
3 PToch. *yəwarcəka-
5 PEBalt. *vid-

370 milk [with parallel development?]

[two characters]

Hitt.	1	Av.	6a	Luv.	8	Goth.	5x
Arm.	2	OCS	7 [loan]	Lyc.	9	ON	5x
Gk.	3a	Lith.	6b	TA	5	OHG	5x
Alb.	4	OE	5x	OPer.	10	Welsh	12 [loan]
TB	5	OI	5	OPru.	11	Osc.	13
Ved.	6a	Lat.	3b	Latv.	6b	Umb.	14

3a Gk. γάλακτ-
3b Lat. *lact-*
5 *h$_2$melǵ- ‘to milk’ and derivs.
5x PGmc. *meluk-
6 derivs. of *peyH- ‘be fat’
6a PIIr. *páyas
6b PEBalt. *pienas

The meanings reconstructable for states 5 and 6 suggest parallel development, but it should be borne in mind that no noun ‘milk’ is reconstructable in any case.

We have coded states 3a, 3b separately because the shapes of the Latin and Greek words simply do not match; this item could easily be a loan from some non-IE language in both Latin and Greek (Porzig 1954:132). We have also coded states 6a, 6b separately because they are clearly independent derivatives.

Superstate 5 is a less clear case. With some hesitation we have adopted both codings, since a direct connection between the Germanic words and the others is not unlikely, even though the Germanic *-u- is unexpected.

OCS *mlěko* MUST be a loan from Germanic: not only does it exhibit a velar stop in place of an expected palatal, but the stop has been devoiced by Grimm’s Law!

371 mother-in-law

Hitt.	1	Av.	5	Luv.	8	Goth.	2
Arm.	2	OCS	2	Lyc.	9	ON	14
Gk.	3	Lith.	6	TA	10	OHG	2
Alb.	2	OE	2	OPer.	11	Welsh	15
TB	4	OI	7	OPru.	12	Osc.	16
Ved.	2	Lat.	2	Latv.	13	Umb.	17

2 *swe$\acute{k}$rúh$_2$

372 mouse

Hitt.	1	Av.	4	Luv.	7	Goth.	12
Arm.	2	OCS	2	Lyc.	8	ON	2
Gk.	2	Lith.	5	TA	9	OHG	2
Alb.	2	OE	2	OPer.	10	Welsh	6
TB	3	OI	6	OPru.	11	Osc.	13
Ved.	2	Lat.	2	Latv.	5	Umb.	14

2 *m$\acute{u}$s
6 PCelt. *lukūs, *lukot- (Joe Eska, p.c.; cf. Pedersen 1909:376, Thurneysen 1946:206)
5 PEBalt. *pelē

The Tocharian B word does not belong with set 2 (Adams 1999 s.v. *maścītse*).

373 (finger)nail

Hitt.	1	Av.	5	Luv.	6	Goth.	9
Arm.	2	OCS	3w	Lyc.	7	ON	3y
Gk.	3	Lith.	3x	TA	3v	OHG	3y
Alb.	4	OE	3y	OPer.	8	Welsh	3z
TB	3v	OI	3z	OPru.	3w	Osc.	10
Ved.	3	Lat.	3	Latv.	3x	Umb.	11

3 *h$_3$nog^h(w)- and derivs.
3v PToch. *mëkuwa (pl.)
3w PBS *nagutis
3x PEBalt. *nagas
3y PGmc. *naglaz
3z PCelt. *ang^{w}īnā

We have coded the states of superstate 3 separately, simply because if they are coded together it is the only shared state. On the Armenian form see Olsen 1999:138; we reject the connection.

374 naked

Hitt.	1	Av.	1	Luv.	4	Goth.	1y
Arm.	1	OCS	1x	Lyc.	5	ON	1y
Gk.	1	Lith.	1x	TA	6	OHG	1y
Alb.	2	OE	1y	OPer.	7	Welsh	1z
TB	3	OI	1z	OPru.	8	Osc.	10
Ved.	1	Lat.	1	Latv.	9	Umb.	11

1 *neg^{w}nós and derivs. 1y PGmc. *nak^{w}adaz

1x PBS *nōgas 1z PCelt. *noktos

Many cognates of this set have been irregularly reformed (for tabu reasons?).

We have coded the states of superstate 1 separately, simply because if they are coded together it is the only shared state.

375 navel

Hitt.	1	Av.	3	Luv.	8	Goth.	12
Arm.	2	OCS	6	Lyc.	9	ON	3x
Gk.	3	Lith.	7	TA	10	OHG	3x
Alb.	4	OE	3x	OPer.	11	Welsh	13
TB	5	OI	3	OPru.	3	Osc.	14
Ved.	3	Lat.	3	Latv.	3	Umb.	15

3 *h$_3$nob^{h}- and derivs. (most of which are unique)

3x PNWGmc. *nabVlan-

We have coded the states of superstate 3 separately, simply because if they are coded together it is the only shared state.

376 nine

Hitt.	1	Av.	2	Luv.	3	Goth.	2
Arm.	2	OCS	2x	Lyc.	2	ON	2
Gk.	2	Lith.	2x	TA	2	OHG	2
Alb.	2	OE	2	OPer.	2	Welsh	2
TB	2	OI	2	OPru.	2	Osc.	4
Ved.	2	Lat.	2	Latv.	2x	Umb.	2

2 *(h$_1$)néwn̥ 2x initial *d- by lexical analogy with ‘ten’

We have coded the states of superstate 2 separately, simply because if they are coded together it is the only shared state.

377 now

[two characters]

Hitt.	1	Av.	1xx	Luv.	1	Goth.	1
Arm.	2	OCS	1	Lyc.	5	ON	1
Gk.	1	Lith.	3	TA	6	OHG	1
Alb.	1	OE	1	OPer.	1xx	Welsh	9
TB	1	OI	4	OPru.	7	Osc.	10
Ved.	1x	Lat.	1	Latv.	8	Umb.	11

1 *nṓ and derivs. (most unique or probably parallel)

1x PIIr. *nūnám 1xx PIr. *nūram (with dissimilation)

We have adopted two codings, one in which states 1x and 1xx are coded together (against the remainder of superstate 1), the other in which all states are coded separately, since that captures the development of this character in Indo-Iranian.

378 orphan

Hitt.	1	Av.	6	Luv.	11	Goth.	17
Arm.	2	OCS	7	Lyc.	12	ON	18
Gk.	2	Lith.	8	TA	13	OHG	19
Alb.	3	OE	9	OPer.	14	Welsh	20
TB	4	OI	10	OPru.	15	Osc.	21
Ved.	5	Lat.	2	Latv.	16	Umb.	22

2 *orb^{h}os

379 ox

Forms a polymorphic set with 319 bull (q.v.), 322 cattle, and 326 cow.

380 pig [polymorphic]

[two monomorphic characters, in part by split coding]

Hitt.	1	Av.	3	Luv.	8	Goth.	3x
Arm.	2	OCS	3x	Lyc.	9	ON	3x
Gk.	3	Lith.	5	TA	10	OHG	3x
Alb.	4	OE	3x	OPer.	11	Welsh	6
TB	3	OI	6	OPru.	3x	Osc.	13
Ved.	3	Lat.	3/7	Latv.	12	Umb.	3/7

3 *sṓs 6 PCelt. *mokkus

3x *su-īno- (orig. adj.?) 7 *pórḱos

The polymorphism is confined to Italic (though cognates of state 7 do occur elsewhere in other meanings) and is leaf-connected.
We have employed both codings for superstate 3; for the polymorphism 3/7 and superstate 3 we employ split coding.
Both Albanian words are of uncertain etymology; cf. Demiraj 1997:131-2, 397-8.

381 plow

Hitt.	1	Av.	6	Luv.	7	Goth.	3
Arm.	2	OCS	3	Lyc.	8	ON	3
Gk.	3	Lith.	3	TA	9	OHG	3
Alb.	4	OE	3	OPer.	10	Welsh	3
TB	5	OI	3	OPru.	3	Osc.	11
Ved.	6	Lat.	3	Latv.	3	Umb.	12

3 *h_2erh_3-, pres. *$h_2éryeti$ 6 *$k^wélsti$ ‘make a furrow’

The assignment of state 3 to Old Prussian is uncertain, since only the noun for ‘plow’ is attested in that language. However, that does not affect the shape of the tree, since the alternative is to assign it a unique state.

382 pour

Hitt.	1	Av.	5	Luv.	1	Goth.	3x
Arm.	2	OCS	6	Lyc.	8	ON	10
Gk.	3	Lith.	6	TA	3	OHG	3x
Alb.	4	OE	3x	OPer.	9	Welsh	11
TB	3	OI	7	OPru.	6	Osc.	12
Ved.	5	Lat.	3x	Latv.	6	Umb.	13

1 PAnat. *laHu- (Melchert 1994:72-3) 5 PIIr. *sinčáti

3 *$ǵ^hew$- 6 *leyH-

3x “extended” root *$ǵ^hewd$-

We have cautiously coded states 3 and 3x separately; though there is a clear etymological connection between them, the fact that the shape of the actual root has been altered makes it unclear whether the developmental link between them is direct, since the “extended” root might at first have had a different meaning.

383 put [polymorphic, with parallel development]

[two monomorphic characters by split coding]

Hitt.	1d	Av.	1a	Luv.	1b	Goth.	5/6a
Arm.	1e	OCS	4a/5	Lyc.	1b	ON	5/6a
Gk.	1a	Lith.	1a/4b	TA	1c	OHG	5/6a
Alb.	2	OE	5/6a	OPer.	1a	Welsh	4c
TB	1c	OI	7	OPru.	6b	Osc.	1f
Ved.	1a	Lat.	8	Latv.	9	Umb.	10

1 *d^heh_1-
- 1a pres. *$d^héd^heh_1ti$
- 1b PLuv. *tuwV-
- 1c PToch. *tas-
- 1d–f other present stems

4a–c derivs. of *$steh_2$- ‘stand’

5 *$log^héyeti$ ‘cause to lie down’

6a *sodéyeti ‘cause to sit down

6b other deriv. of *sed- ‘sit down’

We have coded states 4a–c, 6a, 6b separately, since they are clearly independent developments. (The OCS and Lith. polymorphisms thereby become ineffective.) For superstate 1 we employ both codings, since the differences between the substates mainly involve stem-formation.

For the polymorphism 5/6a we employ split coding.

The meanings reconstructable for (super)states 4–6 argue massive parallel development. However, none of the states is (precisely) shared with any of the other verbs involved, since it is typically causatives of the latter that develop into ‘put’.

The meaning of the Umbrian word listed is probably ‘put’ (cf. Vetter 1953:248), but other interpretations are possible (cf. e.g. Ernout 1961:125, Ancillotti and Cerri 1996: 391); in any case Umbrian does not exhibit a cognate of any term in any of the other languages.

384 remember

Hitt.	1	Av.	6	Luv.	7	Goth.	3
Arm.	2	OCS	3	Lyc.	8	ON	3
Gk.	3	Lith.	3	TA	5	OHG	11
Alb.	4 [loan]	OE	3	OPer.	9	Welsh	3
TB	5	OI	3	OPru.	10	Osc.	3
Ved.	6	Lat.	3	Latv.	3	Umb.	12

3 *men- (pf. *memóne) and derivs.

5 PToch. *epiyacə kəllaṣṣə(ṣə) ‘call to mind’

6 PIIr. *smárati

385 roof

Hitt.	1	Av.	7	Luv.	9	Goth.	14
Arm.	2	OCS	8	Lyc.	10	ON	3c
Gk.	3a	Lith.	3b	TA	11	OHG	3c
Alb.	4	OE	3c	OPer.	12	Welsh	3d
TB	5	OI	3d	OPru.	3b	Osc.	15
Ved.	6	Lat.	3e	Latv.	13	Umb.	16

3a–e derivs. of *(s)teg- ‘cover’ 3c PNWGmc. *þaką

3b PBalt. *stāgas 3d PCelt. *togiā

We have coded the states of superstate 3 separately, simply because if they are coded together it is the only shared state.

386 row

Hitt.	1	Av.	7	Luv.	10	Goth.	15
Arm.	2	OCS	8	Lyc.	11	ON	9b
Gk.	3	Lith.	9a	TA	12	OHG	16
Alb.	4	OE	9b	OPer.	13	Welsh	17 [loan]
TB	5	OI	9b	OPru.	14	Osc.	18
Ved.	6	Lat.	9c	Latv.	9a	Umb.	19

9 derivs. of *$h_1$reh_1- 9b o-grade *$h_1$roh_1-

9a PEBalt. *irja 9c denom. verb ← compound agent noun (‘rower’) ← instrument noun (‘oar’)

We have coded states 9a–c, which are very different independent formations from an inherited root, separately.

387 send

Hitt.	1	Av.	7	Luv.	13	Goth.	10
Arm.	2	OCS	8	Lyc.	14	ON	10
Gk.	3	Lith.	9	TA	5	OHG	10
Alb.	4	OE	10	OPer.	6	Welsh	17
TB	5	OI	11	OPru.	15	Osc.	18
Ved.	6	Lat.	12	Latv.	16	Umb.	19

5 PToch. *luwa- 10 PGmc. *sandīþi

6 PIIr. *iš-

388 seven

Hitt.	1	Av.	1	Luv.	2	Goth.	1x
Arm.	1	OCS	1	Lyc.	3	ON	1x
Gk.	1	Lith.	1	TA	1	OHG	1x
Alb.	1	OE	1x	OPer.	4	Welsh	1
TB	1	OI	1	OPru.	1	Osc.	5
Ved.	1	Lat.	1	Latv.	1	Umb.	6

1 *septḿ̥

1x → *septḿ̥t (by lexical analogy with 'ten') > *sepḿ̥t > PGmc. *sebun (cf. Szemerényi 1960:35, 127 fn. 53, Stiles 1985-6, part 3, pp. 6-7)

We have coded the states of superstate 1 separately, simply because if they are coded together it is the only shared state.

389 shadow [polymorphic]

Hitt.	1	Av.	3	Luv.	8	Goth.	5a
Arm.	2	OCS	3	Lyc.	9	ON	6
Gk.	3	Lith.	4	TA	10	OHG	5a/6
Alb.	3	OE	5a/6	OPer.	11	Welsh	5b
TB	3	OI	5b	OPru.	12	Osc.	14
Ved.	3	Lat.	7	Latv.	13	Umb.	15

3 *sḱéh$_2$ih$_2$, *sḱh$_2$iéh$_2$- (cf. Ringe 1996:18-20)

5 *skot- ~ *skōt-

5a PGmc. *skaduz

5b PCelt. *skātom

6 PGmc. *skuwwan- (cf. Goth. *skuggwa* 'mirror')

We have coded states 5a, 5b separately, since they are very different formations.
The polymorphism is confined to Germanic and is leaf-connected.

390 sheep [polymorphic]

[two monomorphic characters by conflated split coding]

Hitt.	1	Av.	7	Luv.	6	Goth.	13
Arm.	2	OCS	6	Lyc.	6	ON	14
Gk.	3	Lith.	6	TA	5	OHG	8
Alb.	4	OE	8	OPer.	10	Welsh	15
TB	5/6	OI	9	OPru.	11	Osc.	16
Ved.	6	Lat.	6	Latv.	12	Umb.	6

5 derivs. of PToch. *śaw- ‘live’ 8 PWGmc. *skāp

6 *$h_2$ówis (Kimball 1987:185, 189)

The polymorphism is confined to Tocharian and is leaf-connected; we have reduced the character to two monomorphic characters by conflated split coding.

391 ship [polymorphic]

[two monomorphic characters, in part by conflated split coding]

Hitt.	1	Av.	3	Luv.	11	Goth.	9
Arm.	2 [loan]	OCS	7	Lyc.	12	ON	9
Gk.	3	Lith.	8	TA	5/6	OHG	9
Alb.	4	OE	9	OPer.	3	Welsh	10
TB	5/6	OI	3/10	OPru.	13	Osc.	15
Ved.	3	Lat.	3	Latv.	14	Umb.	16

3 *neh$_2$u- 9 PGmc. *skipą

5 PToch. *ọl^{y}i- 10 PIns.Celt. *longā

6 PToch. *kọlm-

The Armenian word is probably an Iranian loan, since it is inflected as an a-stem (Olsen 1999:896). On the Celtic forms see McCone 1993:245-8.

All the polymorphisms are local and leaf-connected. Since states 6 and 7 always appear together, we have coded them as a single state. The remaining polymorphism (in Old Irish) has been obviated by conflated split coding, with 11 ∪ 3/11 coded against 3 in one character and all three coded together in the other.

On the preform of state 3 see Szemerényi 1956:185-6 with references; however, unless and until the absence of *s- can be explained, the derivation of this word from *sneh$_2$- ‘bathe, swim’ (ibid. p. 186, fn. 1 with references) remains doubtful.

392 shoulder [polymorphic, with parallel development]

Hitt.	1	Av.	4	Luv.	10	Goth.	2
Arm.	2	OCS	5	Lyc.	11	ON	7
Gk.	2	Lith.	6	TA	2	OHG	7/8
Alb.	3	OE	7/8	OPer.	12	Welsh	13
TB	2	OI	9	OPru.	6	Osc.	14
Ved.	2	Lat.	2	Latv.	5	Umb.	2

2 *ṓmsos / *ómsos 7 PNWGmc. *ahslu

5 PBS *pletjan 8 PWGmc. *skuldru

6 PBalt. *petijas (vel sim.)

The overt polymorphism is confined to West Germanic and is leaf-connected.
The distribution of states in Balto-Slavic shows hidden polymorphism or parallel development, since the clear East Baltic subgroup is split.
The preform of state 2 is an unsolved problem, though the words are clearly cognate.
On the difficult problems surrounding the Albanian form see Demiraj 1997:155-6.

393 silver [with parallel development?]

Hitt.	1	Av.	3b	Luv.	7	Goth.	6c
Arm.	2 [loan]	OCS	6a	Lyc.	8	ON	6c
Gk.	3a	Lith.	6b	TA	5	OHG	6c
Alb.	4 [loan]	OE	6c	OPer.	3b	Welsh	3b
TB	5	OI	3b	OPru.	6d	Osc.	3b
Ved.	3b	Lat.	3b	Latv.	6e	Umb.	9

3a–b derivs. of *$h_2$erǵ- ‘white’
3b *h_2r̥ǵn̥tóm
5 PToch. *nəkənt- (*ñ-)
6a–e *siCVbrom vel sim. (where *C is a voiced coronal)
6c PGmc. *silubrą

Both the reconstructable meaning of state 3 and the marked variation in the forms grouped under state 6 suggest parallel development; state 6 probably reflects multiple borrowing of a non-IE word and/or repeated borrowing between IE languages. Note that even the Tocharian forms (state 5) do not match perfectly.
On the other hand, it is possible that state 3b arose only once.
We have coded the substates of 3 and 6 separately, but that does not obviate all the difficulties.

394 sister

Hitt.	1	Av.	2	Luv.	1x	Goth.	2
Arm.	2	OCS	2	Lyc.	5	ON	2
Gk.	3	Lith.	2	TA	2	OHG	2
Alb.	4	OE	2	OPer.	6	Welsh	2
TB	2	OI	2	OPru.	2	Osc.	8
Ved.	2	Lat.	2	Latv.	7	Umb.	9

1 PAnat. *negos and deriv.
1x deriv. of *negnos ‘brother’ ← *negos
2 *swésōr

We have coded states 1 and 1x together, both because direct replacement is likely and because they are otherwise unique.

395 sister-in-law

Hitt.	1	Av.	7	Luv.	11	Goth.	16
Arm.	2	OCS	3	Lyc.	12	ON	17
Gk.	3	Lith.	8	TA	13	OHG	18
Alb.	4	OE	9	OPer.	14	Welsh	19
TB	5	OI	10	OPru.	15	Osc.	20
Ved.	6	Lat.	3	Latv.	8	Umb.	21

3 *ǵl̥Hōw- (??) 8 PEBalt. *svainē

The preform of state 3 is an unsolved (and probably unsolvable) problem.

396 six

Hitt.	1	Av.	2	Luv.	3	Goth.	2
Arm.	2	OCS	2	Lyc.	4	ON	2
Gk.	2	Lith.	2	TA	2	OHG	2
Alb.	2	OE	2	OPer.	5	Welsh	2
TB	2	OI	2	OPru.	2	Osc.	6
Ved.	2	Lat.	2	Latv.	2	Umb.	7

2 *swéḱs

397 son [polymorphic, with parallel development]

Hitt.	1	Av.	1/3b	Luv.	7	Goth.	3b
Arm.	2	OCS	3b	Lyc.	8	ON	3b
Gk.	3a	Lith.	3b	TA	3a	OHG	3b
Alb.	4	OE	3b	OPer.	1	Welsh	5
TB	3a	OI	5	OPru.	3b	Osc.	1
Ved.	1/3b	Lat.	6	Latv.	9	Umb.	10

1 *putlós 3 derivs. of *suH- ‘give birth’

5 PCelt. *mak^{w}k^{w}os 3a *suHyús

3b *suHnús

We have coded states 3a, 3b separately, since they are independent derivatives.
The meaning reconstructable for state 3 argues parallel development; thus the Indo-Iranian polymorphism may or may not extend through many internal nodes, as the distribution of states suggests.

398 son-in-law

[two characters]

Hitt.	1	Av.	3b	Luv.	7	Goth.	13
Arm.	2	OCS	3c	Lyc.	8	ON	13
Gk.	3a	Lith.	3c	TA	9	OHG	5
Alb.	3a	OE	5	OPer.	10	Welsh	14
TB	4	OI	6	OPru.	11	Osc.	15
Ved.	3b	Lat.	3a	Latv.	12	Umb.	16

3 *ǵem- (?)

3a *ǵm̥rós (vel sim.)

3b PIIr. *źāmātar-

3c PBS *žent-

5 PWGmc. *aiþam

13 PGmc. *mēgaz ‘kinsman’

We employ both codings for superstate 3, since we seem to be in the presence of modifications of a single inherited word.

For discussion of these difficult forms see e.g. Frisk 1960 s.v. γαμβρός. We suggest that the Latin and Balto-Slavic forms have been influenced by *ǵenh$_1$- ‘be born’ and/or *ǵneh$_3$- ‘recognize’; the Latvian word, however, has either been replaced by a participle of the latter root or has been so thoroughly remodelled that assignment of a unique state is advisable in any case.

399 spin

Hitt.	1	Av.	7	Luv.	11	Goth.	10
Arm.	2	OCS	8	Lyc.	12	ON	10
Gk.	3	Lith.	9	TA	13	OHG	10
Alb.	4	OE	10	OPer.	14	Welsh	3
TB	5	OI	3	OPru.	15	Osc.	16
Ved.	6	Lat.	3	Latv.	9	Umb.	17

3 *sneh$_1$yeti and derivs.

9 PEBalt. *verpja

10 PGmc. *spinnidi

The analysis and etymology of Armenian *niwt^{h}ê* are unclear. It is possible that the first two segments reflect *sneh$_1$-, but Pedersen 1906:426, 436-7 suggests an alternative analysis *n*- + *hiwt^h-, the latter < *pi-ub^h-t- (PIE *web^h- ‘weave’). We have cautiously assigned Armenian a separate state.

400 spring

[two characters]

Hitt.	1x	Av.	1	Luv.	6	Goth.	10
Arm.	1	OCS	1	Lyc.	7	ON	1
Gk.	1	Lith.	1y	TA	8	OHG	4
Alb.	2 [loan]	OE	4	OPer.	1	Welsh	1
TB	3	OI	5	OPru.	9	Osc.	11
Ved.	1	Lat.	1	Latv.	1y	Umb.	12

1 *wés̥r, *wesn- and derivs.
4 PWGmc. *langitīn-
1x compound with *$h_2$ent-
1y PEBalt. *pavasarjas (cf. 403 'summer')

We have employed both codings for superstate 1, since direct replacement of the inherited word by its derivatives seems likely.

The analysis of the Hittite form accepted here is not completely certain; see Puhvel 1991: 73-5 for discussion. The form of the Latin cognate must be the result of a sequence of sound changes and paradigmatic levellings, roughly *wesor, *wesn- > *wesor, *wēn- → *wēr, *wēn- → *vēr, vēr-*.

401 stay [polymorphic, with parallel development]

[two monomorphic characters by conflated split coding]

Hitt.	1	Av.	7	Luv.	11	Goth.	4
Arm.	2	OCS	6x	Lyc.	12	ON	14
Gk.	2	Lith.	8	TA	5	OHG	15
Alb.	3	OE	9	OPer.	13	Welsh	16
TB	4/5	OI	10	OPru.	8	Osc.	17
Ved.	4/6	Lat.	2	Latv.	8	Umb.	18

2 *men-
4 *$h_2$wes- 'stay overnight'
5 PToch. *kəlʸətər 'stand'
6 *steh$_2$- 'stand'
6x reflexive of cpd. of deriv.
8 PBalt. *(pa)leik- (< *leyk^w- 'leave')

We have coded states 6 and 6x separately, since there is no indication of any direct historical connection between them; the overt polymorphism, which is confined to Vedic, thereby becomes ineffective.

We have obviated the Tocharian B polymorphism by conflated split coding.

The meanings reconstructable for states 2 and 4 argue parallel development.

402 steal [polymorphic]

[two monomorphic characters by double conflated split coding]

Hitt.	1	Av.	7	Luv.	13	Goth.	3/10
Arm.	2	OCS	8	Lyc.	14	ON	10
Gk.	3	Lith.	9	TA	5	OHG	10
Alb.	4	OE	10	OPer.	15	Welsh	18 [loan]
TB	3/5	OI	11	OPru.	16	Osc.	19
Ved.	6	Lat.	12	Latv.	17	Umb.	20

3 *klep-

5 PToch. *kərka-, pres. *kərna(ṣə)

10 PGmc. *stilidi (*stela-)

The polymorphisms are local and leaf-connected. We have obviated them by double conflated split coding, as follows. In one character, 5 ∪ 3/5 is coded against 3 ∪ 3/10 ∪ 10; in the other, 5 ∪ 3/5 ∪ 3 is coded against 3/10 ∪ 10.

403 summer

[two characters]

Hitt.	1	Av.	2	Luv.	9	Goth.	13
Arm.	2	OCS	6	Lyc.	10	ON	2x
Gk.	3	Lith.	7	TA	2y	OHG	2x
Alb.	4	OE	2x	OPer.	11	Welsh	2
TB	2y	OI	2	OPru.	12	Osc.	14
Ved.	5	Lat.	8	Latv.	7	Umb.	15

2 *semH- ~ *sm̥H- and derivs.

2x PGmc. *sumaraz

2y PToch. *ṣəmay-

7 PEBalt. *vasarā

We have employed both codings for superstate 2.

404 sweat [with parallel development]

Hitt.	1	Av.	2	Luv.	6	Goth.	10
Arm.	2	OCS	4	Lyc.	7	ON	2
Gk.	2	Lith.	5	TA	8	OHG	2
Alb.	3	OE	2	OPer.	9	Welsh	2
TB	2	OI	1	OPru.	5	Osc.	11
Ved.	2	Lat.	2	Latv.	2	Umb.	12

1 *all-

2 *sweyd-

5 PBalt. *prakait-

Note that both the Celtic subgroup and East Baltic are split; such a distribution of states argues parallel development.

405 sweet

Forms a polymorphic set with 352 honey (q.v.).

406 ten

Hitt.	1	Av.	2	Luv.	3	Goth.	2
Arm.	2	OCS	2	Lyc.	4	ON	2
Gk.	2	Lith.	2	TA	2	OHG	2
Alb.	2	OE	2	OPer.	5	Welsh	2
TB	2	OI	2	OPru.	2	Osc.	6
Ved.	2	Lat.	2	Latv.	2	Umb.	2

*déḱm̥t

407 thousand

[two characters]

Hitt.	1	Av.	3b	Luv.	9	Goth.	6
Arm.	2 [loan]	OCS	6	Lyc.	10	ON	6
Gk.	3a	Lith.	6	TA	5	OHG	6
Alb.	4 [loan]	OE	6	OPer.	11	Welsh	12 [loan]
TB	5	OI	7 [loan]	OPru.	6	Osc.	13
Ved.	3b	Lat.	8	Latv.	6	Umb.	14

3 derivs. of *ǵʰéslo-

3a *ǵʰéslio- (adj.?)

3b PIIr. *saźʰáslam < *sm̥-ǵʰéslo-m

5 PToch. *wʸəltsë

6 *túHsn̥t-

We have employed both codings for superstate 3, since a direct historical connection between the substates seems probable.

That Lat. *mīlle* belongs with state 3 remains unprovable (and improbable, since it involves positing a zero-grade feminine derivative of *ǵʰéslo- compounded with *sémih$_2$ → *smíh$_2$ ‘one’).

408 twenty

Hitt.	1	Av.	2	Luv.	6	Goth.	5
Arm.	2	OCS	4	Lyc.	7	ON	5
Gk.	2	Lith.	4	TA	2	OHG	5
Alb.	3	OE	5	OPer.	8	Welsh	2
TB	2	OI	2	OPru.	9	Osc.	10
Ved.	2	Lat.	2	Latv.	4	Umb.	11

2 *wḯḱm̥tih$_1$

4 PBS phrase *dvai dešimtī (vel sim.) ‘two tens’

5 PGmc. phrase *twai tigiwiz (vel sim.) ‘two decads’

On the Albanian form see Demiraj 1997:425; on Lycian *kbisñtãta* see Melchert 2004 s.v.

409 udder

Hitt.	1	Av.	6	Luv.	10	Goth.	15
Arm.	2	OCS	7	Lyc.	11	ON	3
Gk.	3	Lith.	8	TA	12	OHG	3
Alb.	4	OE	3	OPer.	13	Welsh	16
TB	5	OI	9	OPru.	14	Osc.	17
Ved.	3	Lat.	3	Latv.	8	Umb.	18

3 *ówd^{h}r̥ ~ *uHd^{h}én-

8 PEBalt. *tešmen-

410 wasp

Hitt.	1	Av.	7	Luv.	10	Goth.	15
Arm.	2	OCS	8	Lyc.	11	ON	16
Gk.	3	Lith.	7	TA	12	OHG	17
Alb.	4	OE	7	OPer.	13	Welsh	18
TB	5	OI	9	OPru.	7	Osc.	19
Ved.	6	Lat.	7	Latv.	14	Umb.	20

7 *wob^{h}seh$_2$

It is possible, but far from certain, that Latvian *lapsene* belongs with set 7 and owes its initial consonant to some lexical analogy.

411 wear [polymorphic]

[two monomorphic characters, in part by conflated split coding]

Hitt.	1	Av.	1	Luv.	1	Goth.	1x
Arm.	1	OCS	4	Lyc.	8	ON	11
Gk.	2x	Lith.	5	TA	1	OHG	12
Alb.	3	OE	1x	OPer.	9	Welsh	1
TB	1/2	OI	6	OPru.	10	Osc.	13
Ved.	1	Lat.	7	Latv.	4/5	Umb.	14

1 *wéstor and derivs.

1x *woséyeti ‘clothe’ (→ intrans.)

2 *b^héreti ‘carry’

2x intensive *b^horéyeti ‘carry around’

4 derivs. of PBS *neš- ‘carry’

5 derivs. of PEBalt. *velk-

We have employed both codings for superstate 1, since a direct replacement of the basic intransitive verb by its causative appears likely. We code states 2 and 2x separately; the Tocharian B polymorphism thus becomes ineffective.

The remaining polymorphism is confined to East Baltic and is leaf-connected. We have obviated it by conflated split coding, with 5 ∪ 4/5 coded against 4 in one character and all three coded together in the other.

412 weave [with parallel development]

Hitt.	1	Av.	5	Luv.	10	Goth.	13
Arm.	2	OCS	6	Lyc.	11	ON	3
Gk.	3	Lith.	7	TA	3	OHG	3
Alb.	4	OE	3	OPer.	12	Welsh	8
TB	3	OI	8	OPru.	6	Osc.	14
Ved.	4	Lat.	9	Latv.	7	Umb.	15

3 *web^h-

4 *weyh$_1$- ‘plait’

6 PBS *tuk-

7 PEBalt. *audja

8 PCelt. *weg-

The (probable) reconstructed meaning of state 4 argues parallel development.

413 wheel [polymorphic, with parallel development]

Hitt.	1	Av.	6a	Luv.	8	Goth.	11
Arm.	2	OCS	6b	Lyc.	9	ON	6a
Gk.	3	Lith.	7	TA	5	OHG	7
Alb.	4 [loan]	OE	6a	OPer.	10	Welsh	7
TB	5	OI	3/7	OPru.	6c	Osc.	12
Ved.	6a	Lat.	7	Latv.	7	Umb.	13

3 *d^{h}rog^{h}ós ‘runner’

5 PToch. *w^{y}Vrk(w)ənt-

6a–c derivs. of *k^{w}el- ‘turn’

6a *k^{w}ékwlos

7 *(H)rotós ‘runner’, coll. *(H)róteh$_2$

We have coded states 6a–c separately, since they are independent derivatives.

The Tocharian forms do not match perfectly, and the Hittite word is so dissimilar that we have coded it separately. On the Armenian form see Olsen 1999:23.

The meanings reconstructable for most states argue massive parallel development; therefore polymorphism, which is overt in OIr., may or may not also be present at numerous internal nodes.

414 widow

Hitt.	1	Av.	2	Luv.	6	Goth.	2
Arm.	2	OCS	2	Lyc.	7	ON	11
Gk.	3	Lith.	5	TA	8	OHG	2
Alb.	2	OE	2	OPer.	9	Welsh	2
TB	4	OI	2	OPru.	2	Osc.	12
Ved.	2	Lat.	2	Latv.	10	Umb.	13

2 *h$_1$wid^{h}éwh$_2$ ~ *h$_1$wid^{h}wéh$_2$-

Ablaut of the vowel before the second *w argues a proterokinetic paradigm (Lionel Joseph, p.c.). On the Armenian form see Cowgill 1983.

415 winter

Forms a polymorphic set with 153 snow (q.v.).

416 wolf [probably with parallel development]

Hitt.	1	Av.	3	Luv.	5	Goth.	3
Arm.	2	OCS	3	Lyc.	6	ON	3
Gk.	3	Lith.	3	TA	7	OHG	3
Alb.	3	OE	3	OPer.	3	Welsh	8
TB	4	OI	2	OPru.	3	Osc.	9
Ved.	3	Lat.	3	Latv.	3	Umb.	10

2 *waylos 3 *wĺ̥kʷos

On the etymology of the Armenian form cf. Hübschmann 1897:431, Olsen 1999:34; the alternative we have adopted here seems preferable to positing an otherwise unsupported *wĺ̥yos or the like.

If it is true that state 2 is derived from onomatopoeic *wáy (Olsen, loc. cit.), the character exhibits parallel development.

417 wood [polymorphic]

Hitt.	1	Av.	1	Luv.	1	Goth.	1
Arm.	2	OCS	1	Lyc.	7	ON	1/5
Gk.	3	Lith.	4	TA	1	OHG	5
Alb.	1	OE	1/5	OPer.	1	Welsh	9
TB	1	OI	5	OPru.	4	Osc.	10
Ved.	1	Lat.	6	Latv.	8	Umb.	11

1 *dóru and derivs. 5 *widʰus

4 PBalt. *malkā

The polymorphism is confined to Germanic and is leaf-connected.

418 wool

Hitt.	1	Av.	1	Luv.	1	Goth.	1
Arm.	2	OCS	1	Lyc.	6	ON	1
Gk.	3	Lith.	1	TA	7	OHG	1
Alb.	4	OE	1	OPer.	8	Welsh	1x
TB	5	OI	1x	OPru.	9	Osc.	10
Ved.	1	Lat.	1	Latv.	1	Umb.	11

1 *$h_2$wl̥$h_1$no-, collective *$h_2$wĺ̥$h_1$neh$_2$

1x PCelt. *wlanā, with unexpected short vowel in first syllable

The Irish word appears to have been deformed by lexical analogy (cf. Pedersen 1909: 179).

We have coded substates 1 and 1x separately, since otherwise the character is uninformative.

419 yoke

Hitt.	1	Av.	4	Luv.	5	Goth.	1
Arm.	1	OCS	1	Lyc.	6	ON	1
Gk.	1	Lith.	1	TA	7	OHG	1
Alb.	2	OE	1	OPer.	8	Welsh	1
TB	3	OI	1	OPru.	9	Osc.	10
Ved.	1	Lat.	1	Latv.	1	Umb.	11

1 *yugóm and derivs.

The initial *l*- of the Armenian word must be the result of some lexical analogy. Various languages have introduced *-n-* under the influence of the related verb *yunégti 'join'; since that can easily have been a parallel development, we have not taken account of it in coding.

420 young

[two characters]

Hitt.	1	Av.	5	Luv.	6	Goth.	5x
Arm.	2	OCS	5	Lyc.	7	ON	5x
Gk.	2	Lith.	5	TA	8	OHG	5x
Alb.	3	OE	5x	OPer.	9	Welsh	5x
TB	4	OI	5x	OPru.	10	Osc.	11
Ved.	5	Lat.	5	Latv.	5	Umb.	5

2 *néwos 'new' and derivs.

5 *$h_2yuh_1$én-

5x *h_2yuh_1n̥ḱós

We have adopted both codings for superstate 5, since a direct replacement of the basic word by its derivative is plausible.

421 tear

Hitt.	1	Av.	2b	Luv.	5	Goth.	2a
Arm.	2a	OCS	4	Lyc.	6	ON	2a
Gk.	2a	Lith.	2b	TA	2b	OHG	2a
Alb.	3	OE	2a	OPer.	7	Welsh	2a
TB	2b	OI	2a	OPru.	8	Osc.	9
Ved.	2b	Lat.	2a	Latv.	2b	Umb.	10

2a *dáḱru 2b *áḱru

There is an obvious relation between the forms represented by the two large states, but its exact nature remains obscure. Though the Hittite word clearly resembles them (mainly because it ends in *-ru*), it is too different from either set to be assigned the same state. We have coded states 2a, 2b separately, simply because there is otherwise only one shared state.

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