

Resonant Variation in Proto-Indo-European

Gregory Haynes¹

Abstract

Upon close inspection, many roots in the reconstructed vocabulary of Proto-Indo-European show similarities, both phonetic and semantic, that suggest ancient genetic affiliations. In particular, cases of resonant variation within the context of a fixed consonant structure often show striking semantic uniformity. The examples provided suggest that, at a very early pre-Proto-Indo-European stage of the language, these resonant-variations were morphological variants of earlier primitive roots. Additionally, when evaluating the likelihood of distant language affiliations, these generalized primitive roots, not their derived variants, are the principal forms that can be meaningfully compared to the lexica of other proto-languages.

Dedication

This work is dedicated to E. J. Michael Witzel, Wales Professor of Sanskrit at Harvard University, without whose contributions, both in encouragement and in helpful suggestions, this project would never have been realized.

Introduction

The following table compares three PIE roots that share a semantic field and that are identical phonetically except for the variation seen in the resonants. The question arises: Is this resemblance accidental, or does it reflect some ancient morphological system? I

¹ Correspondance may be addressed to haynes@sonic.net

will argue that this pattern of resonant variation parallels other familiar non-etymologically-significant root-variations such as changes in vowel gradation, s-mobile, and nasal infix, that are universally recognized in PIE comparative linguistics.

**g^h(R)eb^h-* ‘Grab, take, seize, hold’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
* <i>g^heb^h-</i>	g ^h	ø		b ^h	1	Grasp, seize, cause another to grasp (give)
* <i>g^hreb^h-</i>	g ^h	r		b ^h	2	Grab, seize, snatch up, devour, take
* <i>g^hreīb^h-</i>	g ^h	r	i	b ^h	3	Grip, grasp, seize

1. **g^heb^h-* ‘Grasp, seize, cause another to grasp, i.e. give’

Lat *habeō* ‘grasp, possess, have,’ Umb *habe* ‘have,’ OIr *gaibid* ‘take, take hold of, seize, catch, grasp,’ Goth *gabei* ‘riches, wealth,’ *giban* ‘give,’ Lith *gebù* ‘to be capable’ (*capable* is literally the ability to catch, take, seize), Pol *gabać* ‘lay hands on, seize, hold,’ WRus *habác* ‘take, grab.’ — LIV 193; IEW 407-09; EIEC 563; Mallory and Adams (2006) 271; Bomhard 349, 376.

Words for *give* and *take* often interchange in PIE (Watkins 2011: xxvii).

2. **g^hreb^h-* ‘Grab, seize, snatch up, devour, take’

Skt *gr̥bhnāti* ‘grabs,’ MHG *graben* ‘seize,’ Latv *grebju* ‘seize,’ OCS *grabiti* ‘snatch up,’ Hit *k(a)rap-* ‘devour,’ Av *garəwnāiti* ‘takes,’ NE *grab* (from MDutch). — Mallory and Adams (2006) 271; Watkins (2011) 32; IEW 455-56; EIEC 563; LIV **g^hreb^h-* 201.

3. **g^hreīb^h-* ‘Grip, grasp, seize’

Goth *greipan* ‘grasp, seize, catch,’ Lith *griebiù* ‘take hold of, seize,’ ON *greipa* ‘commit, perpetrate,’ *greip* ‘grip, hand,’ OE *grāp* ‘fist, grip,’ NE *grip*, *gripe*, *grope*,

OHG *grīfan* ‘touch, take hold of,’ *greifōn* ‘grope, touch,’ Latv *greībi* ‘seize.’ —LIV 203; IEW 457-58; EIEC 564; Mallory and Adams (2006) 272.

* * *

The semantic values of these three roots are closely aligned. Phonetically, they are identical except for the fluidity of the resonants. As will be seen in the following examples, this is no isolated instance, rather it is a common pattern seen in what appears to be the oldest strata of the language.

Some Initial Methodological Observations

1. Resonant Variants (*R*) may include any resonant: *r*, *l*, *n*, *m*, *ɹ*, *ɻ*, *ø* (null-grade), or a laryngeal: *h*₁, *h*₂, or *h*₃. Inside the root, laryngeals function as do the other resonants. This has been noted by Todd B. Krause and Jonathan Slocum, who write, “Given the ability of the laryngeals to vocalize between consonants, it is occasionally convenient to think of the laryngeals likewise as resonants.”²
2. A root may contain zero, one, or two resonants. In rare cases, roots are found with two resonants and a laryngeal.
3. The structure of the primitive root can be generalized as: **(s)-C [+/- R (R)] -C [+/-C]*.
4. The glosses indicating the semantic value of PIE roots included in this analysis may sometimes differ from those given in the etymological dictionaries of Rix, Pokorny, Watkins, Mallory and Adams, Wodtko, or others. For example, in the *Lexikon der Indogermanischen Verben*, the root, **streu-*, is glossed *streuen* ‘strew.’³ In modern English, *strew* means “to spread here and there, scatter, disperse, spread over a wide area.”⁴

² <https://lrc.la.utexas.edu/eieol/tokol/20>.

³ Rix, Helmut, et al., *Lexikon der Indogermanischen Verben* (LIV), 2nd edition (Wiesbaden: Dr. Ludwig Reichert Verlag, 2001) 605.

⁴ *The American Heritage Dictionary of the English Language* (AHD), 4th edition (Boston and New York: Houghton Mifflin Company, 2000) s.v. “strew,” 1715.

One of the attestations given in LIV for **streu-* is Latin *struō*. The primary definitions for that word, as given in the *Oxford Latin Dictionary*, are: “To set in position, arrange (so as to construct something), stand fast, ...construct, put together, build, ... build up, establish.”⁵

It would appear then that the meaning of *struō* in Latin is roughly the opposite of “strew.” Rather than scattering randomly or dispersing, it indicates the placing of something very precisely for the purpose of building. The form of the perfect tense of this Latin word is *structum*, the source of the English words *structure*, and *construction*, two very non-random concepts.

Because of its phonetic alignment (allowing for resonant variations) with other PIE roots that signify “to set in place, to stand, to build, to establish,” it appears that Latin preserves the original meaning of the root more faithfully, and therefore **streu-* is here glossed accordingly, even though this is at variance with the general gloss given in LIV.⁶

5. The sources for the semantic values assigned to roots are always cited following the lists of attestations. Where it has been necessary to rely on glosses given in etymological dictionaries of PIE, these have often required translation from German to English. Since that translation-process could be an opportunity for personal bias to enter in, readers may wish to verify the accuracy of those translations by consulting the sources cited and reading the German or the original languages directly.

6. The grammatical significance of resonant variations within PIE roots is unclear. They appear too systematic to have been the result of a fusion of related dialects. If they represent some archaic morphological pattern of verb aspect or of noun declension, that function is no longer obvious. The question is left for future investigators.

⁵ *Oxford Latin Dictionary* (OLD), P. G. W. Glare, ed., (Oxford: The Clarendon Press, 1982) s.v. “*struō*,” 1829-30.

⁶ See **(s)dʰe(R)-* infra.

7. The attestations cited for each root are primarily for identification purposes and are in no way exhaustive. Semantic outliers are generally excluded. The selection presented probably reflects, to some degree, the semantics of the resonant series as a whole.
8. In roots that deal with taboo subjects, one must deal with obliquities and circumlocutions at every level, both in the original documentary evidence, and at each stage of lexicography.
9. In one or two occasions, new roots have been proposed for the PIE lexicon. This occurs primarily when a word with no known etymology fits semantically and phonetically very tightly within a strong resonant series. If the reader has doubts about that inclusion, he or she is advised to disregard the proposed root, as it will rarely affect the viability or credibility of the series as a whole.
10. The s-mobile presents special challenges. When roots in a resonant-series contain forms both with and without initial *s-, those with the initial sibilant are here typically considered to be the result of the s-mobile. Where the s-mobile has been added to a root beginning with *g-, that voiced stop must have eventually become de-voiced to *sk-. In one or two cases, this assumption has been made where the semantics and phonetics are otherwise especially compelling. In like manner, where the s-mobile has been added to a root beginning with *d^h-, that voiced stop must have eventually become de-voiced to *st-.
11. Occasionally one encounters a root that matches the semantics of a resonant-series so closely that there is no reasonable doubt that it belongs there, but that phonetically it differs in some minor quality. For formal reasons, such roots have generally been omitted from inclusion here, although future reconsideration is not out of the question.
12. The resonants function like an archaic ablaut system, acting anciently as non-etymologically-significant vowel modifiers. In the later stages of PIE, these morphological variants took on the status of independent roots as their earlier genetic affiliations were gradually forgotten.

13. It is unclear which (if any) of the resonant variants was the fundamental form of the primitive root. It is tempting to posit the zero (resonant) grade as the fundamental, since it is the simplest, but that variant is often unattested.

14. The resonant **m-* functions either independently or as a variation of **n-* when that nasal precedes a labial consonant.

15. The following proposed root-families are based on resonant variations that have been determined solely through internal analysis of PIE, uninfluenced by considerations of possible connections to non-Indo-European languages.

But, in order to estimate the approximate time-depth of the process that created the resonant variations, it is useful to look for comparanda among external language-families that may have possible genetic connections to PIE.

Proponents of the so-called Nostratic Hypothesis have assembled large sets of data relating to such outside language families. While remaining agnostic regarding the validity of that general hypothesis, I have made use of the data that such proponents have presented, in particular, the work of Allan Bomhard. Because his documentation of sources is explicit and well organized, his work lends itself well for comparative purposes.

Roots that appear in Bomhard's list of 676 PIE roots for which he claims to have found a Nostratic etymology have been cited when they occur in the following resonant-families. The etymologies suggested by Bomhard vary significantly in quality, some being quite convincing and others rather doubtful. For this reason an assessment has been provided that indicates their strength and applicability for the present purposes.

If two or more PIE roots within a proposed resonant series can be shown to have strong phonetic and semantic parallels to Afrasian, Uralic, Altaic, Kartvelian, Dravidian, etc., then this would suggest that the separation of these PIE resonant-variants from an earlier primitive root occurred before the separation of PIE from the other language families. This may provide an approximation of the time-depth involved, assuming, of course, that the hypothesis of an ancient super-family is valid.

The results of this comparison are as follows:

The number of PIE resonant-families identified in this investigation:	85
The number of resonant-families in which:	
One PIE root in the family has credible outside connections:	17
Two PIE roots in the family have credible outside connections:	12
Three PIE roots in the family have credible outside connections:	6
Four PIE roots in the family have credible outside connections:	2

This tally indicates that 20 of the 85 resonant families identified here show two or more roots with credible connections to the outside language groups compared by Bomhard. This would indicate that at least some of the resonant-variants within those families had differentiated during the period when PIE was still in contact with the linguistic community that would later separate into Afrasian, Dravidian, Altaic, Uralic, etc. The dates assigned to this community are approximately 12,000 to 15,000 BC (Bomhard 2014: 257). The remainder of the resonant-variants would have completed the differentiation process between that time and the point at which PIE broke up into the attested daughter languages.

It should be strongly emphasized that this preliminary attempt to assign approximate dates to the differentiation of PIE resonants is secondary to the main thesis presented here, which is the system of resonant variation within a fixed consonantal root structure.

16. Abbreviations employed include the following:

Adams: *A Dictionary of Tocharian B*, Douglas Q. Adams, 1999

AHD: *American Heritage Dictionary of the English Language*, 4th edition, 2000

ALEW: *Altltitauisches etymologisches Wörterbuch*, Wolfgang Hock, et al., Berlin, 2019

Autenrieth: *A Homeric Dictionary*, Georg Autenrieth, 1982, Univ. of Oklahoma Press

Balg: *Comparative Glossary of the Gothic Language*, G. H. Balg, 1887-89

Benveniste: *Dictionary of Indo-European Concepts and Society*, Émile Benveniste, 1969

Bomhard: *A Comprehensive Introduction to Nostratic*, Allan R. Bomhard, 1st ed., 2014

Bosworth and Toller: *Anglo-Saxon Dictionary*, Oxford University Press, 1921

- Buck: *A Grammar of Oscan and Umbrian*, 2nd edition, Carl Darling Buck, 1928
 CLL: *Cuneiform Luvian Lexicon*, H. Craig Melchert, Chapel Hill, N.C., 1993
 DELG: *Dictionnaire Étymologique de la Langue Grecque*, Pierre Chantraine, 2009
 De Vries: *Altnordisches Etymologisches Wörterbuch*, 2nd edition, Jan de Vries, 1977
 EIEC: *Encyclopedia of Indo-European Culture*, Mallory and Adams, 1996
 Fitzgerald: *Homer, Iliad*, Robert Fitzgerald, trans., 1974
 Fortson: *Indo-European Language and Culture*, 2nd edition, Benjamin W. Fortson, 2010
 IEW: *Indogermanisches Etymologisches Wörterbuch*, Julius Pokorny, 1959
 Kluge: *Etymologisches Wörterbuch der Deutschen Sprache*, 19th ed., Friedrich Kluge, 1963
 LIV: *Lexicon der Indogermanischen Verben*, Rix, et al., 2nd ed., 2001
 L&S: *A Greek–English Lexicon*, Liddell, Scott, and Jones, 1968
 Mallory and Adams (2006): *The Oxford Intro. to Proto-Indo-European and the PIE World*
 Mayrhofer: *Etymologisches Wörterbuch des Altindoarischen*, Manfred Mayrhofer, 1992
 Monier-Williams: *A Sanskrit – English Dictionary*, Sir Monier Monier-Williams, 1899
 Nesselmann: *Thesaurus Linguae Prussicae*, ed. G. H. F. Nesselmann, Berlin, 1873
 NIL: *Nomina im Indogermanischen Lexikon*, Wodtko, Irslinger and Schneider, 2008
 OLD: *Oxford Latin Dictionary*, P. G. W. Glare, ed., 1982
 Ovid: *Ovid, Metamorphoses*, Allen Mandelbaum, trans., 1993
 Ozoliņš: *Revisiting PIE Schwebeablaut*, Kaspars Ozoliņš, PhD thesis UCLA 2015
 Ringe: *From Proto-Indo-European to Proto-Germanic*, Don Ringe, Oxford U. Press, 2006
 TLG: *Thesaurus Linguae Graecae*, Univ. of California at Irvine, Maria Pantelia, Director
 Vigfusson: *Icelandic – English Dictionary*, Cleasby-Vigfusson, 1874
 Watkins (2000): *App. I to the American Heritage Dictionary of The English Language*, 4th ed.
 Watkins (2011): *American Heritage Dictionary of Indo-European Roots*, 3rd edition, 2011
 Whitney: *Roots, Verb-forms, & Primary Derivatives of Sanskrit*, W. D. Whitney, 1885

Families of Proto-Indo-European Resonant-Variants

Additional representative examples of resonant-variants are shown below. This listing is not intended to be exhaustive as these are merely some of the more obvious cases. Roots are grouped by initial consonant only; the order within these groups is random.

b^h-*Table 1:** *b^h(R)eg- ‘Break’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
*b ^h eg-	b ^h	ø		g	1	Break
*b ^h reĝ-	b ^h	r		ĝ	2	Break

1. *b^heg- ‘Break’

Arm *bekanem* ‘break,’ Ved *bhanákti* ‘break,’ OIr *boingid* ‘break,’ Lith *bengiù* ‘to end’ (literally to break off). — LIV 66; IEW 113-14; Mallory and Adams (2006) 371; Watkins (2011) 8; EIEC 81; Bomhard 17.

2. *b^hreĝ- ‘Break’

Lat *frangō* ‘break,’ *frāctum* ‘break,’ *fragilis* ‘breakable,’ Goth *brak* ‘broken,’ OE *brecan* ‘break,’ OHG *brocco* ‘broken,’ NE *break*. — LIV 91; IEW 165; Mallory and Adams (2006) 376; Watkins (2011) 13; EIEC 81.

Notes on possible outside root connections:

1. Bomhard 17 cites Proto-Afrasian *bak’-, etc. ‘cleave, split, break open, scratch, tear, scrape, rake, sharpen, rip open, bore, excavate, break,’ Dravidian *paku*, etc. ‘split, divide, separate, apportion distribute, break, crack, go to pieces, burst, rend,’ Kartvelian *bek’-, etc. ‘trample down, press close,’ Uralic *pakka- ‘burst, rend, split, break, open, blossom,’ Proto-Altaic *baka- ‘divide, separate, break, divide bread,’ Eskimo *pakak-, etc. ‘knock into, knock against and break, jostle, parry a thrust, slap,’ and Chukchi-Kamchatkan *pako- ‘strike, knock, flick, touch or knock against, cut into.’

Conclusions: The close phonetic and semantic parallels seen in the outside language families suggest a genetic connection to this PIE root.

Table 2: *b^he(R)d- ‘Beat, break, strike, crush’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
----------	---------	----	----	-------	-----	----------------

* <i>b^held-</i>	b ^h		l	d	1	Beat, break, batter
* <i>b^heud-</i>	b ^h		u	d	2	Beat, strike, push, pound
* <i>b^heid-</i>	b ^h		i	d	3	Break, split, crush, shatter, destroy

1. **b^held-* ‘Beat, break, batter’

Lith *béldžiu* (*bélsti*) ‘beat, break, crush, pound, batter,’ Germanic **bulta(n)* ‘bolt, rivet, pin, peg,’ Swed *bulta* ‘beat, break, batter,’ Latv *beļzt* ‘give a blow,’ *beļziēns* ‘a blow, a blow with the fist.’ — LIV 73; IEW 124.

2. **b^heud-* ‘Beat, strike, pound’

OE *bēatan* ‘beat, strike, push,’ OIr *bibdu* ‘guilty, culpable, enemy,’ Mlr *búalaim* ‘beat, strike,’ OE *beafton* ‘lament, bewail,’ ON *bauta* ‘beat, pound, strike, push,’ OE *býtel* ‘hammer,’ MHG *bæzel* ‘mallet, club.’ — LIV 82; IEW 112; Bomhard 15.

3. **b^heid-* ‘Break, split, crush, strike, shatter, destroy’

Ved *bhid* ‘split, break, destroy,’ *bhidāpana* ‘split, break, shatter, crush, destroy,’ *bhedá* ‘breaking, splitting, cleaving, rending,’ *a-bhedya* ‘not to be divided, broken or pierced,’ Keltiber *biðetuð* ‘chip or strike,’ Ved *bhinná* ‘broken, shattered, pierced, destroyed,’ Lat *findō* ‘split apart, cleave,’ Khot *bitte* ‘bore through,’ Goth *beitan* ‘bite.’ — LIV 70; IEW 116-17; Moirer-Williams 75,756-57,766; OLD 702.

Notes on possible outside root connections:

2. Bomhard 15 cites Proto-Afrasian **bah-*, etc. ‘cut, strike, wound, drive off, kill, trap, tear,’ and Dravidian *pāy*, etc. ‘butt, gore, knock against, strike, beat, shoot, kill.’

Conclusions: Although the semantics are fairly close, neither of these proposed outside connections shows a final dental consonant, so that genetic affiliation is uncertain.

Table 3: **b^h(R)ed-* ‘Active water, water in movement’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
* <i>b^hled-</i>	b ^h	l		d	1	Splash, boil, splutter, seethe, bubble, gush, spout, effervesce, sparkle
* <i>b^hleid-</i>	b ^h	l	i	d	2	Bubble, boil up, gush, spout, simmer, seethe, overflow, bloat

<i>*b^hleud-h₂-</i>	b ^h	l	u	d	3	Have an excess of moisture, become soft or flabby; blisters, sores
<i>*b^hred-</i>	b ^h	r		d	4	Wade in water, jump, gush, spout, burst, leap, spring
<i>*b^hrend-</i>	b ^h	r	n	d	5	Gush forth, flow, spring from, swell, steep, soak, bubble up

1. **b^hled-* ‘Splash, boil, splutter, seethe, bubble, gush, spout’

Grk *παφλάζειν* ‘splash, boil, splutter, seethe,’ OHG *uz-ar-pulzit* ‘bubble, effervesce, boil up, gush, spout, brim over, sparkle,’ OIr *ind:láidi* ‘boast, brag,’ Latv *blāžu* ‘chatter, gossip.’ — LIV 86; IEW 155; L&S 1350.

2. **b^hleid-* ‘Bubble, boil, gush, seethe, overflow, bloat’

Grk *φλοιδούμενος* ‘bubble, boil up, gush, spout, seethe,’ *φλιδάνει* ‘overflow with moisture, be ready to burst, NE *bloat*.’ — LIV 88; IEW 156; L&S 1944.

3. **b^hleud-h₂* ‘Have an excess of moisture, become soft or flabby, blisters’

Grk *φλυδα̃* ‘have an excess of moisture, become soft or flabby,’ *ἐκ-φλυνδάνει* ‘break out’ (in sores). — LIV 90; IEW 159; L&S 1946.

4. **b^hred-* ‘Wade in water, jump, gush, spout’

Lith *bredù, bredžióti* ‘wade, walk in water,’ OCS *bredq* ‘wade,’ OCzech *brdu* ‘wade,’ Alb *bređh* ‘leap, spring, jump, hop, gush, spout, burst.’ — LIV 91 **b^hred^h-* or **b^hred-* (see note #1); IEW 164; ALEW 146.

5. **b^hrend-* ‘Gush forth, flow, spring from, swell, steep, soak, bubble up’

OIr *do:e-prinn* ‘gush forth, flow or arise from, spring from, swell,’ Mlr *bruinnid* ‘make to gush forth, make to swell up,’ Lith *brĩ’stu* ‘steep, soak, bubble or well up, swell.’ — LIV 95; IEW 167-68.

Table 4: **b^he(R)g-* ‘Food: desire it, get a portion, prepare, eat, and enjoy it’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
----------	---------	----	----	-------	-----	----------------

<i>*b^hag-</i>	b ^h		ø	g	1	Get a portion, share with, partake, enjoy, wish, desire, long for
<i>*b^heg-</i>						
<i>*b^heh₃g-</i>	b ^h		h ₃	g	2	Wish for, desire, long for, want, crave, roast, toast, bake
<i>*b^heu_g-</i>	b ^h		u	g	3	Eat, feed, drink, enjoy, nourish, support, maintain, use, possess
<i>*b^hreuHg-</i>	b ^h	r	uH	g	4	Need, want, require, use, enjoy, be blessed with, delight in

1. **b^hag-* ‘Get a portion, share with, partake, enjoy, wish, desire, long for’

Grk *ἐφαγον*, *φαγεῖν* ‘eat, devour, Ved *bhājati* ‘divide, distribute, allot, share with, receive a portion, obtain as one’s share, partake of, enjoy, possess, have, prefer, choose,’ YAv *baxšaiti* ‘divide out,’ *baxšaite* ‘get a share,’ Ved *abhakṣayam* ‘enjoyed, drank,’ *bhīkṣate* ‘wish, desire, long for.’ — LIV 65; IEW 107; L&S 1911; Monier-Williams 743.

2. **b^heh₃g-* ‘Wish for, desire, long for, want, crave, roast, toast, bake’

Rus *bažú* ‘wish, desire, long for, want, hanker after, crave,’ Grk *φάγω* ‘roast, toast, parch,’ OE *bacan* ‘bake,’ Czech *bažiti* ‘to long for something.’ — LIV 70; IEW 113; L&S 1967; Bosworth and Toller 65.

3. **b^heu_g-* ‘Eat, feed, drink, enjoy, nourish, support, maintain, use, possess’

Ved *bhójate* ‘have eaten, have enjoyed,’ Arm *bowci* ‘nourish, feed,’ Ved *bhunákti* ‘enjoy, use, possess, enjoy a meal, eat, eat and drink, consume, take possession of,’ *bhuñjáte* ‘enjoy,’ Arm *bowcanem* ‘nourish, feed, support, maintain.’ — LIV 84; IEW 153; Monier-Williams 759.

4. **b^hreuHg-* ‘Need, want, require, use, enjoy, be blessed with, delight in’

Goth *brūkjan* ‘need, want, require, use,’ OE *brūcan* ‘need, want, require, use,’ Lat *fruor* ‘avail oneself of, enjoy, to have as one’s lot something good, to be blessed with, to derive pleasure from, delight in.’ — LIV 96; IEW 173; OLD 739-40; Bomhard 52.

Notes on possible outside root connections:

4. Bomhard 52 cites Afrasian *barkūk*, etc. ‘plum, apricot,’ Dravidian *pirika*, etc. ‘green mango, unripe mango,’ and Proto-Kartvelian **berq’en-*, etc. ‘wild pear, wild plum.’

Conclusions: Semantics are dubious as they indicate specific fruits only.

Table 5: **b^he(R)ġ^h-* ‘Prepare, protect, or posture for conflict; intimidate, confront’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*b^heh₁ġ^h-</i>	b ^h		h ₁	ġ ^h	1	Vex, irritate, reproach, threaten, menace, quarrel, struggle, fight
<i>*b^helġ^h-</i>	b ^h		l	ġ ^h	2	Puff or swell up with anger, be enraged, be inflamed with passion
<i>*b^herġ^h-</i>	b ^h		r	ġ ^h	3	Raise oneself up, prepare, store away, strengthen, entrench, fortify
<i>*b^henġ^h-</i>	b ^h		n	ġ ^h	4	Increase, strengthen, establish, secure, thick, tight, impervious

1. **b^heh₁ġ^h-* ‘Vex, irritate, reproach, threaten, menace, struggle, fight’

OHG *bāgan* ‘reprimand, reproach, scold, quarrel, struggle, fight,’ Latv *buōžuōs* ‘bristle up of the hair, annoy, vex, irritate, put out of temper,’ OIr *bāgaid* ‘boast, brag, swagger, threaten, menace, fight,’ *bág* ‘fight, battle, conflict.’ — LIV 68; IEW 115.

2. **b^helġ^h-* ‘Swell up with anger, be enraged, be inflamed with passion’

OE *belgan* ‘to cause oneself to swell with anger, irritate oneself, enrage oneself, swell with anger, be angry, be enraged,’ ON *belgja* ‘puff up, swell up,’ OHG *belgan* glossed in Bosworth and Toller as ‘tumere, irasci’ — *tumere*: ‘to swell up, to be inflamed with passion or unrest, (in undesirable situations) to be in process of coming to a head,’ to be puffed up with conceit or presumption, be proud, exultant,’ — *irasci*: ‘to feel resentment, to be angry, to fly into a rage.’ — LIV 73; IEW 125-26; Bosworth and Toller 82; de Vries 31-32; OLD 966, 1987.

3. **b^herġh-* ‘Raise oneself up, prepare, store away, strengthen, fortify’

Hit *parktaru* ‘raise oneself up, Arm *ebarj* ‘raise up, seize, capture, store away, provide for,’ TochB *parka*, TochA *pärk* ‘raise oneself up,’ Grk *φράσσω* ‘entrench, fortify, make fast,’ Ved *barhayā sám* ‘strengthen,’ *ni-barháyas* ‘cast down,’ OIr *dí-bairg* ‘throw, cast,’ Ved *babṛhāṇá* ‘firm, strong.’ —LIV 78; IEW 140-41; Bomhard 49; EIEC 269.

4. **b^henġh-* ‘Increase, strengthen, establish, secure, thick, tight, impervious’

Ved *banhayate* ‘grow, increase,’ *bánhishṭha* ‘strongest,’ OAv *dā-bāzaitī* ‘establish, secure, strengthen,’ Grk *παχύς* ‘thick, tight, impervious, stout.’ —LIV 76; IEW 127-28; Monier-Williams 719; Bomhard 69.

Notes on possible outside root connections:

3. Bomhard 49 cites Proto-Afrasian **birVg-*, etc. ‘be high, rise, high, tall, height,’ Dravidian *per*, etc. ‘great, grow thick, large, stout, become numerous, multiply, become full, swell, increase, augment, enlarge, prosper, expand, extend’ (without final consonant), and Proto-Kartvelian **brg-*, etc. ‘strong, high, large, firm, bold, hill.’

4. Bomhard 69 cites Proto-Afrasian *b[u]n-*, etc. ‘puff up, inflate, expand, swell, grow, abound, face, features, figure, beautiful, bead, pellet, have plenty, abound in food’ (without final consonant), Proto-Dravidian **poñk-*, etc. ‘increase, swell, expand, boil up, shoot up, rise, grow high, abound, flourish, spread, burst open,’ Uralic **puñka*, etc. ‘rounded protuberance, lump, bud, knob, bump, hump, swollen or expanded object, ball, gnarl, clod,’ Altaic *boñgo*, etc. ‘point, apex, first, fellow, chap, lad, thick, big,’ and Eskimo *pəñuR*, etc. ‘mound or hillock, hill, swell, rise in a lump, dune, pimple, wart, blister.’

Conclusions: The (for the most part) credible outside parallel forms for roots 3 and 4 suggest that a division into these resonant groups occurred prior to the separation of PIE from the other language families. Forms without final consonant are doubtful.

Table 6: **b^he(R)H-* ‘Strike, beat, break out’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*b^herH-</i>	b ^h		r	H	1	Beat, strike, break open, pound, threaten, abuse, affront, fight
<i>*b^heṛH-</i>	b ^h		ṛ	H	2	Beat, strike, batter, destroy, beat unmercifully, wipe out, strike root

<i>*b^hre_uH-</i>	b ^h	r	u̯	H	3	Break, destroy, demolish, bud, sprout, germinate, strike root
<i>*b^hle_uH-</i>	b ^h	l	u̯	H	4	Beat, strike, scourge, murder, beat severely, strike a blow

1. **b^herH-* ‘Beat, strike, break open, pound, threaten, abuse, affront, fight’

ON *berja* ‘beat, strike,’ Lat *feriō* ‘to strike with the hand, deal a blow, strike with a weapon, flog, strike down, kill, break, destroy, cut open, pierce, wound,’ Alb *bie* ‘beat, pound, strike,’ *bren* ‘gnaw, eat into, erode,’ Skt *bhṛṇāti* ‘threaten, menace, insult, abuse, affront,’ OCS *borjō* ‘to fight, to battle,’ Lith *barù* ‘reproach, chide, upbraid.’ — LIV 80; IEW 133-35; OLD 686; Bomhard 35.

2. **b^hejH-* ‘Beat, strike, destroy, beat unmercifully, germinate, strike root’

OLat *perfinēs* ‘batter, beat unmercifully, destroy, wipe out,’ OIr *benat* ‘beat, strike,’ OCS *biti* ‘beat, strike, deal a blow,’ *bišę* ‘beat, strike,’ Alb (*m-*)*bin* ‘germinate, sprout’ (i.e., the seed “breaks open, strikes root”). — LIV 72; IEW 117-18.

3. **b^hre_uH-* ‘Break, destroy, demolish, bud, sprout, germinate, strike root’

ON *brjóta* ‘break, destroy, annihilate, demolish, exterminate,’ OE *breotan* ‘break,’ MHG *briezen* ‘bud, sprout, germinate’ (“break open, strike root”), Lith *briáujuos* ‘break in,’ Ved *bhrūṇá* ‘embryo.’ — LIV 96; IEW 169; de Vries 58; Monier-Williams 771.

4. **b^hle_uH-* ‘Beat, strike, scourge, murder, beat severely, strike a blow’

Goth *bliggwan* ‘beat, strike, scourge, murder, beat severely’ (*ggw* < *ww*), ME *blēwe* ‘to beat, strike,’ OHG *bliuwan* ‘strike, beat.’ — LIV 90; IEW 125; Balg 56-57; Kluge 84.

Notes on possible outside root connections:

1. Bomhard 35 cites Proto-Afrasian **bar-*, etc. ‘cut, cut down, carve, scrape, trim, shape, sharpen, scratch off,’ Proto-Kartvelian **berg-*, etc. ‘to hoe,’ Proto-Uralic **par3-*, etc. ‘scrape, cut, carve, whittle, hew, trim,

chip, to plane, rub, dress hides, cut leather,’ and Chuk-Kamch **pare-*, etc. ‘shave, plane, remove hair from.’

Conclusions: Semantic parallels are only fair. Except for Kartvelian, proposed outside roots all lack the final consonant of the PIE forms, rendering any genetic connection doubtful.

Table 7: **(s)b^h(R)e-* ‘Bright, shining’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*b^heh₂-</i>	b ^h	∅	h ₂		1	Bright, shining
<i>*b^her-</i>	b ^h	∅	r		2	Shining, light brown
<i>*b^hel-h₁-</i>	b ^h	∅	l		3	White, shining
<i>*b^hei-g^u-</i>	b ^h	∅	i		4	Pure, shining
<i>*(s)b^hen-g-</i>	(s)b ^h	∅	n		5	Light up, shine, glisten, ring, resound
<i>*b^hreh₁-ĝ-</i>	b ^h	r	h ₁		6	Shine, sparkle, bright, birch, ash tree
<i>*b^hro-d^hnós-</i>	b ^h	r			7	White, pale
<i>*b^hle-g-</i>	b ^h	l			8	Light up, blaze, flame, shine, lightning
<i>*b^hlei-g-</i>	b ^h	l	i		9	Gleam, glisten, light up, shine, lightning
<i>*b^hlei-q-</i>	b ^h	l	i		10	Shining fish, to bleach, fire
<i>*b^hle-s-</i>	b ^h	l			11	Blaze
<i>*b^hlei-</i>	b ^h	l	i		12	Clear, bright, light, color, agreeable
<i>*b^hleh₁-u</i>	b ^h	l	h ₁		13	White flecks, lightning, ivy, scar
<i>*b^hley₂-(k)</i>	b ^h	l	u		14	Burn, flame, torch, blush, gleam, shine

1. **b^heh₂-* ‘Bright, shining’

Ved *bhāti* ‘shine, be bright or luminous, to be splendid or beautiful,’ YAv *fra-uuāiti* ‘shine forth,’ Grk *φάντα* ‘shine, bring to light, appear,’ *φάσις* ‘appearance of stars above the horizon,’ Arm *banam* ‘open, reveal, allow to be seen.’ — Mallory and Adams (2006) 330; LIV 1. **b^heh₂-* 68; IEW 1. **bhā-* 104-105; Monier-Williams 750; L&S 1912, 1918; NIL 7; Bomhard 13; EIEC 513.

2. **b^her-* ‘Shining, light brown’

Skt *bhalla-h* ‘bear’ (animal), OHG *bero* ‘bear,’ OE *bera* ‘bear,’ OHG *brūn* ‘shining, brown,’ Rus-ChSlav *bronb* ‘white, colored,’ Lat *fiber* ‘beaver,’ TochA *parno*, TochB *perne* ‘shining.’ —Mallory and Adams (2006) 333-34; IEW 5.**bher*- 136; Bomhard 55.

3. **b^hel-h₁*- ‘White, shining’

Wels *bal* ‘white-faced,’ NE *ball* ‘horse with white blaze,’ Goth *bala* ‘shining, gray of body’ (of horses), Lith *bālas* ‘white,’ Latv *bāls* ‘pale,’ Grk *φάλος* ‘white,’ Arm *bal* ‘pallor,’ OE *bæl* ‘fire,’ Mir *Beltane* ‘May Day festival,’ OCS *bělŭ* ‘white,’ Skt *bhālam* ‘gleam, forehead,’ Lat *flāvus* ‘blond.’ —Mallory and Adams (2006) 332; EIEC 641; IEW 1.**bhel*- 118; Bomhard 21.

4. **b^hel-g^u*- ‘Pure, shining’

OPers **bigna*- ‘shine? (in personal names: *Bagā-bigna*, *Ἀρια-βιγνης*), Grk *φοῖβος* ‘pure, shining,’ *φοῖβάω* ‘purify.’ —IEW 118.

5. *(s)*b^hen-g*- ‘Light up, shine, shimmer, flicker, glisten, ring, resound’

Grk *φέγγω* ‘make bright, shine, gleam,’ *φέγγος* ‘light, splendor, luster, the gleam of the sun, moonlight or of the Milky Way,’ Lith *spengiù* ‘ring, resound,’ Lith *spingiu* ‘shimmer, flicker, sparkle, glisten.’ —LIV 512; IEW *sp(h)eng*- 989-90.

6. **b^hreh₁-ĝ*- ‘Shine, sparkle, gleam, bright, birch, ash tree’

Ved *bhrājate* ‘shine, beam, sparkle, glitter,’ *bhūrjā* ‘birch tree,’ YAv *brāzaiti* ‘shine, gleam,’ Lith *brė’kšta* ‘the break of day,’ Pol *o-brzasknąć* ‘to be bright,’ NWels *berth* ‘shiny,’ Goth *baírhts* ‘bright, shining, clear,’ OE *beorht* ‘shining, gleaming,’ NE *bright*, ON *biartr* ‘light, bright,’ björk ‘birch tree,’ Alb. *bardhë* ‘white,’ Lat *frāxinus* ‘ash tree.’ —Mallory and Adams (2006) 329; LIV 92; IEW **bheraĝ*-, **bhrēĝ*- 139. Monier-Williams 770, 764; OLD 732; Bomhard 33; EIEC 513.

7. **b^hro-dⁿós*- ‘White, pale’

OCS *bronŭ* ‘white, variegated’ (of horses), Skt *bradhná*- ‘pale, red, yellowish, bay’ (of horses), Kashmiri *bodur^u* ‘tawny bull.’ —Mallory and Adams (2006) 332.

8. **b^hle-g-* ‘Light up, blaze, flame, shine, lightning’

Grk *φλέγω* ‘kindle, burn up, light up, blaze, flash,’ TochA *pālkās* TochB *palkām* ‘light up,’ Lat *fulgō* ‘flash, shimmer, shine,’ *flamma* ‘flame,’ *fulmen* ‘lightning,’ OHG *blecchen* ‘shine, flicker,’ Skt. *Bhṛgavaḥ* ‘mythical priest of lightning fire.’ — LIV 86; IEW *bheleg-* 124-25; L&S 1944; Bomhard 21; EIEC 513.

9. **b^hlei-g-* ‘Gleam, glisten, light up, shine, lightning’

OE *blīcan* ‘light up, gleam, shimmer,’ Lith *blýškiu* ‘spark, gleam, glisten,’ OCS *blъstq* ‘shine,’ OFris *blēsza* ‘make visible,’ OHG *blic* ‘Blitz, lightning.’ — LIV **b^hleig-* 89, IEW *bhlēig-* 156-157.

10. **b^hlei-q-* ‘Shining fish, bleach, fire’

OE *bælge* ‘gudgeon’ (a small shiny fish), NHG *Blecke* ‘whitefish,’ Rus *blēknutʹo* ‘bleached by the sun, fire.’ — IEW 157.

11. **b^hle-s-* ‘Blaze’

MHG *blas* ‘bald, pale, white,’ OE *blæse* ‘torch, fire,’ NE *blaze*, OHG *blas-ros* ‘a horse with a white patch on its forehead.’ — IEW 158; Bomhard 21.

12. **b^hlei-* ‘Clear, bright, light, color, agreeable’

Germanic **blīþia* ‘light, clear, bright,’ ON *blīðr* ‘mild, friendly, agreeable,’ OHG *blīdi* ‘clear, bright, happy, friendly,’ OSax *blī* ‘color,’ OE *blēo* ‘color, appearance, form.’ — IEW **bhlei-* 155; Bomhard 21.

13. **b^hleh₁-u-* ‘White flecks, lightning, ivy, scar’

Russ *blju-šč* ‘ivy,’ Pol *blysk* ‘lightning,’ Sorb *b^hlu-zná* ‘scar,’ Lith *blū-zganos* ‘scurf, dandruff.’ — IEW 159.

14. **b^hleu-(k)-* ‘Burn, flame, torch, blush, light up, gleam, shine’

Grk *περιφλύω* ‘to singe all around,’ ON *blys* ‘flame,’ OE *blȳsa* ‘flame, torch,’ NE *blush*, MHG *bliehen* ‘burning, lighting up,’ Czech *blýštěti* ‘gleam, shimmer,’ *blýskati* ‘shine.’ — IEW **bhleu-(k)-* 159; Bomhard 21.

Notes on possible outside root connections:

1. Bomhard 13 cites Proto-Afrasian **bah-*, etc. ‘shine, bright, brilliant, glitter, be beautiful, splendid, radiant, rejoice, glad, happy, white, leprosy.’
2. Bomhard 55 cites Proto-Afrasian **bor-*, etc. ‘color, red, yellow, brown, gray, dull, black,’ and Proto-Altaic **boryV*, etc. ‘dark-colored, gray, brown, swarthy, brown stag.’
- 3., 8., 11., 12., 16. Bomhard 21 cites Proto-Afrasian **bal-*, etc. ‘shine, be bright, gleam, smile, dawn, be glad, clear, gay, beautiful, nice, sparkle, glitter, flash, scintillate, flash of lightning, blaze, flame, flicker,’ Dravidian *paḷapaḷa*, etc. ‘glitter, shine, gleam, brightness, flash, pureness, to light,’ and Altaic (Turkish) *balki* ‘shimmer, glitter.’
7. Bomhard 33 cites Proto-Afrasian **bar-*, etc. ‘shine, be bright, sparkle, flash, lightning, scintillate, purify, clean, make white, light up, dawn,’ Dravidian *par*, etc. ‘become a little light before dawn, to dawn, to shine, be seen clearly,’ and Proto-Kartvelian **bar-*, etc. ‘glow, burn, blaze, flame, shine, brightness, to light, illuminate, white.’

Conclusions: These roots are well represented in language families outside PIE and they are semantically close or very close. This suggests that the creation of these resonant variants occurred before the separation of the related language families.

Table 8: **b^he(R)d^h-* ‘Cause or experience an inner state of mind’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*b^hend^h-</i>	b ^h		n	d ^h	1	To bind, feel obligated, feel bound, constrained, or compelled
<i>*b^heud^h-</i>	b ^h		u	d ^h	2	To feel awake, observant, experienced, dominant, knowledgeable, flattered
<i>*b^heid^h-</i>	b ^h		i	d ^h	3	To feel trust, confidence, obligation, obedience, coercion, patience
<i>*b^heh₁d^h-</i>	b ^h		h ₁	d ^h	4	To feel threatened, beset, pressed; to feel disgust or loathing
<i>*b^hlend^h-</i>	b ^h	l	n	d ^h	5	To feel mixed up, deceived, ashamed, mistaken, dazzled, blind
<i>*b^hed^h-</i>	b ^h		∅	d ^h	6	To feel need, pray, ask, hunger, convince, bend oneself as a suppliant, honor

1. **b^hend^h-* ‘To bind, feel obligated, bound, constrained’

Goth *bindan* ‘bind, constrain, oblige, to bind oneself, feel bound or compelled,’ Ved *badhnāti* ‘bind, tie, fasten, join, unite,’ OE *bendan* ‘bend, bind, fetter,’ NE *bind*, Lith *beñdras* ‘companion,’ Grk *πενθερός* ‘father-in-law,’ Skt *bāndhu* ‘kinsman, connection, kinship.’ — LIV 75; IEW 127; Monier-Williams 720; Mallory and Adams 380; EIEC 64, 196; Bomhard 25.

2. **b^heud^h-* ‘To feel awake, observant, experienced, dominant, knowledgeable, flattered’

Grk *πυνθάνομαι* ‘to hear or learn something,’ *πεύθομαι* ‘examine, experience,’ OIr *ad:boind* ‘announce, make known, foretell,’ Ved *bódhati* ‘wake up, observe, learn, understand, recognize,’ Goth *ana-biudan* ‘order, command, direct, put in order, arrange,’ ON *bjóða* ‘ask, offer, invite, prescribe, forbid,’ NE *bid*, Rus *bljudú* ‘observe, pay attention to,’ TochB *pautoy* ‘coax,’ TochA *poto* ‘flattery.’ — LIV 82; IEW 150-52; Fortson 410; L&S 1554; Moirer-Williams 733; Mallory and Adams (2006) 326; Bomhard 39; EIEC 516.

3. **b^heīd^h-* ‘To feel trust, confidence, obligation, obedience, coercion, patience’

Alb *bind* ‘convince, persuade,’ *be* ‘oath,’ Grk *πείθομαι* ‘be persuaded, yield, obey, trust, feel confidence,’ Lat *fīdō* ‘trust in, have confidence in,’ Goth *baidjan* ‘force, oblige,’ OE *bædan* ‘urge,’ OCS *běždq* ‘force, oblige,’ — LIV 71; IEW 117; L&S 1353-54; OLD 698-99; Mallory and Adams (2006) 355; EIEC 418; Benveniste 75, 85, 88.

4. **b^heh₁d^h-* ‘To feel threatened, beset, pressed; to feel disgust or loathing’

Ved *bādhate* ‘press, force, drive away, harass, pain, trouble, grieve, vex, suffer, feel an aversion for, loathe,’ *bādhá* ‘annoyance, molestation, affliction, distress, pain, trouble,’ Lith *bėdà* ‘need, grief, sorrow, worry, care.’ — LIV 68; IEW 114; Monier-Williams 727-28; Bomhard 7.

5. **b^hlend^h-* ‘To feel mixed up, deceived, ashamed, mistaken, dazzled, blind’

Lith *blandýti* ‘to be gloomy, dreary, cheerless, sad, melancholy, overcast, dull, dim, dead, flat, clouded, lost, wandering about trying to find the way,’ Latv *bluôdītiēs* ‘dawdle, loiter about, prowl around, rove about, be ashamed, be ashamed of oneself,’ OCS *blędq* ‘go astray, sin, fornicate, be mistaken,’ Rus *blud*

‘unchastity, lewdness,’ ON *blanda* ‘mix up,’ OE *blenden* ‘dazzle, deceive, blind,’ NE *blind, blunder.*’ — LIV 89; IEW 157-58; Mallory and Adams (2006) 330; ALEW 131; EIEC 147; Bomhard 66.

6. **b^hed^h-* ‘To feel need, to pray, to ask, to request, to hunger, to convince, to bend oneself as a suppliant, to honor’

ON *biðja* ‘ask, pray,’ OE *biddan* ‘ask,’ NE *bid*, OHG *bitten* ‘ask, request,’ Goth *bidjan* ‘ask, pray,’ Lith *bādas* ‘hunger,’ Alb *bind* ‘convince,’ Skt *bādhate* ‘presses,’ TochA *poto* ‘honor,’ TochB *pauto* ‘honor.’ — EIEC 62; IEW 114; Bomhard 8.

Notes on possible outside root connections:

1. Bomhard 25 cites Afrasian (Egyptian) *bnd* ‘wrap, put on clothing,’ Proto-Kartvelian **band-*, etc. ‘plait, interweave, braid, patch up, twist or tie together, spider’s web,’ and Proto-Chukchi-Kamchatkan **(lə)pənit*, etc. ‘tie, tie laces, binding, tying, bundle.’
2. Bomhard 39 cites Afrasian (Proto-Semitic) **baw-ah* ‘become known, be revealed, disclose, be seen, revealed, clear, be visible, understand, stare, remember’ (without final dental consonant).
4. Bomhard 7 cites Afrasian (Proto-Semitic) **bad-al-*, etc. ‘be afflicted with pain, suffer, inflict pain, cause harm, damage, injury, disease, do wrong, commit injustice, mistreat, offend,’ and Dravidian *paṭu*, etc. ‘occur, happen, come into being, rise, strike against, touch, suffer, endure, affliction, experience emotion, seem good, feel, trouble, suffer, experience, enjoy.’
5. Bomhard 66 cites Proto-Afrasian **bul-*, etc. ‘mix, mix up, confuse, idle, useless, spoil, ruin, disquiet, make uneasy or restless, stir up, rouse, disturb, trouble, messed up, scattered,’ and Proto-Altaic **buli-*, etc. ‘stir, shake, stir up, smear, soil, mix, become turbid,’ (neither with final consonant).
6. Bomhard 8 cites Dravidian *paṭṭiṇi*, etc. ‘fasting, abstinence, starvation, privation of food, hunger.’

Conclusions: Three of these six roots (1, 4, 6) show credible phonetic and semantic parallels, suggesting that the creation of those resonant variants occurred before the separation of PIE from the other language groups.

Table 9: **b^h(R)eu-s-* ‘Swell, overflow’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*b^hleu-</i>	b ^h	l		u	1	Spew, gush, overflow, boil over
<i>*b^hreu-s</i>	b ^h	r		u	2	Swell, breast, belly, bud

1. **b^hleu-* ‘Swell, spew, gush, overflow, boil over’

Lith *bliáuju* ‘roar, bleat, low,’ OCS *bljujǫ* ‘spew, vomit,’ Grk *φλέω* ‘gush, teem, overflow,’ *φλοίω* ‘overflow with words, talk idly.’ From **b^hleu-d*: Grk *φλυδάω* ‘have an excess of moisture,’ TochAB *plätk* ‘arise, develop, swell, overflow,’ TochA *plutk-* ‘arise, develop, swell, overflow.’ From **b^hleu-g*: Lat *fluō* ‘flow,’ *flūmen* ‘river,’ *fluvius* ‘river,’ Grk *φλύζω* ‘boil up, boil over.’ —EIEC 561; IEW 158-59; Bomhard 19.

2. **b^hreu-s* ‘Swell, breast, belly, bud’

OIr *brū* (< *bhrusō(n)*) ‘belly, breast,’ *bruinne* (**bhrusn̥io-*) ‘breast,’ Wels *bru* (**bhreuso-*) ‘belly,’ *bron* (< **b^hrusneh₂*) ‘breast,’ ON *brjöst* ‘breast,’ OE *brēost* ‘breast,’ NE *breast*, OHG *brust* ‘breast,’ Goth *brusts* ‘breast,’ Rus *brostī* ‘bud,’ *brjukh* (< **b^hreuso-*) ‘belly, paunch.’ —EIEC 561; IEW 170-71; Bomhard 26.

Notes on possible outside root connections:

1. Bomhard 19 cites Afrasian **bal-* ‘flow, overflow, pour over,’ Kartvelian *li-bēl-e* ‘swell up,’ Altaic *balbai-* ‘to swell, to bulge,’ and Chuk-Kamch **pəlRə*, etc. ‘flow.’
2. Bomhard 26 cites Afrasian **bar-* ‘swell, puff up, expand,’ Dravidian *paru*, etc. ‘become large, bulky, plump, to swell,’ Uralic **parz* ‘swarm, flock, shoal, troop.’ The Afrasian and Dravidian semantics are close, Uralic more distant.

Conclusions: Both these roots show credible parallels with the PIE forms, suggesting that the formation of those resonant variants occurred before the separation of PIE from the other language groups.

***d-**

Table 10: **dre(R)-* ‘Sleep’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*dreh₁-</i>	d	r	h ₁		1	Sleep
<i>*drem-</i>	d	r	m		2	Sleep

1. **dreh₁-* ‘Sleep’

Ved *ni-drāyāt* ‘sleep,’ Av *drāṇá* ‘sleeping.’ —LIV 126; IEW 226; Mallory and Adams (2006) 324; EIEC 526.

2. **drem-* ‘Sleep’

Lat *dormiō* ‘sleep,’ OCS *drěmljō* ‘slumber.’ — LIV 128; IEW 226; Mallory and Adams (2006) 324; EIEC 526.

Table 11: **dre(R)-* ‘Run’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*drem-</i>	d	r	m		1	Run, cause to run away, run around
<i>*dreh₂-</i>	d	r	h ₂		2	Run, run away, run loose
<i>*dreu₂-</i>	d	r	u		3	Run

1. **drem-* ‘Run, cause to run away, run around’

Grk *ἔδραμον* ‘ran,’ *δρόμος* ‘horse race, foot race, race course,’ *δρομεύς* ‘a runner,’ Khot *dremāte* ‘drive away,’ Ved *dandramyamāṇa* ‘run around.’ — LIV 128; IEW 204-5; L&S 450; Bomhard 272; EIEC 491.

2. **dreh₂-* ‘Run, run away, run loose’

Ved *drātu* ‘shall run,’ Grk *ἀπ-έδρᾶν* ‘ran away,’ *ἀπο-διδράσκω* ‘run away,’ Ved *dadrur* ‘they are running loose.’ — LIV 127; IEW 204; EIEC 491.

3. **dreu₂-* ‘Run’

Ved *drāvati* ‘runs,’ *drāváyati* ‘let run,’ *ádudrot* ‘has run,’ *dudrāva* ‘ran.’ — LIV 129; IEW 205-6.

Notes on possible outside root connections:

1. Bomhard 272 cites Afrasian *zarā*, etc. ‘flow, run, have diarrhea,’ Proto-Dravidian **cor-* (< **cory-*) ‘run, flee, run away, go away,’ Proto-Uralic **tʰor3-*, etc. ‘run, flow, falling drops, drip, trickle,’ and Proto-Altaic **čior-ka*, etc. ‘swift stream, current, rapid, rapids of a river, torrent, shoal in a river, roar, run quickly, flow rapidly, roaring (as water).’ **Conclusions:** All of these show reflex of initial dental plus –r, with semantics mostly pertaining to run, flow. Likely root connection to PIE.

Table 12: **de(R)k̂-* ‘Take in, see, observe, understand, point out’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
----------	---------	----	----	-------	-----	----------------

* <i>deĥ-</i>	d		ø	ĥ	1	Take in, receive, see, understand, watch, appear, resemble, keep an eye on
* <i>derĥ-</i>	d		r	ĥ	2	Look, see, keep the eyes open, have seen, come to know
* <i>deiĥ-</i>	d		i	ĥ	3	Cause someone to see or understand, show, point out, indicate

1. **deĥ-* ‘Take in, see, understand, watch, appear, resemble, honor’

Arm *etes* ‘see,’ Grk *δέκτο* ‘receive, understand,’ *δοκεύω* ‘keep an eye on, watch narrowly,’ *δοκεῖ* ‘appear,’ Lat *didicī* ‘to have learned, hence to know,’ Hit *takkanzi* ‘to resemble, be like.’ —LIV 109; IEW 189-90; L&S 377, 441; EIEC 564.

2. **derĥ-* ‘Look, see, keep the eyes open, come to know’

Ved *dárśam* ‘see,’ OAv *darəsəm* ‘see,’ Grk *δρακέντ-* ‘have looked,’ *δέρκομαι* ‘look, keep the eyes open,’ OIr *ad:con-dairc* ‘have seen,’ Goth *ga-tarhjan* ‘come to know.’ —LIV 122; IEW 213; EIEC 505.

3. **deiĥ-* ‘Cause someone to see or understand, show, point out, indicate’

Grk *δείκνυμι* ‘show,’ Ved *ádiṣṭa* ‘have shown,’ Lat *dicō* ‘say,’ Goth *ga-teihan* ‘announce, inform, point out, make known, proclaim,’ OHG *zīhan* ‘make known, accuse,’ YAv *daēsaieieṇti* ‘show, indicate, point out.’ —LIV 108; IEW 188-89; Benveniste 392-93; Mallory and Adams (2006) 353-54.

**d^h-*

Table 13: **d^he(R)b^h-* ‘Strike, break, injure’

PIE Root	Initial	R1	R2	Final	Ref.	Semantic Value
* <i>d^heb^h-</i>	d ^h		ø	b ^h	1	Strike, injure, kill
* <i>d^hreub^h-</i>	d ^h	r	u	b ^h	2	Break up, crumble
* <i>d^hemb^h-</i>	d ^h		m	b ^h	3	Break to pieces, annihilate
* <i>d^heuub^h-</i>	d ^h		u	b ^h	4	Strike, tap, dub
* <i>d^heHb^h-</i>	d ^h		H	b ^h	5	Strike, one who strikes metal/wood, smith

1. **d^heb^h-* ‘Strike, injure, destroy’

Ved *dabhāti* ‘hurt, injure, destroy, deceive,’ *dabhī’ti* ‘injurer, enemy,’ YAv *dauuain̥ti* ‘bring injury,’ Hit *tepnuzzi* ‘to reduce, to humble, humiliate,’ OAv *dābaieitī* ‘deceive, betray,’ Lith *dóbiu* ‘overcome, overpower,’ Lett *dābju* ‘beat, strike.’ —IEW 240; LIV 132-33; NIL 85; Monier-Williams 469; Bomhard 245.

Note: See **(s)d^he(R)b^h-* (below) for Baltic forms that connote “hole, grave.”

2. **d^hreub^h-* ‘Break up, crumble’

Grk *θρύπτω* ‘break in pieces, enfeeble, corrupt, crush, weaken,’ *διατρύφειν* ‘shatter.’ —LIV 156; IEW **dhreubh-* 275; L&S 395, 807; Iliad 3,363 Fitzgerald 80.

3. **d^hemb^h-* ‘Break to pieces, annihilate’

Ved *dambháyati* ‘smash, crush, break to pieces, annihilate,’ Chwar *ḍnby* ‘beat, strike,’ Ved *dambhá-h* ‘betray.’ —LIV 3.**d^hemb^h-* 144; IEW **dhebh-* 240.

4. **d^heub^h-* ‘Strike, beat, tap, dub’

OHG *tubila* ‘dowel-pin, peg, stake,’ EFris *dufen, duven* ‘push,’ Neth *dof* ‘push,’ ON *dubba* and OE *dubbian* ‘dub a knight,’ ProtoGerm **ḍab* ‘beat, strike, hit.’ —IEW **dheubh-* 268.

5. **d^heHb^h-* ‘Beat, strike; a craftsman who strikes metal/wood (to make it fit)’

Norw dial *dabba* ‘stamp,’ ON *an(d)døfa* ‘(naut.) to beat against the wind,’ NE *dab* ‘tap lightly,’ EFris *dafen* ‘beat, clap, push,’ MHG *beteben* ‘press,’ Germanic *tappen* ‘slap, smack,’ Lat *faber* ‘craftsman,’ Goth *ga-dob* ‘to fit, to be suitable, appropriate.’ —IEW 1.**dabh-* and 2.**dabh-* 233; LIV 135-36; Mallory and Adams (2006) 283; Bomhard 144; EIEC 139.

The fundamental meaning of this root is to beat or strike. Secondarily, it carries the semantic value of *to fit, be suitable*. Typically, with fabrication of any sort, in order to make a given material fit, it needs to be trimmed, cut, or hammered to the right size. All of these activities were anciently performed with pounding and cutting stones, then

later with metal hammers and axes. These activities always involved *beating*, and were carried out by craftsmen.

Notes on possible outside root connections:

1. Bomhard 245 cites Proto-Afrasian **dʷab-*, etc. ‘beat, hit, strike, harm, injure, kill, slaughter, sacrifice, offering, murder, skin an animal,’ Dravidian *cavaṭṭu*, etc. ‘destroy, ruin, kill, beat, tread upon, trample, kick, step on,’ Uralic (Proto-Finno-Ugrian) **tʷapp3-*, etc. ‘hit, cut, notch, strike, timbered superstructure on a tomb,’ and Proto-Chuk-Kamch **ḍəpæ(ŋæ)*, etc. ‘hammer, pestle for crushing, stone hammer.’

5. Bomhard 144 cites Proto-Afrasian **dab-*, etc. ‘stick together, join together, adhere, cling, unite, bring together, gather, plait, put together, include, add, hand, arm.’

Conclusions: These two reasonably strong parallels to outside language families suggest a likely differentiation of resonants prior to separation.

Table 14: **(s)dʰe(R)bʰ-* ‘Bury the dead’

PIE Root	Initial	R1	R2	Final	Ref.	Semantic Value
<i>*dʰebʰ-</i>	dʰ		∅	bʰ	1	Pit, hole, grave
<i>*dʰelbʰ-</i>	dʰ		l	bʰ	2	Dig, hollow out
<i>*dʰembʰ-</i>	dʰ		m	bʰ	3	Grave, tomb, funeral; to be buried
<i>*(s)dʰerbʰ-</i>	(s)dʰ		r	bʰ	4	To be in peril, spoil, rot, perish, die

1. **dʰebʰ-* ‘Pit, hole, grave’

Latv *dùobs* ‘pit, hole, grave, excavation, hollow,’ Lith *dúoba*, *duobà* ‘hollow in tree-trunk,’ Lith *duobė* ‘pit, hole, grave,’ Latv *dùobē* ‘hole, grave.’ — Wodtko, et al., *Nomina im Indogermanischen Lexikon* (NIL), s.v. “**dʰebʰ-*”, (Heidelberg: Universitätsverlag Winter, 2008) 85, 86n11, 122; ALEW 278; LIV **dʰebʰ-* 132-33; IEW **dʰebʰ-* 240; see also IEW 267-68 and ALEW 205-06.

Other researchers (see the LIV and NIL citations above) have attempted to place these Baltic words with roots connoting ‘hurt, injure, deceive,’ but usually with notations to the effect that the root affiliation remains “unclear” or “very doubtful.” Although there is certainly some semantic correspondence between the concepts “injure” and “the grave,” postulating a set of homophonous roots in **dʰebʰ-* and separating the two senses may be the best solution (see **dʰe(R)bʰ-* ‘Strike, break, injure’ above). Glosses for these Balt. words were taken from NIL and ALEW.

2. **d^helb^h-* ‘Dig, hollow out’

NE *delve*, OE *delfan* ‘dig,’ OHG *telpān* ‘dig,’ Lith *dálba* ‘crowbar (“digging tool”),’ SCr *dúbēm* ‘hollow out,’ *dùbok* ‘deep,’ Czech *dlubu* ‘hollow out, poke.’ —Mallory and Adams (2006) 376; LIV **d^helb^h-* 143; IEW **d^helbh-* 246; Bomhard 147; EIEC 159.

3. **d^hemb^h-* ‘Grave, tomb, funeral; to be buried, be interred’

Arm *damban* ‘grave, tomb,’ *dambaran* ‘grave, vault, tomb,’ Grk *θάπτω* ‘to be buried, interred,’ *τάφος* ‘burial, funeral, grave, tomb, grave mound,’ *τάφρος* ‘ditch, trench.’ —LIV 2. **d^hemb^h-* 143; IEW **d^hembh-* 248-49; L&S 784, 1761; Bomhard 165.

4. **(s)d^herb^h-* ‘To be in peril, spoil, rot, perish, die’

OE *deorfan* ‘be in peril, perish,’ OHG *sterban* ‘to die,’ Russ *stérbnut* ‘gradually die, wither away, CSlav *u-strǫbe* ‘be old, mature.’ Modern Ger *verderben* ‘spoil, rot, perish.’ —LIV **(s)d^herb^h-* 512; IEW **(s)terbh-* 1024-25; Bosworth and Toller 202; Kluge 813.

Notes on possible outside root connections:

2. Bomhard 147 cites Afrasian **dalaaf-*, etc. ‘gash, notch, shoot with arrow,’ Dravidian *tallu*, etc. ‘beat, crush, blow, stroke, hit the mark,’ Proto-Altaic **delp^{hi}-*, etc. ‘split, burst, crack open, break, crack, explode, cleft, crevice, fissure, hole,’ and Proto-Chuk-Kamch **tala-*, etc. ‘beat, pulverize, hit, pound, hammer, strike, crush.’ PIE is the only language-family cited that refers specifically to digging.

3. Bomhard 165 cites Proto-Afrasian **dim-*, etc. ‘raised, elevated place, tower, fortified area, district, town, vicinity, village,’ and Dravidian *dimmi*, etc. ‘elevated spot, rising ground, hillock, bank of river, mound.’ Neither shows final consonant nor associations to burial sites or funeral rites.

Conclusions: Semantically and phonetically divergent with low probability of outside genetic connections.

Table 15: **d^he(R)-* ‘Valley, depression in the earth, animal den’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*d^hel-</i>	d ^h		l		1	Valley, hole, pit, depression, animal den, bedroom

* <i>d^hen-</i>	d ^h		n		2	Hollow place in the earth, animal den, valley, hole, bed
* <i>d^heu-</i>	d ^h		u		3	Deep, depression, pit, valley, dip, dimple

1. **d^hel-* ‘Valley, pit, depression, animal den’

Grk *θαλάμη* ‘hole, animal den,’ *θάλαμος* ‘bedroom within a house,’ Cymr *dol* ‘valley,’ Bret *Dol* ‘valley’ (in place names), ON *dalr* ‘arch, vault,’ Goth *dals*, *dal* ‘valley, pit, hole, cavity, depression,’ OE *dæl* ‘valley,’ ON *dalr* ‘valley,’ OE *dell* ‘ravine, gully,’ MHG *tüele* ‘small valley, depression,’ OCS *dolb* ‘hole, pit, cavity, excavation.’ —IEW 245-46; Mallory and Adams (2006) 122.

2. **d^hen-* ‘Hollow place in the earth, animal den, valley, hole, bed’

Skt *dhānuṣ* ‘dry land,’ Grk *θέναρ* ‘palm of the hand, hollow at top of altar, hollow bed of the sea,’ OHG *tenni* ‘house floor, ground,’ *denn* ‘animal den,’ MNG *denne* ‘depression, woodland valley,’ MNether *denne* ‘den of wild animal,’ OE *denn* ‘hole, animal den,’ Efris *dann(e)* ‘bed, garden bed.’ —IEW 249; L&S 780.

3. **d^heu-* (with extensions -b, -p) ‘Deep, depression, pit, valley, dip, dimple’

Grk *βυθός* ‘deep,’ OIr *domain*, Cymr *dwfn*, Corn *down*, Bret *doun* ‘deep,’ Goth *diups*, ON *diūpr*, OE *dēop* ‘deep,’ Norw *dobbe* ‘swampy land,’ *dump* ‘depression in the earth,’ Danish *dump* ‘excavation, pit, depression,’ NE *dimple*, OHG *tobal* ‘narrow valley,’ ON *dūfa* ‘dip down,’ *deyfa* ‘dip,’ NE *dive*. —IEW 267-68; Mallory and Adams (2006) 292.

Some commentators have analyzed this root as **d^heub-*, but this assumes the use of the rare PIE **b-* as an integral part of the root. Others have suggested that it may be a substrate term borrowed from a non-Indo-European language.⁷ But, given the strong parallels to other members of this resonant series, the solution accepted by Pokorny (seeing the **b-* and **p-* as root extensions) may be the most reasonable conclusion.

⁷ Mallory, J. P., and D. Q. Adams, *The Oxford Introduction to Proto-Indo-European and the Proto-Indo-European World*, (New York: Oxford University Press, 2006) 292-93.

Table 16: **d^he(R)ĝ^h-* ‘Earth, earth works, and earth workers’

This group of roots denotes the earth; working the earth by kneading, shaping and building; the products of earth-works such as walls, enclosures, walled gardens and yards; and men who are employed in working the earth. These men would be "workers of earth" or "earth men." Farmers were similarly regarded, as paralleled in Greek *γεωργέω* 'to be a husbandman, farmer' (modern name *George*, literally 'earth worker').

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*d^héĝ^h-om-</i>	d ^h		∅	ĝ ^h	1	Earth, ground, land, man (as earth worker), human being, dragon
<i>*d^heiĝ^h,</i> <i>*d^hiĝ^hs</i>	d ^h		ĩ	ĝ ^h	2	Work clay, fashion, stroke, knead (clay, mud, dough), build, build wall; wall, earthen wall
<i>*dherĝ^h-</i>	d ^h		r	ĝ ^h	3	Make firm, strong, tough, tenacious, enclosure, garden, yard
<i>*d^heuĝ^h-</i>	d ^h		ʁ	ĝ ^h	4	Make, build, produce something useful, knead, fit into place, strong; common or vulgar men

1. **d^héĝ^h-om-* ‘Earth, ground, man’

Hit *tēkan* ‘earth, ground,’ Ved *kṣám-* ‘earth, ground,’ Grk *Χθών* ‘earth, ground, land,’ Lat *humus, homo* ‘earth, human being,’ OE *guma* ‘man, (bride)groom,’ TochA *tkam* ‘earth, ground,’ OCS *zmii* ‘dragon, snake.’ — IEW 414-16; EIEC 174; NIL 86; Mallory & Adams (2006) 120; Watkins (2011) 20; DELG 143; Ringe 19; Bomhard 145; EIEC 247-48.

References to ‘man’ in this root probably reflect, not man in general, but rather man as ‘earth worker, commoner, vassal, slave.’ Even modern English retains this characterization. The definition of *dirt*, given by AHD, is: “1. Earth or soil. 2a. A filthy or soiling substance, such as mud or dust. b. Excrement. 3. A squalid or filthy condition. 4. *One that is mean, contemptible, or vile...*” (emphasis added). In some cultures, later

semantic development elevated the “dirt man” to a more respectable social status. See also #4 below.

2. **d^heiǵ^h-*, **d^hiǵ^hs-* ‘Form, build, mold mud or clay, knead, smear, plaster; bank, wall of mud or mud bricks’

Skt *dēhmi* ‘spread, fill,’ *dēhī* ‘wall, rampart, dam,’ Goth *digan* ‘form, fashion, knead, make pottery,’ ON *deig* ‘dough,’ *digr* ‘thick,’ NE *dough*, Lith *žiedžiù* ‘form from mud,’ TochB *tsikale* ‘to form,’ Lat *finḡō*, *finxī* ‘form, shape,’ *figūra* ‘form, shape, figure,’ *fictilis* ‘fashion out of clay, made of earth or clay,’ *figulus* ‘potter,’ Av *pairi-daēza-* ‘enclosure’ (> NE *paradise*); Grk *τεῖχος*, *τοῖχος* ‘wall, embankment,’ possibly Grk *θιγγάνω* ‘touch with the hand,’ OIr *digen* ‘build, firm, solid, hard, strong, fixed.’ — LIV 140; IEW 244; NIL 118; de Vries 194; Mallory & Adams (2006) 223, 224, 228; Watkins (2011) 18; EIEC 649; Bomhard 166.

Mallory and Adams write, “The underlying semantics of **dheǵh* indicate that it was specifically associated with the working of clay (e.g. Lat *finḡō* ‘fashion,’ Skt *dēhmi* ‘smear, anoint,’ Toch AB *tsik-* ‘fashion [pots, etc.],’ hence the English cognate *dough*; in Greek and Indo-Iranian it is also associated with building walls, e.g. Av *pairi-daēza* ‘build a wall around’ ... but there are also cognates of more general meaning, e.g. OIr *con-utainc* ‘builds,’ Lith *diežti* ‘whip, beat,’ Arm *dizanem* ‘heap up’” (2006:223-4, 371). And: “The substance from which the walls were made, [earth] came to be applied both to the finished product, e.g., Grk *τοῖχος* ‘wall’, Av *uz-daēza-* ‘wall’, and clay-like substances, e.g. Germanic *dough*” (EIEC 629).

3. **dherǵ^h-*, **d^hereǵ^h-* ‘Become hard, strong, firm; garden, yard, enclosure’

Skt *dr̥hyati* ‘make firm,’ Lith *diržmas* ‘strong,’ OPrus *dirstlan* ‘powerful,’ *diržti* ‘tough, tenacious, become hard,’ Lith *dāržas* ‘garden,’ Latv *dārz* ‘garden, yard, enclosure.’ — IEW 254; Mallory & Adams (2006) 381.

4. **d^heuǵ^h-* ‘Make, build, make ready, prepare, produce something useful, suitable, fit, touch, knead, big, strong; common or vulgar men’

Grk *τεύχω* ‘make, prepare, build, produce by work or art, form, create, well made, of fields: tilled,’ Grk *τυγχάνω*, *ἔτυχον* ‘gain one’s end or purpose, succeed, attain, obtain a thing, of men: common, everyday, vulgar’ (compare **d^héǵ^h-om* above), Goth *daug* ‘be useful,’ OIr *dúal* ‘suitable, fit,’ NIr *dual* (< *d^hug^h-lo-*) ‘right, proper, natural,’ ON *duga* ‘to suit,’ NHG *taugen* ‘to be useful or fit,’ Slav **dugb* ‘strength,’ Pol *duży* ‘strong, big,’ Ved *duhé* ‘give milk.’ — LIV 148; IEW 271; Mallory & Adams (2006) 370; L&S 1783, 1882.

The process of building with earth requires the addition of water, then a vigorous kneading of the clay or mud. The men employed in the construction process are considered common and vulgar, predominantly slaves. The kneading, squeezing movement of the hands as it prepares the mud for building gives rise to the secondary meaning of milking an animal because it involves a similar kneading motion to coax the milk from the animal’s udder.

Notes on possible outside root connections:

1. Bomhard 145 cites Proto-Afrasian **d[al]g-* ‘put in place, be stable, be firmly established, remain, abide, become tame, plant, build, join, attach,’ Proto-Dravidian **taik-*, etc. ‘be put in place, be stable, be firmly established, stay abide, remain, stop, rest, delay, stability, be permanent,’ Proto-Kartvelian **deg-*, etc. ‘to stand, put, place, set,’ and Uralic **taγz-*, etc. ‘place, site, region country, land.’
2. Bomhard 166 cites Proto-Afrasian **dik-*, etc. ‘beat, crush, pound, tamp earth, mold or knead clay, mix, flatten, smooth, level, ruin, tread, clay or loam, dust,’ Dravidian *tig-* ‘press down hard, push,’ and Proto-Kartvelian **diq-*, etc. ‘earth, clay, mud, soil, ground.’

Conclusions: Both PIE roots appear to have phonetic and semantic parallels with outside language groups, suggesting that they differentiated into the separate resonant-variants while still in linguistic contact with those groups.

Table 17: **d^he(R)h₂-* ‘Run, move rapidly, shake, run away/vanish (euph. for death)’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*d^hen_{h2}-</i>	d ^h		n	h ₂	1	Run, flow, move quickly, run away or vanish (as euphemism for death)
<i>*d^he_uH-</i>	d ^h		u	H	2	Run, run away, flow, flee, shake, move violently, rage, vex

1. **d^henh₂-* ‘Run, flow, move, run away or vanish (as euphemism for death)’

Ved *dhánvati* ‘run, flow,’ *dadhanvāms* ‘cause to run or move quickly,’ *dhanáyan* ‘cause to run,’ *pra-dhanvati* ‘vanish, disappear, perish, die,’ NPers *dan* ‘hurry, run,’ Grk *θνῆσκω* ‘to die, be dead’ (run away, vanish — as euphemism for death). — LIV 144; IEW 249; Monier-Williams 508-09; L&S 802; DELG 406; Bomhard 178.

2. **d^heuH-* ‘Run, run away, flow, flee, shake, move violently, rage, vex’

Ved *dhāvati* ‘run, flow, stream, move, run after, run away, flee, cause to run,’ Ved *dhūnóti* ‘shake, agitate, cause to tremble, shake or move violently,’ *ni-dhuvati* ‘throw down, shake to and fro, agitate, sexual intercourse,’ Grk *θύω* [ū] ‘rage, seethe,’ Goth *af-dojan* ‘tire out, vex, harass,’ OCS *davljō* ‘urge, press forward.’ — LIV 149; IEW 261-63; Monier-Williams 516-17 (1. *dhāv*), 549; L&S 813; Balg 72; Bomhard 249.

Notes on possible outside root connections:

1. Bomhard 178 cites Afrasian **dun-*, etc. ‘leak water, pour,’ Dravidian *tundnā*, etc. ‘be poured out, spill, shed, throw out, be split, be shed,’ and Proto-Kartvelian **dn-*, etc. ‘run, flow, melt, disappear, get lost.’

2. Bomhard 249 cites Proto-Kartvelian **žgw-*, etc. ‘defecate.’

Conclusions: The semantic divergence between the PIE and the other language families does not strongly support the notion of genetic connections.

Table 18: **d^h(R)eh₂-* ‘Exhalations, vapors, breath, blow on a fire, steam, smoke’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*d^hmeH-</i>	d ^h	m		H	1	Blow, blow away, breathe, exhale, kindle a fire by blowing
<i>*d^hueh₂-</i>	d ^h	u		h ₂	2	Blow, exhale fragrance, burn an aromatic substance or sacrifice
<i>*d^huenH-</i>	d ^h	u	n	H	3	To steam, to smoke, fly up, cause to steam or smoke, cloud

1. **d^hmeH-* ‘Blow, blow away, breathe, exhale’

Ved *dhámati* ‘blow, breathe out, exhale, kindle a fire by blowing,’ Khot *damāte* ‘blow,’ Lith *dumiù* ‘breathe, blow, blow away,’ OCS *dbmq* ‘blow.’ — LIV 153; IEW 247-48; Monier-Williams 509.

2. **d^hueh₂-* ‘Blow, exhale fragrance, burn an aromatic substance or sacrifice’

CSlav *dujq* ‘blow,’ Slov *díjem* ‘exhale fragrance, be fragrant, smell sweet,’ Lat *suf-fiō* ‘subject to aromatic fumes, fumigate, burn an aromatic substance as a fumigant,’ Grk *θύω* ‘offer sacrifice by burning.’ — LIV 158; IEW 262-63; OLD 1861.

3. **d^huenH-* ‘To steam, to smoke, fly up, cause to steam or smoke, cloud’

Ved *ádhvānīt* ‘to steam, to smoke,’ YAv *duuqsaiti* ‘fly, rush, dash,’ *ádhvānayat* (*caus.*) ‘cause to smoke, to steam,’ Av *dvānman-* ‘cloud.’ — LIV 159; IEW 266.

Table 19: **(s)d^he(R)-* ‘Put, place, set, stand, fix in place, be firm, be immobile’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*d^heh₁-</i>	d ^h		h ₁		1	Put, place, set, do, build, found, establish, lay, set up
<i>*d^heh₁-k-</i>	d ^h		h ₁		2	Place, set up, establish, raise, produce, make
<i>*steh₂-</i> < <i>*(s)d^heh₂-</i>	(s)d ^h		h ₂		3	Put, place, set, stand, set in, fix, set up, set firmly
<i>*sth₂ei-</i> < <i>*(s)d^hh₂ei-</i>	(s)d ^h	h ₂	i		4	Not easily moved, stiff, fixed, hard, heavy, coagulated, frozen
<i>*sth₂-b^h-</i> < <i>*(s)d^hh₂-b^h-</i>	(s)d ^h		h ₂		5	Fixed in place, standing firmly, post, staff, stone, pillar, column
<i>*stéh₂-ur</i> < <i>*(s)d^heh₂-ur</i>	(s)d ^h		h ₂		6	Fixed, immovable, permanent, pillar, post, column, cross
<i>*stéh₂-tīs</i> < <i>*(s)d^héh₂-tīs</i>	(s)d ^h		h ₂		7	Place, position, station, site, land, standing, setting, stature
<i>*stéh₂-mōn</i> < <i>*(s)d^héh₂mōn</i>	(s)d ^h		h ₂		8	Set down, stand, position, stem, tree, warp (part of weaving)

*st(h ₂)e _u -g- < *(s)d ^h (h ₂)e _u -g-	(s)d ^h	(h ₂)	u	9	To stand, be stiff
*st _i eH- < *(s)d ^h _i eH-	(s)d ^h	i	H	10	Stiff, hard, become stiff, stone
*stel- < *(s)d ^h el-	(s)d ^h		l	11	Put, place, standing position, stall, set up, establish, stand
*st _l -neh ₂ - < *(s)d ^h el-neh ₂ -	(s)d ^h		l	12	Firm support, pillar, stand
*stem ^h - < *(s)d ^h em-b ^h -	(s)d ^h		m	13	To stand, be firm, be imperturbable, set, produce a stalk, support, post
*d ^h er-	d ^h		r	14	To be solid, firm, immobile, seated, quiet, stopped, hold fast
*ster-h ₃ - < *(s)d ^h er-h ₃ -	(s)d ^h		r	15	Lay down, place loose material for making a bed, paving a road, strew
*ster(h ₃)m _u < *(s)d ^h er(h ₃)m _u	(s)d ^h		r	16	Material placed on the ground or floor for sleeping, straw, bed, couch
*(s)ter-h ₁ - < *(s)d ^h er-h ₁ -	(s)d ^h		r	17	Stiff, firm, hard, tight, stare (a fixed, unmoving look)
*stre _u - < *(s)d ^h re _u -	(s)d ^h	r	u	18	Set in position, construct, stand fast, build, establish, stack up, strew

1. *d^heh₁- ‘Put, place, set, do, build, found, establish, lay, set up’

Grk τίθημι ‘sets,’ Av *daḍāiti* ‘puts, brings,’ Skt *dádḥāti* ‘puts, places, lays,’ TochB *tattam* ‘will put, place,’ Lat *facere* ‘do,’ *condere* ‘build, found, establish,’ OE *dōn* ‘do,’ NE *do*, OHG *tuon* ‘do,’ Lith *dėti* ‘lay,’ OCS *děti* ‘lay,’ Arm *dnem* ‘put, place,’ Hit *dāi* ‘puts, lays,’ *tittiya-* ‘establish,’ *tittanu-* ‘set up,’ Lycian *tadi* ‘puts, places.’ — LIV 136; EIEC 472, 506; IEW 235-39; Mallory and Adams (2006) 472; Bomhard 158; Benveniste 387.

2. *d^heh₁-k- ‘Place, set up, establish, raise, produce, make’

OUmb *face* ‘place, set up, establish, raise, produce, make,’ Lat *faciō* ‘make,’ Ven *faksto* ‘set up, place, establish,’ Osc *fefacid* ‘make.’ — LIV 139; IEW 236; Bomhard 158.

3. *(s)teh₂- ‘Put, place, set, stand, set in, fix, set up, set firmly’

Ved *tíṣṭhati* ‘put, place, set down,’ Grk *ἵστημι* ‘put, place, set oneself, stand,’ Lat *sistō* ‘put, place, set,’ Umb *sestu* ‘put, place,’ OIr *air-sissedar* ‘remain standing,’ Grk Cret *στανύω* ‘put or set in, fix, fit, place, set up,’ Lat *dē-stinō* ‘set firmly,’ ON *standa* ‘stand,’ OE *standan* ‘stand,’ NE *stand.* — LIV 590; IEW 1004-8; EIEC 542; Mallory and Adams (2006) 296.

4. **sth₂e-ǵ-* ‘Not easily moved, stiff, fixed, hard, heavy, coagulated, frozen’

Lat *stīria* ‘icicle,’ Fris *stīr* ‘stiff,’ Lith *stóras* ‘stiff,’ Skt *styāyate* ‘becomes fixed, coagulated, hardens,’ *stíyā* ‘stagnant water,’ *stīmá* ‘heavy,’ *stimita* ‘unmoving, fixed, silent,’ TochB *stināsk-* ‘be silent.’ An extension of **steh₂-*. — EIEC 547; IEW 1010-11; Mallory and Adams (2006) 347.

5. **sth₂b^h-* ‘Fixed in place, standing firmly, post, staff, stone, pillar, column’

MIr *sab* (< **sth₂b^heh₂-*) ‘post,’ ON *stafr* ‘staff,’ OE *stæf* ‘staff,’ NE *staff*, OHG *stap* ‘staff,’ OPrus *stabis* ‘stone,’ Lith *stābas* ‘post,’ Latv *stabs* ‘pillar,’ OCS *stoborū* ‘column.’ “A nominalization of **steh₂-*. (EIEC:442)” — IEW 1012-13; Mallory and Adams (2006) 226; EIEC 442.

6. **stéh₂-ur* ‘Fixed, immovable, permanent, pillar, post, column, cross’

ON *staurr* ‘post,’ Grk *σταυρός* ‘post, cross,’ Shughni *sitan* ‘pillar, post,’ Skt *sthūñā-* ‘pillar, post, column,’ *sthāvará* ‘fixed, immovable, permanent,’ *sthūrá* ‘thick, strong, big.’ From **steh₂-* ‘stand.’ — EIEC 442; IEW 1009; Mallory and Adams (2006) 225.

7. **stéh₂-t̥is* ‘Place, position, station, site, land, standing, setting, stature’

Lat *statiō* ‘position, station,’ ON *staðr* ‘place,’ OE *stede* ‘place,’ NE *stead*, OHG *stat* ‘place, site,’ (>NHG *stadt* ‘city’), Goth *staps* ‘place, land,’ Lith *stāčias* ‘standing,’ Grk *στάσις* ‘place, setting, standing, stature,’ Skt *sthíti* ‘position,’ ON *stæðr* ‘firm,’ Lat *status* ‘standing.’ “Widespread and ancient derivatives of **steh₂-* ‘stand (up)’ (EIEC 431).” — Mallory and Adams (2006) 287, 288; EIEC 430-31; IEW 1006.

8. **stéh₂-mōn* ‘Set down, stand, position, stature, stem, tree, warp (the stationary part of the weaving)’

MIr *samaigid* ‘sets down,’ Wels *sefyll* ‘a stand,’ Lat *stāmen* ‘warp,’ OE *stemn* ‘stem,’ OHG *stam* ‘stem,’ Lith *stomuō* ‘stature,’ Latv *stāmen* ‘body, torso,’ Grk *στήμων* ‘warp,’ Skt *sthāman* ‘position,’ TochA *ṣtām* ‘tree.’ — EIEC 431; IEW 1007-08; Mallory and Adams (2006) 287.

9. **st(h₂)eu-g-* ‘To stand, be stiff’

Lith *stúkti* ‘stand tall,’ Rus *stúgnutī* ‘to freeze’ (< ‘become stiff’), Toch B *staukk-* ‘swell, bloat.’ An extension of **steh₂-*. — EIEC 547; IEW 1033-34; Mallory and Adams (2006) 347.

10. **stijeH-* ‘Stiff, hard, become stiff, stone’

Ved *ní-ṣṭyāyatām* ‘to become stiff,’ Grk *σῶμα* ‘(stiff, dead) body,’ Germ **staina-* ‘stone.’ — LIV 603; IEW 1010-11.

11. **stel-* ‘Put, place, standing position, stall, set up, establish, stand’

ON *stjqlr* ‘stem, stalk,’ *stallr* ‘stall,’ OE *stela* ‘stalk, support,’ *steall* ‘standing place, position, stall, stable,’ *stellan* ‘put, place,’ OHG *stal* ‘standing place position, stall,’ *stellen* ‘set up, establish,’ NE *stall*, OPrus *stallit* ‘stand,’ Alb *shtjell* ‘fling, toss, hurl,’ Grk *στέλλω* ‘make ready, fit out with, send, dispatch,’ Skt *sthālam* ‘eminence, tableland, ground, earth, dry land,’ OLat *stlocus* ‘place.’ — EIEC 442, 506; IEW 1019-20; LIV 594.

12. **stl-neh₂-* ‘Firm support, pillar, stand’

OHG *stollo* support,’ Grk *στήλη* ‘pillar,’ ON *stallr* ‘stand.’ — EIEC 442; IEW 1050.

13. **stemb^h-* ‘To stand, be firm, be imperturbable, set, produce a stalk, support, post’

Lith *stembti* ‘produce a stalk’ (of plants), Grk *ἀσπεμφής* ‘imperturbable, firm,’ Av *stāmbana* ‘support,’ Skt *stabhnāti* ‘prop, support, hinder, restrain,’ *stāmbha* ‘post,’ TochAB *stām* ‘stand,’ TochB *śanmāṣṣām* ‘to set firmly.’ — EIEC 543; IEW 1012-13; LIV 595; Mallory and Adams (2006) 296.

14. **d^her-* ‘To be solid, firm, immobile, motionless, seated, quiet, stopped, hold fast’

Lat *firmus* (< **d^her-mo-*) ‘solid, firm,’ OE *darian* ‘lie motionless, lurk,’ Lith *derėti* ‘be useful, serviceable,’ Grk *θρήσασθαι* ‘seat oneself,’ Arm *dadarem* ‘become quiet, stop, be immobile,’ Av *dārayat* ‘holds fast, hold firm,’ Skt *dhāráyati* ‘holds, preserves.’ — LIV 145; IEW 252-53; EIEC 270; Mallory and Adams (2006) 271; Bomhard 248.

15. **ster-h₃-* ‘Lay down, place loose material for making a bed or paving a road, strew, spread out, place a saddle on a horse’

Lat Alb *shtie* ‘lay down, throw, miscarry,’ ON *strā* ‘strew,’ NE *strew*, SC *strōvo* ‘heap,’ Grk *στόρνῦμι* ‘to place loose materials such as straw for a bed or stones for paving a road, spread out, strew, place a saddle on a horse.’ — LIV 599; IEW 1029-30; Mallory and Adams (2006) 226; EIEC 539; Bomhard 194; L&S 1650, 1656; DELG 1023-24.

16. **ster(h₃)mn̥* ‘Material placed on the ground or floor for sleeping, straw, bed, couch, something strewn’

Lat *strāmen* ‘straw,’ Grk *στρωμα* ‘straw, bed,’ Skt *stārīman* ‘act of spreading out, bed, couch.’ — EIEC 57; Mallory and Adams (2006) 226; IEW 1029-30.

17. **(s)ter-h₁-* ‘Stiff, firm, hard, tight, stare (a fixed look)’

ON *starr* ‘stiff,’ OE *starian* ‘look at, stare,’ NE *stare*, OHG *starēn* ‘stare,’ OPrus *stūrławiskan* ‘sternness,’ Lith *starinù* ‘tighten, stretch, make stiff,’ OCS *stradá* ‘hard work,’ Grk *στερεός* ‘stiff, firm.’ — EIEC 547; IEW 1022; Mallory and Adams (2006) 347.

18. **strey-* ‘Set in position, construct, stand fast, put together, build, establish, stack up, heap, strew’

Lat *struō* ‘set in position, arrange so as to construct something, stand fast, put in position, put together, build, establish, set, set out in place,’ *struēs* ‘heap,’ OIr

asroither ‘strew,’ Goth *straujan* ‘strew.’ —LIV 605; IEW 1030-31; EIEC 539; Mallory and Adams (2006); OLD 1829-30.

Notes on possible outside root connections:

1. & 2. Bomhard 158 cites Proto-Afrasian **day-* ‘throw, cast, put, place,’ Elamo-Dravidian *da-* ‘put, place, deposit,’ Etruscan *te-* ‘put, place,’ Chuk-Kamch *tæjkə-*, etc. ‘make, do, build.’

14. Bomhard 248 cites Proto-Afrasian **dʷar-*, etc. ‘hold firmly, hand, arm,’ Proto-Kartvelian **ǰger-* ‘to make firm, strong, unshakable.’

15. Bomhard 194 cites Proto-Afrasian **tar-* ‘to spread, spread out, expand, extend, stretch, stretch out,’ Dravidian *tārru*, etc. ‘sift, winnow, sow seed, scatter, sprinkle,’ Uralic **tara-*, etc. ‘spread or stretch out, separate, open, scatter, wide, roomy,’ Proto-Altaic *tʰarV-*, etc. ‘spread, scatter, disperse,’ Proto-Eskimo **tarpaR-* ‘open out, flare out, enlarge, open wide.’

Conclusions: All four of these PIE roots show strong parallelism, both phonetically and semantically to the non-PIE forms. This suggests that the laryngeal and the -r resonant variants diverged from the primitive root while PIE was still in linguistic contact with the outside language groups.

*ĝ

Table 20: **ĝe(R)bʰ-* ‘Bite, chew, eat’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*ĝebʰ-</i>	ĝ		ø	bʰ	1	Eat, chew, masticate, consume, feed, forage, nourishment
<i>*ĝembʰ-</i>	ĝ		m	bʰ	2	Open the jaws wide, snap at, swallow, bite, tear to pieces

1. **ĝebʰ-* ‘Eat, chew, masticate, consume, feed’

OLith *žēbmi* ‘eat slowly, chew, masticate,’ OCS *zobljǫ* ‘consume, eat up,’ ORus *zobb* ‘food, fodder, feed, forage, nourishment, nutriment,’ *zob* ‘beak, snout.’ —LIV 161; IEW 382; Bomhard 570.

2. **ĝembʰ-* ‘Open the jaws wide, snap at, swallow, bite, tear to pieces’

Ved *jambhátyati* ‘crush, destroy,’ *jabhat* ‘open the jaws wide, snap at,’ *jámbha* ‘tooth, set of teeth, mouth, jaws, swallowing, one who crushes or swallows,’ YAv *zambaiiaδβam* ‘let one bite hard,’ Oss *zæmb* ‘yawn, gape,’ OCS *zěbq* ‘rip or tear to pieces,’ Alb *dhemb* ‘pain, hurt, distress, grieve.’ — LIV 162; IEW 369; Moirer-Williams 412; Bomhard 573.

Notes on possible outside root connections:

1. Bomhard 570 cites Dravidian *kavul*, etc. ‘cheek, jaw, jawbone,’ and Proto-Kartvelian **q’ab-*, etc. ‘jaw, chin.’
2. Bomhard 573 cites Proto-Afrasian **k’am-*, etc. ‘crush, grind, chew, bite, eat, flour, wheat, meal, grain, graze, devour, swallow, bread, molar tooth, tooth in general,’ and Chuk-Kamch **qametva-*, etc. ‘eat, feed, give food to a guest, treat,’ both with either missing or variant (non-labial) final consonant.

Conclusions: Both roots show semantic parallels to the outside language groups, but lack of final labial consonant in those groups leaves the connection doubtful.

Table 21: **ĝe(R)h₁-* ‘Engender, impel, set in motion, sprout, germinate, be born’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*ĝeuH-</i>	ĝ		u	H	1	Set in motion, rouse, impel, be quick, animate, inspire
<i>*ĝeiH-</i>	ĝ		i	H	2	Germinate, spring up, grow, sprout, develop
<i>*ĝenh₁-</i>	ĝ		n	h ₁	3	Beget, conceive, create, bring forth, cause the growth of, be born

1. **ĝeuH-* ‘Set in motion, rouse, impel, be quick, animate, inspire’

Ved *junāti*, *jávati* ‘press forwards, hurry on, be quick, impel, urge, rouse, drive, incite, excite, promote, animate, inspire,’ *apī-jū* ‘impelling,’ *dhī-jū* ‘inspiring the mind, rousing devotion,’ *yatú-jū* ‘incited or possessed by a yatú,’ *vayo-jū* ‘exciting or increasing strength,’ *viśva-jū* ‘all-impelling,’ *sánā-jū* ‘nimble or active from of old.’ — LIV 166; IEW 399; Monier-Williams 424.

The basic sense of this root is to set something into brisk motion, impel, animate. In the following roots of this resonant series, this notion is applied specifically to living beings,

setting the development of plants or animals into motion. For the relationship between “quick” and “life,” consider the range of meanings contained within the English word, *quick*: “1. Moving or functioning rapidly and energetically; speedy. ...6. *Archaic* a. Alive. b. Pregnant.”⁸

2. **ǵeǵH-* ‘Germinate, spring up, grow, sprout, develop’

Goth *keinan* ‘germinate, spring up, grow,’ Latv *ziēdu* ‘blossom,’ NArm *cil* ‘bud, sprout, shoot, scion,’ OHG, OSax *kīnan* ‘germinate, sprout, arise, spring up, develop.’ — LIV 161; IEW 355-56; Balg 217; ALEW 1507.

3. **ǵenH-* ‘Beget, conceive, create, bring forth, cause the growth of, be born’

Lat *gignō* ‘bring into being, create living creatures, cause the birth of or growth of, give rise to, produce.’ *gignentia* ‘growing things, vegetation, things coming into being,’ OE *cennan* ‘beget, conceive, create, bring forth,’ Ved *jānati* ‘generate, beget, produce, create, cause, be born or produced,’ Grk *γίγνομαι* ‘to become.’ — LIV 163; IEW 373-75; OLD 764; Bosworth and Toller 150; Monier-Williams 410; Bomhard 465; EIEC 56.

In PIE, the semantic field “child” can overlap with the semantic field “seed, sprout.” Mallory and Adams (EIEC 107) write: “One originally neuter term, derived from the root **tek-* ‘beget’ (Grk *τίκτω* < *τι-τκ-ω*), is preserved as ‘child’ in Greek and matches Germanic terms for ‘servant’ which is semantically upgraded in many areas to mean ‘servant of the king’ > ‘nobleman’ (cf. *thane* in *Macbeth*). Indo-Iranian cognates suggest an original meaning ‘seed, sprout,’ a meaning also recorded in Greek.”

Notes on possible outside root connections:

3. Bomhard 465 cites Proto-Afrasian **k’an-*, etc. ‘get acquire, possess, create, produce, buy, dominate, tame, have power over, to originate,’ and Dravidian *kanru*, etc. ‘calf, colt, sapling, young tree, young child, bear or bring forth children, beget, young animal or plant.’

Conclusions: Phonetically and semantically root #3 appears to parallel the Afrasian and Dravidian attested forms.

⁸ AHD, s.v. “quick,” 1436.

ĝ^h-*Table 22:** *ĝ^{he}(R)d- ‘Defecate, evacuate, pour out, emit, rump, hole, opening’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
*ĝ ^{hed} -	ĝ ^h		ø	d	1	Defecate, be covered in excrement, rump, anus, hole, excretion
*ĝ ^{heud} -	ĝ ^h		u	d	2	Pour, spill, to empty, to emit from the body, large intestine, hole, vulgar

1. *ĝ^{hed}- ‘Defecate, be covered in excrement, rump, anus, hole, excretion’

Grk χέζω ‘Defecate, ease oneself, drop dung,’ Alb *dhjes* ‘I defecate,’ Alb *n-dot* ‘dirty oneself, be covered in excrement,’ Skt *hadati* ‘defecate,’ *hadana* ‘excretion,’ Av *zadah* ‘arse,’ Arm *jet* ‘the tail, the end,’ ON *gat* ‘hole, opening.’ — LIV 172; IEW 423; L&S 1982; EIEC 187.

2. *ĝ^{heud}- ‘Pour, spill, empty, emit from the body, large intestine, vulgar’

ON *gjōta* ‘throw’ (young), NIsl *gjōta* ‘hole,’ Lat *fundō* ‘pour, spill, empty (a vessel or container), drench with, emit freely from the body, pour out, shed (blood, tears, etc.), (of a woman) to give birth,’ *fundulum* ‘the blind gut’ (part of the large intestine), Umb *hondu* ‘shall pour/spill out,’ Goth *giutan* ‘pour out, shed, spill,’ Grk χύδην ‘poured out in floods or heaps, promiscuously, indiscriminately,’ χυδαῖος ‘poured out in streams, common, vulgar, coarse,’ χυδαίω ‘make vulgar, debase.’ — LIV 179; IEW 448; OLD 746-47; L&S 2012-13; EIEC 448.

Table 23: *ĝ^{heh}₁(R)-os ‘Gaping hole, gap, empty space’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
----------	---------	----	----	-------	-----	----------------

* \hat{g}^heHu -os	\hat{g}^h	H	u		1	Gaping abyss, jaws, chasm, chaos
* \hat{g}^hoh_1r -os	\hat{g}^h	h ₁	r		2	Gap, empty space, hollow in the mouth

1. * \hat{g}^heHu -os ‘Gaping abyss, jaws, chasm, chaos’

Grk *χάος* ‘chaos, the nether abyss, any vast gulf or chasm, the gaping jaws of the crocodile,’ TochA *ko* ‘mouth,’ MHG *giel* ‘jaws, throat, mouth, yawning abyss, gullet,’ NHG *Gosche, Gusche* ‘enormous jaws.’ —Mallory and Adams (2006) 222; L&S 1976; IEW 449.

2. * \hat{g}^hoh_1r -os ‘Gap, empty space, hollow in the mouth’

Grk *χωρος* ‘vast open space,’ *χήρη* ‘widow,’ *χηραμός* ‘hole, cleft, hollow, hollow on the sides of the tongue,’ TochB *kāre* ‘pit, hole.’ —Mallory and Adams (2006) 287; DELG 1224; L&S 1990; IEW 449.

***g-**

Table 24: * $g^ue(R)$ - ‘Devour, swallow, gulp’

PIE Root	Initial	R1	R2	Final	Ref.	Semantic Value
* g^uer-h_3 -	g^u		r		1	Devour, swallow, gulp, throat
* g^uel -	g	u	l		2	Devour, swallow, gulp down

1. * g^uer-h_3 - ‘Devour, swallow, gulp, throat’

OInd *girāti* ‘eat voraciously,’ Lat *carni-vorus* ‘devouring meat,’ Avest *jaraiti* ‘swallow, gulp,’ Lith *girtas* ‘intoxicated, drunk,’ Arm *eker* ‘ate,’ Ved *garan* ‘gulp,’

OCS *po-žrětv* ‘devoured.’ —Mallory and Adams (2006) 256, 625; IEW 474; LIV 211; Bomhard 589.

2. **guel-* ‘Devour, swallow, gulp down’

Arm *ekowl* ‘swallowed, gulped,’ OIr *gelid* ‘consume, devour,’ OE *ceole* ‘gorge.’ — LIV 192; IEW 365; Bomhard 577.

Notes on possible outside root connections:

1. Bomhard 589 cites Afrasian *ḵard*, etc. ‘throat, voice,’ Dravidian *kural*, etc. ‘throat, windpipe, neck, gullet, eat greedily, drink, eat, guzzle,’ Proto-Kartvelian **q’orq’-*, etc. ‘throat, gullet, larynx,’ and Uralic **k[ü]rk3*, etc. ‘neck, throat.’

2. Bomhard 577 cites Kartvelian **q’el-*, etc. ‘neck, throat, collar.’

Conclusions: Both of these roots show credible parallels with non-PIE forms, suggesting that the separation of the two resonant-variants probably occurred while PIE was still in contact with the other language families.

Table 25: *(s)*g(R)eb^h-* ‘To cut, scratch, engrave, cutting tool’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
*(s) <i>greb^h-</i> , * <i>gerb^h-</i>	g	r		b ^h	1	Scratch in, cut in, engrave
* <i>gleub^h-</i>	g	l	u	b ^h	2	Hollow out, cut off
* <i>gneib^h-</i>	g	n	i	b ^h	3	Knife
* <i>skeb^h-</i> (< *(s) <i>geb^h-</i>)	(s)g	ø		b ^h	4	Scratch, shave, scrape
* <i>skreib^h-</i> (< *(s) <i>greib^h-</i>)	(s)g	r	i	b ^h	5	Scratch, cut, write, mark

1. *(s)*greb^h-*, **gerb^h-* ‘Scratch in, cut in, engrave’

Grk γράφω ‘scratch,’ NE *carve*, OE *ceorfan* ‘cut off, engrave,’ OPrus *gīrbīn* ‘number,’ OCS *žrěbŭ* ‘lot,’ Lith *gerbiù* ‘honor, respect.’ —Mallory and Adams (2006) 377; LIV **gerb^h-* 187; IEW *gerbh-*, *grebh-* 392; Bomhard 487; EIEC 143.

2. **gleub^h-* ‘Cut out, cut off’

Grk γλύφω ‘carve out, glyph,’ Lat *glübō* ‘peel,’ OHG *klioban* ‘split,’ NE *cleave*. — Mallory and Adams (2006) 377; IEW 401; LIV 190; Bomhard 463; EIEC 143.

3. **gneib^h-* ‘Knife’

ON *kneif* ‘a type of knife-tongs,’ *knīfr* ‘knife,’ OE *cnīf* ‘knife,’ NG dial. *kneif* ‘cobbler’s knife,’ Lith *gnybiu* ‘pinch.’ — IEW 370.

AHD provides no PIE etymology for the English word “knife.” Watkins (2011) places it with an assortment of words (“a pseudo root” EIEC 451) denoting lumps or clumps such as knob, knoll, knot, knuckle, etc., which is not likely. Mallory and Adams write, “By the earliest historical attestations of the various IE stocks knives were made of bronze or iron; however, across Eurasia there were stone equivalents at least since the Neolithic. At that time long blades fashioned of flint or some other suitable stone were fixed within a wooden haft. Despite the weak lexical evidence it is impossible to imagine that the earliest IE speakers did not possess ‘knives’ of some sort, either stone or copper (EIEC 336).”

The following two roots show initial *sk- for expected original *sg-. But unvoiced *s- would be expected to de-voice the following *g-, so these roots should belong with the above forms in *g- or *(s)g-.

4. **skebh*^h- ‘Scratch, shave, scrape’

Lat *scabō* ‘shave, scratch, scrape,’ ON *skafa* ‘shave,’ OE *scafan* ‘shave’ (> NE shave), OHG *schaben* ‘shave,’ Goth *skaban* ‘shear,’ Lith *skambùs* ‘pluck,’ *skabùs* ‘sharp,’ *skōbti* ‘pull, pluck, gather,’ Latv *skabīt* ‘hew off,’ *skabrs* ‘sharp,’ OCS *skoblī* ‘scraping knife.’ — EIEC 503; IEW 931-33; LIV 549; NIL 621.

5. **skreibh*^h- ‘Scratch, cut, write, mark’

Lat *scribō* ‘write, mark, draw, sketch.’ — LIV 562; IEW 946-47.

Notes on possible outside root connections:

1. Bomhard 487 cites Proto-Afrasian **k’e(e)r-*, etc. ‘cut, cut into, engrave, notch, sever, clip, split, pinch, nip, bite, wound,’ Proto-Kartvelian **k’r-eč-*, etc. ‘cut, cut off,’ and Proto-Altaic **kiro-*, etc. ‘cut, mince, break off, gnaw, scrape, shave, tear out, kill, destroy.’ All lack final labial.
2. Bomhard 463 cites Proto-Afrasian **k’al-*, etc. ‘separate, remove, strip off, pluck, tear, pull off, uproot, cut off, open, peel,’ Dravidian *kaḷ*, etc. ‘weed, pluck, pull up, remove, exterminate, strip off, dig, gather,’ and Proto-Kartvelian **k’al-*, etc. ‘threshing place, threshing floor,’ all without final consonant.

Conclusions: Although there are many semantic parallels, the lack of final consonants in the outside languages makes any further conclusions doubtful concerning possible connections with the PIE roots.

*g^h-

Table 26: *g^he(R)d^h- ‘Desire, seek and choose a bride, pay the bride-price’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
*g ^h ed ^h -	g ^h		ø	d ^h	1	Be pleasing, await, expect, form a union
*g ^h eid ^h -	g ^h		i	d ^h	2	Desire, wish for, wait for, expect
*g ^h lend ^h -	g ^h	l	n	d ^h	3	Desire, seek out, glance at, choose, select, fix on
*g ^h reid ^h -	g ^h	r	i	d ^h	4	Pursue, follow, come
*g ^h eld ^h -	g ^h		l	d ^h	5	Requite, repay, recompense, pay for, atone for

1. *g^hed^h- ‘Be pleasing, await, expect, form a union’

MycGrk *k^hek^h(e)t^hwohes* ‘form a union, or alliance,’ Latv *gadu* ‘meet, encounter, expect, await, find,’ Fris *gadra* ‘unite,’ OHG *bigatōn* ‘come together,’ OE *togædere* ‘together,’ OCS *u-goždq* ‘be pleasing,’ *godū* ‘appointed time,’ Ved *gádhya-ḥ* ‘clutch, embrace, sexual union.’ — LIV 195; IEW 423-24; Whitney 34 (‘attach’); Monier-Williams 344; Bomhard 377; EIEC 64.

2. *g^heid^h- ‘Desire, wish for, wait for, expect’

OPrus *gieidi* ‘waits for,’ *sengijdi* ‘desires,’ Lith *geidžiù* ‘wish for, desire,’ OCS *židq* ‘expect, wait for,’ Latv *gàidu* ‘wait for, expect.’ — LIV 196; IEW 426-27.

3. *g^hlend^h- ‘Desire, seek out, glance at, choose, select, fix on’

OIr *gleinn* ‘inquire, investigate, explore, learn, choose, select, single out, fix on,’ Bret *gou-lenn* ‘desire,’ *di-lenn* ‘select, choose,’ Latv *glendi* ‘seek out,’ Rus *gljažú* ‘see, look at, glance at.’ — LIV 200; IEW 431; Bomhard 356.

4. **g^hreǵd^h*- ‘Pursue, follow, come’

OIr *in:greinn*, *in:grennat* ‘pursue, follow,’ OCS *grędǫ* ‘come,’ OIr *in:griastais* ‘follow,’ Rus *grjadú* ‘go, stride.’ — LIV 203; IEW 456-57; Bomhard 384; EIEC 546.

5. **g^held^h*- ‘Requite, repay, recompense, pay for, atone for’

Goth *-gildan* ‘requite, repay, recompense,’ OCS *žlědǫ* ‘pay for, atone for,’ ORus *želedu* ‘pay for, atone for,’ ON *galt* ‘repaid, recompensed, requited,’ OHG *in-gelten* ‘punish.’ — LIV 197; IEW 436.

In PIE society, after seeking and choosing a marriage partner, it was necessary to pay the bride-price. Also, when social alliances are ruptured, the only way to re-enter the good graces of the other person is to atone for the wrong done by providing recompense to the injured party. In traditional tribal societies, brides are sometimes stolen from their parents, (most often with the consent of the woman). It is typically the custom, after a cooling-off period, to provide recompense to her father so as to avoid long-term family feuds.

Notes on possible outside root connections:

1. Bomhard 377 cites Proto-Afrasian **gid-*, etc. ‘press together, join, unite, gather, force, compel,’ Dravidian *kiṭṭu*, etc. ‘draw near, be on friendly terms with, approach, meet, touch, reach,’ and Altaic *gida-*, etc. ‘press, crush, stamp, roll flat, compel, quell, defeat, raid, plunder.’
3. Bomhard 356 cites Proto-Afrasian **gal-*, etc. ‘be visible, clear, obvious, evident, to look at, be shining, clarify, disclose’ (without final consonant), Dravidian *gāḷaka*, etc. ‘a good, proper, clever, ingenious man’ (without final dental consonant), Proto-Kartvelian **gal-*, etc. ‘to know, be acquainted with, understand’ (without final consonant), and Proto-Altaic **galV*, etc. ‘clear sky, sky, shine, glitter, good weather’ (also without final consonant).
4. Bomhard 384 cites Proto-Afrasian **gir-*, etc. ‘move, hasten, run, flow, rush, happen, follow’ (without final consonant), Proto-Altaic **giar^{ya}-*, etc. ‘walk, step, rush, go or come out, walk through’ (without final consonant).

Conclusions: Root #1 shows credible phonetic and semantic parallels to the outside roots and is therefore probably distantly cognate. Roots #3 and #4 lack final consonants, leaving possible root connections uncertain.

Table 27: $*g^h(R)eb^h-$ ‘Grab, take, seize, hold’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
$*g^hebh-$	g^h	\emptyset		b^h	1	Grasp, seize, cause another to grasp (give)
$*g^hreb^h-$	g^h	r		b^h	2	Grab, seize, snatch up, devour, take
$*g^hreḡbh-$	g^h	r	\dot{i}	b^h	3	Grip, grasp, seize

1. $*g^hebh-$ ‘Grasp, seize, cause another to grasp, i.e. give’

Lat *habeō* ‘grasp, possess, have,’ Umb *habe* ‘have,’ OIr *gaibid* ‘take, take hold of, seize, catch, grasp,’ Goth *gabei* ‘riches, wealth,’ *giban* ‘give,’ Lith *gebù* ‘to be capable’ (*capable* is literally the ability to catch, take, seize), Pol *gabać* ‘lay hands on, seize, hold,’ WRus *habác* ‘take, grab.’ — LIV 193; IEW 407-09; EIEC 563; Mallory and Adams (2006) 271; Bomhard 349.

Words for *give* and *take* often interchange in PIE (Watkins 2011:xxvii).

2. $*g^hreb^h-$ ‘Grab, seize, snatch up, devour, take’

Skt *gr̥bhnaṭi* ‘grabs,’ MHG *grabben* ‘seize,’ Latv *grebju* ‘seize,’ OCS *grabiti* ‘snatch up,’ Hit *k(a)rap-* ‘devour,’ Av *garəwnāiti* ‘takes,’ NE *grab* (from MDutch). — Mallory and Adams (2006) 271; Watkins (2011) 32; IEW 455-56; EIEC 563; LIV $*g^hrebh_2-$ 201.

3. $*g^hreḡbh-$ ‘Grip, grasp, seize’

Goth *greipan* ‘grasp, seize, catch,’ Lith *griebiù* ‘take hold of, seize,’ ON *greipa* ‘commit, perpetrate,’ *greip* ‘grip, hand,’ OE *grāp* ‘fist, grip,’ NE *grip*, *gripe*, *grope*, OHG *grīfan* ‘touch, take hold of,’ *greifōn* ‘grope, touch,’ Latv *greībi* ‘seize.’ — LIV 203; IEW 457-58; EIEC 564; Mallory and Adams (2006) 272.

Notes on possible outside root connections:

1. Bomhard 349 cites Afrasian *gaba-*, etc. ‘hand, arm,’ Dravidian *kavar*, etc. ‘grasp, catch, steal, receive, desire, seize, plunder.’

Conclusions: Root #1 appears to have valid genetic connections with the other outside language families.

*g^u-

Table 28: *g^ue(R)b^h- ‘Womb, vulva, act of conception, embryo, young off-spring’

PIE Root	Initial	R1	R2	Final	Ref.	Semantic Value
*g ^u reb ^h -, *g ^u erb ^h -	g ^u		r	b ^h	1	Fetus, embryo, child, new born babe, cub, nestling, foal
*g ^u elb ^h -	g ^u		l	b ^h	2	Womb, uterus, menstruation, young child or animal, new born
*g ^(u) emb ^h -	g ^u		m	b ^h	3	Womb, vulva, slit, deeply excited, sexual intercourse, depth, to know carnally
*g ^u eib ^h -	g ^u		i	b ^h	4	Dive, covet, seek, female pudenda, vibrate (Proposed root)
*g ^u eh ₁ b ^h - (*g ^u ēb ^h)	g ^u		h ₁	b ^h	5	Something slimy, young animal, woman, wetness, vibrate, emit fluid or liquid
*g ^u eh ₂ b ^h - (*g ^u āb ^h)	g ^u		h ₂	b ^h	6	Dive, plunge, dip, deep, become hard, dye with blood or other colorants

1. *g^ureb^h-, *g^uerb^h- ‘Fetus, embryo, child, foal’

Grk βρέφος ‘babe in the womb, fetus, new born babe, foal, whelp, cub, nestling,’ βρεφώ ‘form into a fetus, engender,’ OCS žrēbē (< *g^uerb^hen-) ‘foal,’ Mlr *brommach* ‘foal.’ — EIEC 615; IEW 485; L&S 329; Monier-Williams 349-50; DELG 186; Bomhard 539.

2. *g^uelb^h- ‘Womb, uterus, young animal’

OE *cilfor-lamb* ‘ewe lamb,’ OHG *kilbur* ‘ewe lamb,’ Grk δελφύς ‘uterus,’ Av *garəbuš-* ‘new-born animal,’ δέλφας ‘young pig,’ δελφάκειος ‘female pudenda,’

δελφίς ‘dolphin (fish with womb, i.e. mammal),’ and from **g^uolbho-* ‘womb, fruit of womb,’ ON *kalf* ‘calf,’ OE *cealf* ‘calf,’ NE *calf*, OHG *chalb*, *chalp* ‘calf,’ Goth *kalbō* ‘calf,’ Grk (Hesychius) *δολφός* ‘womb,’ Av *garəwa-* ‘uterus,’ Skt *gārbha-* ‘to conceive, womb, uterus, fetus, embryo, child, brood offspring, a woman’s courses.’ — EIEC 615; IEW 473; Watkins (2011) 34; L&S 377-78; DELG 250; de Vries 298; Mallory and Adams (2006) 184; Bomhard 462.

Mallory and Adams write, “The Germanic words suggest an initial **g-*, the Grk **g^w-*. Indo-Iranian is indecisive. The pre-Greek **g^w-* (attested Grk *d-*) may owe its labialization to assimilation to the following **bhu-*. Conversely the non-labialized initial in Germanic may be dissimilatory. In either case, **g^welbhus* would appear to have been at least the late PIE term for ‘womb’.”

3. **g^(u)emb^h-* ‘Womb, vulva, slit, deep down, sexual intercourse’

Skt *gabhīrá-*, *gambhīrá-* ‘deep,’ *gambha-*, *gāmbhan-*, *gambhára-* ‘depth, slit, vulva,’ *gambh-vepas* ‘moved deeply or inwardly, deeply excited,’ *gabhi-shák* ‘deeply down, down or within,’ *jambh* (also *jabh*) ‘to know carnally,’ *Jambhana* ‘sexual intercourse.’ — IEW 466; Monier-Williams 346, 348, 412, Mayrhofer *gabhá* 463.

Jan de Vries (674) places ON *vomb* ‘womb,’ with this root.

4. **g^ueļb^h-* ‘Dive, covet, female pudenda, vibrate’ (Proposed root)

TochA *kip* ‘female pudenda,’ TochB *kwīpe* ‘female pudenda,’ Lat *uibrō* ‘vibrate,’ Grk *δίφ-άω* ‘dive, covet, seek.’ — Watkins (2000) 2030; OLD 2054; Fortson 282-83, 402-3; AHD 1915; LIV 671; IEW 1132; DELG 275; Autenrieth 78; Fitzgerald 400; L&S 438; Adams, s.vv. “kwīpe, kwipe, onkipse.”

For the semantics of Grk *δίφάω* ‘dive,’ compare **g^ueh₂b^h-* below. AHD defines *vibrate* as: “1. To move back and forth or to and fro, especially rhythmically and rapidly. 2. To feel a quiver of emotion.” OLD defines *uibrō* as “1b. To cause parts of one’s body to move to and fro.” It then quotes examples of this word’s usage by classical authors in the context of explicit sexual movement.

Watkins (2000) postulated a root, **ghwīb^h*, that included the Tocharian attestations listed here along with Germanic **wībam* ‘woman, wife.’ That suggestion is not accepted here

(see discussion of the idea in Adams s.v. “*kwipassorñe*”), and in fact, it does not reappear later in Watkins (2011). PIE **gʷ-* typically became *k-* in TochA, and *kw-* in TochB. PIE **bʰ-* became *p-* in both TochA and TochB. The root that I propose here satisfies both of those equations, along with the attested resonant, *i-*.

Watkins is probably correct, however, in his interpretation of TochA *kip* ‘shame’ and TochB *kwipe* ‘shame’ as denoting the female pudenda. The sexual organs are referred to as “shame” both in Latin *pudenda*, which derives from *pudor* ‘a feeling of shame,’ *pudendus* ‘shameful, disgraceful, scandalous, the genitals,’ and in German *Scham* ‘shame, modesty, chastity, genitals.’ Tocharian B makes this connection explicit in *kwipe-ike* ‘penis’ (literally ‘shame-place’). It would not be unreasonable to assume that this designation applied equally (or originally?) to the female genitals, since that is the case in both the Latin and German examples already mentioned. It would, however, probably be a mistake to understand the original use of the word *shame* in this connection with the general use of that word in modern English where it suggests a feeling of self-recrimination or guilt for some evil committed. In ancient or more tribal societies, a better translation would be something like *taboo*. I follow Watkins in his gloss for Toch *kip* and *kwīpe* as ‘female pudenda.’

Watkins (2000, 2011) derives Eng *vibrate* (Lat *uibrō*) from the PIE root **uēip*. LIV does not include Lat *uibrō* in its listing of verbs derived from **uēip*, probably because of semantic differences and because PIE **p-* would normally remain *p-* in Latin, and not become *b-* as in *uibrō*. The expected outcome of PIE **bʰ-* is Latin *b-*, and PIE **gʷ-* became simply *u-*, precisely as attested in Lat *uibrō*.

Grk *διφάω* ‘dive’ is a word with unknown etymology (see DELG 275). Autenrieth, *A Homeric Dictionary*, translates it as ‘*dive after*.’ Fitzgerald, in his translation of Homer’s *Iliad* (16.747) gives ‘*diving*.’ Liddell and Scott define *διφάω* as ‘*search after*’, but then cite the above passage from Homer, where the meaning is clearly to dive into the sea in order to collect oysters. Hesiod uses the same word to mean something like “covet.” Evelyn-White translates this line from Hesiod with the phrase “to be after.” The passage runs, “Do not let a flaunting woman coax and cozen and deceive you: she is after your barn.”

Phonetically, the form of $\delta\bar{\iota}\phi\text{-}\acute{\alpha}\omega$ is parallel to Grk $\delta\epsilon\lambda\phi\text{-}\acute{\upsilon}\zeta$ ‘uterus,’ with substitution of the resonant /i/ for the resonant /l/.

It should be unnecessary to spell out the common semantic link between the three attestations of this proposed root (dive, female pudenda, vibrate). Nevertheless, stated very bluntly, the action required for a man to engender a child is to dive into the female pudendum and move in a vibrating motion.

It should be noted that this proposed root, along with the following two roots, constitute a trio of parallel forms ($*g^ueib^h$, $*g^ue\bar{e}b^h$, $*g^ue\bar{a}b^h$), all with identical consonantal structure. They also appear to share a common semantic value (sex organs and sex act), that, significantly, are referenced obliquely in all three cases. This is, no doubt, due to the emotional charge associated with this semantic field, and can be explained as the result of taboo deformation.

5. $*g^ueh_1b^h\text{-}$ ($*g^ue\bar{e}b^h\text{-}$) ‘Something slimy, young animal, woman, wetness, vibrate, emit fluid’

OSax *quappa* ‘eel pout,’ MHG *quappe* ‘tadpole, belly,’ ON *kvap* ‘something slimy or gelatinous’ (IEW 466), Swed-dial (s)*kvebba* ‘fat woman,’ NE *quab* ‘bog, mire,’ NE *quaver* ‘shake, vibrate,’ Norw-dial *kvapa* ‘emit a fluid or liquid,’ Old Prussian *gabawo* ‘toad’ (but see below), OCS *žaba* ‘toad.’ — Watkins (2011) 34; IEW 466; A. Christenson, *K’iche’ – English Dictionary*, sv. *t’ot*; Kluge s.v. “*Quappe*,” 572; New Cassell’s German Dictionary, s.v. “*Kröte*,” 280; Nesselmann, s.v. “*gabawo*,” 41.

6. $*g^ueh_2b^h\text{-}$ ($*g^ue\bar{a}b^h\text{-}$) ‘Dive, plunge, deep, become hard, dye with blood or other colorants’

ON *kafa* ‘dive, plunge,’ *kvefja* ‘dip, submerge,’ OSwed *kvaf* ‘depth,’ Grk $\beta\acute{\alpha}\pi\tau\omega$ ‘dip, plunge, dip a sword into a liquid in order to temper the steel, become hard, to dye, to dye someone with their own blood (cutting by sword), draw water by dipping.’ — Watkins (2011) 34; IEW 465-66; LIV 205; EIEC 160; DELG 156; L&S 305-306; Mallory and Adams (2006) 403.

The Greek tragedies use the word, *βάπτω*, to describe a “sword tempered in blood” (DELG 156). At an early date this term was applied to the dyeing process, i.e., dipping yarn into dyeing vats. Much later, in Christian times, it was used to signify religious baptism.

Both of these last two roots have uncertain but plausible semantic relationships to “womb, vulva, embryo, sexual intercourse” as seen in the other roots of this resonant series. The root, **g^uāb^h*, shares the concept deep with **g^u(^u)emb^h*, and the notion of “dive” with **g^ueīb^h*. The root, **g^uēb^h*, shares the notion of “young animal” (in this case, tadpole), with **g^ureb^h* and **g^uelb^h*. The variations in vowel length and vowel color can again be accounted for by taboo deformation given the obvious sexual references in this resonant series as a whole.

Vulgar slang for the female vulva in the unrelated K’iche’ Maya language is *t’ot* ‘snail’. This refers to the sticky, slimy, mucus-covered smooth tissue of both vulva and snail. It may be that the reference here to “slimy” and to “eel pouts and tadpoles” (the young of frogs and toads) fulfills a similar function in PIE.

The semantic value “toad” for the root, **g^uēb^h*, is based on Old Prussian *gabawo*, and Slavic *žaba*, both glossed ‘Kröte’ in Nesselmann’s *Thesaurus Linguae Prussicae*, which was the source for the citation in Pokorny and others. While the primary meaning of German *Kröte* is ‘toad,’ a secondary meaning is ‘woman.’ The *New Cassell’s German Dictionary* defines *Kröte* as: “toad, malicious person; bitch; jade, wench... (vulg.) *niedliche kleine Kröte*, pretty wench.”

Obviously German is not Old Prussian, and in any case it is difficult to know how far back in time the association can be traced, but nevertheless this instance constitutes an additional case parallel to the vulgar slang of K’iche’ *t’ot* where the vulva is represented by a slimy animal.

“Plunge” and “deep” may also share semantic value with the concepts of “womb” and “vulva,” as the reproductive process of conception requires that the man plunge deeply. The first primitive human experience with dye and dyeing (staining) undoubtedly involved the female menses, and these are also referenced in **g^uelb^h* (“a woman’s courses”). In that connection, the concept “dye with blood” is explicit in the historic use

of Grk $\beta\acute{\alpha}\pi\tau\omega$ where it can also mean “cut with sword” (L&S 306). The root, $*g^ue\bar{b}^h$, carries notions of “woman,” “moist place,” “shake, vibrate,” and emitting a fluid.” These can all reasonably be taken for oblique references to the reproductive organs in the act of conceiving a child. Vibrating movement is a concept that is also shared with $*g^ue\bar{i}b^h$.

It is evident that $*g^ue\bar{a}b^h$ and $*g^ue\bar{b}^h$ share many of the semantic values that are exhibited by this resonant series as a whole, and which are concerned with “womb, uterus, young animal, engendering, conception, and menstruation.” Certainly the other four roots ($*g^ue\bar{r}b^h$, $*g^ue\bar{l}b^h$, $*g^{(u)}emb^h$, and $*g^ue\bar{i}b^h$) function in this way.

Notes on possible outside root connections:

1. Bomhard 539 cites Afrasian $k^w\bar{a}rb$, etc. ‘midst, inward part, female genitalia, intestines, interior of the body,’ Dravidian $karu$, etc. (without final consonant) ‘fetus, embryo, egg, germ, young of animal, womb, yolk, pregnant.’
2. Bomhard 462 cites Afrasian k^al- , etc. (without final consonant) ‘to give birth, beget, son, male child, young of animals, to be pregnant.’

Conclusions: In root #1 the phonetic and semantic parallels to the Afrasian forms are strong, suggesting an ancient genetic connection. In root #2 the phonetic divergence (lack of final consonant) leaves the possibility of root connections inconclusive.

Table 29: $*g^ue(R)-$ ‘Go, come’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
$*g^ueh_2-$	g^u		h_2		1	Stride, go
$*g^uem-$	g^u		m		2	Go, move, go away, set out, hurry, come

1. $*g^ueh_2-$ ‘Stride, go’

Ved $j\acute{ig}\bar{a}ti$ ‘strides, go quickly,’ Arm eki ‘I went,’ Grk $\beta\acute{\iota}\beta\alpha\varsigma$ ‘stride, cause to go,’ Av $g\bar{a}t$ ‘goes,’ Latv $g\bar{a}ju$ ‘went.’ —LIV 205; IEW 463-64; Monier-Williams 420; L&S 315; EIEC 115.

2. $*g^uem-$ ‘Go, move, go away, set out, hurry, come’

Ved *gácchati* ‘go, move, go away, set out, come,’ Alb *n-gah* ‘go free, hurry,’ Grk *βαίνω* ‘go,’ Lat *ueniō* ‘come,’ TochB *kekamu* ‘has come,’ Ved *gámaya* ‘bring,’ Goth *qiman* ‘come,’ OHG *queman* ‘come.’ — LIV 209; IEW 464-65; Monier-Williams 346-47; EIEC 115.

EIEC calls these two roots “ancient variants”.

***g^{uh}-**

Table 30: *g^{(u)h}e(R)s- ‘To be delighted, glad, charmed, pleased, happy, laughing’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
*g ^{(u)h} ers-	g ^{(u)h}		r	s	1	Rapture, delight, pleasure, happiness, joyfulness, cheerfulness
*g ^{(u)h} es-	g ^{(u)h}		ø	s	2	Laugh, smile, laugh at, mirth, laughter, jest, joke, fun

1. *g^{(u)h}ers- ‘Rapture, delight, pleasure, happiness, joyfulness, cheerfulness’

Ved *hárṣate* ‘bristling of the hair in a thrill of rapture or delight, pleasure, happiness,’ *harṣin* ‘joyful, rejoicing, delighting,’ *harṣula* ‘disposed to be cheerful or happy, delighted.’ — LIV 198; IEW 445-46; Monier-Williams 1292-93.

2. *g^{(u)h}es- ‘Laugh, smile, mirth, laughter, fun’

Ved *jákṣat* ‘laughing,’ Late Ved *hasati* ‘laugh, smile, laugh at,’ *hása* ‘mirth, laughter,’ *hāsa* ‘laughing, laughter, mirth, jest, joke, fun.’ — LIV 199; Monier-Williams 407, 1294.

h₁-*Table 31:** *h₁(R)es- ‘Moisture, mist, wetness, dew, rain, urine’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
*h ₁ u̯es-	h ₁	u̯		s	1	Fine mist, moist ground, tree sap, libation
*h ₁ u̯ers-	h ₁	u̯	r	s	2	Rain, dew, urine, rainfall, rained upon
*h ₁ res, *h ₁ ers-	h ₁	r		s	3	Liquid, moisture, dew, dew covered, rain

1. *h₁u̯es- ‘Fine mist, moist ground, tree sap, juice, libation’

Umb *vestikatu* ‘offer a libation,’ OE *wōs* ‘juice, broth, NDutch *waas* ‘layer of mist or fine drops,’ OHG *wasal* ‘moist ground,’ Latv *vasa* ‘forest with wet ground,’ *ievasa* ‘moisture, tree sap.’ — Mallory and Adams (2006) 347; EIEC 639; IEW 1171-72.

2. *h₁u̯ers- ‘Rain, dew, urine’

Grk ἐέρονη ‘dew,’ οὐρέω ‘urinate,’ Hit *warsa* ‘rainfall,’ Skt *vārṣati* ‘rains,’ Av *aibi-varšta* ‘rained upon.’ — Mallory and Adams (2006) 126; LIV 291 (*h₂u̯ers-); IEW 80-81; EIEC 477; Bomhard 721.

3. *h₁ers-, *h₁res- ‘Liquid, moisture, dew, rain’

Lat *rōs* ‘dew,’ Lith *rasà* dewy, dew covered,’ OCS *rosa* ‘dew,’ Alb *resh* ‘it rains,’ Av *Raṇha* (river name) ‘Volga,’ Skt *rása-* ‘liquid, moisture.’ — Mallory and Adams (2006) 346; IEW 336; EIEC 638.

Notes on possible outside root connections:

2. Bomhard 721 cites Afrasian *hwi*, etc. (without final sibilant) ‘surge up, overflow, rain, flood, moisture,’ Dravidian *varru*, etc. (without final sibilant) ‘inundation, flood, torrent, deluge, torrential rain.’

Conclusions: Lack of final sibilants in Bomhard’s proposed outside connections leave the possibility of genetic affiliations uncertain.

Table 32: **h₁e(R)-* ‘To go’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*h₁ei-</i>	h ₁		i		1	Go
<i>*h₁el-</i>	h ₁		l		2	Go, drive, go out, go up
<i>*h₁er-</i>	h ₁		r		3	Go, come, set in motion, move, go toward
<i>*h₁er-s-</i>	h ₁		r		4	Go, move, go astray, wander about, flow

1. **h₁ei-* ‘Go’

Lat *eō* ‘go,’ Goth *iddja* ‘went,’ Lith *eimi* ‘go,’ OCS *iti* ‘go,’ Grk *εἶμι* ‘will go,’ Hit *yanzi* ‘they go,’ Av *aēiti* ‘goes,’ Skt *éti* ‘goes,’ TochB *yaṃ* ‘go,’ TochA *yiñc* ‘to go.’ —Mallory and Adams (2006) 395-96; LIV 232; IEW 293-96; Bomhard 666.

2. **h₁el-* ‘Go, drive, go out, go up’

MWels *el* ‘may go,’ Grk *ελαύνω* ‘drive,’ Arm *eli* ‘I went out, went up,’ —Mallory and Adams (2006) 397; LIV **h₁elh₂-* 235; IEW 306-07; EIEC 228.

3. **h₁er-* ‘Go, come, set in motion, move, go toward, arrive’

Grk *ἔρχομαι* ‘go, come,’ *ὀρμάω* ‘to set in motion, start, go for, go after,’ Ved *ṛicchati*, *ṛiṇoti* ‘to go, move, rise, go toward,’ Hit *āraskizzi* ‘reach, arrive, get to.’ —Mallory and Adams (2006) 391, 394; LIV 238; IEW 326-29; Monier-Williams 223; L&S 1252-53; EIEC 506.

4. **h₁er-s-* ‘Go, move, go astray, wander about, flow’

Lat *errō* ‘go astray, wander about, roam, ramble, to move in an uncertain direction, wander from the course,’ OHG *irran* ‘lead astray,’ Hit *āraszi* ‘flow,’ Ved *ārṣati* ‘go, move, rush, push, flow, move with a quick motion.’ —Mallory and Adams (2006) 394; OLD 618; LIV 241; IEW 336-37; Monier-Williams 226; EIEC 206-7.

Notes on possible outside root connections:

1. Bomhard 666 cites Afrasian *ii, ei, yi?, ya*, etc. ‘come, go, arrive at, went;’ Dravidian *iyañku*, etc. ‘move, stir, go, proceed, walk about, break in, marching, go on foot, lead, proceed, way, path, drive cattle, approach reach;’ Chuk-Kamch. *jet*, etc. ‘come, arrive, appear.’

Conclusions: Connections of root #1 with outside language families is probable.

Table 33: **h₁(R)ed^h-* ‘Come, grow, spring forth, originate’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*h₁leud^h-</i>	h ₁	l	ɯ	d ^h	1	Grow, sprout, ascend, come, grow up
<i>*h₁ned^h-</i>	h ₁	n		d ^h	2	Come, arise, grow, spring forth
<i>*H₂ueRd^h-</i>	H	ɯ	R	d ^h	3	Grow, strengthen, increase, thrive

1. **h₁leud^h-* ‘Grow, sprout, ascend, come, grow up’

Ved *ródhati* ‘sprout, shoot, grow,’ *rodha* ‘sprouting, growing, ascending, moving upwards,’ Goth *liudan* ‘grow, grow up,’ OSax *lōd* ‘has grown,’ TochB *lac* ‘surpass, exceed, go beyond,’ YAv *raoδanti* ‘grow,’ Grk *ῥλυθον* ‘came.’ —LIV 248; IEW 306-07, 684-85; Monier-Williams 884; EIEC 248; Benveniste 261-64.

2. **h₁ned^h-* ‘Come, arise, grow, spring forth’

Grk *ἐνθεῖν* ‘come,’ *ἐνθήνοθε* ‘grow, arise from, originate, spring forth,’ —LIV 249; IEW 40-41; L&S 617.

3. **H₂ueRd^h-* ‘Grow, strengthen, increase, thrive’

Ved *vṛdhánt* ‘increase, augment, strengthen, thrive, grow, grow up,’ OAv *varadaiti* ‘become stronger,’ Ved *várdhate* ‘grow, strengthen,’ YAv *varəδaiiete* ‘strengthen.’ —LIV 228; IEW 1167; Monier-Williams 1010; Bomhard 804.

Notes on possible outside root connections:

3. Bomhard 804 cites Afrasian **war-am*, etc. ‘raise, elevate, grow, increase, swell,’ Dravidian *varai*, etc. ‘mountain, peak, slope of hill,’ Uralic *vaar*, etc. ‘hill or mountain, forest, provide, fortify.’

Conclusions: Except for Afrasian, the semantic parallels to PIE are tenuous at best. The lack of final consonants in the roots cited further weakens possible connections with the PIE root.

Table 34: **h₁e(R)s-* ‘To be, to be at rest, to sit’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*h₁eh₁s-</i>	h ₁		h ₁	s	1	Sit, stay, remain
<i>*h₁es-</i>	h ₁		∅	s	2	Am, is, are, was, were

1. **h₁eh₁s-* ‘Sit, stay, remain’

Hit *ēsa* ‘sit,’ *āszī* ‘stays, remains, is left,’ Ved *āste* ‘sit,’ YAv *āṇhāire* ‘sit,’ Grk *ἵσται* ‘sit.’ — LIV 232; IEW 342-43; EIEC 522; Mallory and Adams (2006) 368; Bomhard 640.

Mallory and Adams (2006:296) write, “[This root] appears to be an intensive of **h₁es-* ‘be’ (one might note that Spanish employs both the original verbs ‘be’ and ‘sit’ in its paradigm for ‘be’).”

2. **h₁es-* ‘Am, is, are, was, were’

Hit *ēszī* ‘is, are,’ CLuv *āsta* ‘was, were,’ Ved *āsti* ‘is, are,’ Arm *em* ‘am,’ Grk *ἐστί* ‘is, are,’ Lat *est* ‘is,’ OIr *is* ‘is,’ Goth *ist, sind* ‘is, are,’ OLith *esmì, ēsti* ‘am, is.’ — LIV 241; IEW 340-41; Mallory and Adams (2006) 296.

Notes on possible outside root connections:

1. Bomhard 640 cites Proto-Afrasian **ʔasʷ-*, etc. ‘put, place, set, sit, be seated, strengthen, fortify, found, establish,’ Proto-Uralic **asʷe-*, etc. ‘place, put, set, reside, dwell, position, place, station, found, establish.’

Conclusions: Root connections to the Afrasian and Uralic forms are plausible.

Table 35: **h₁(R)ed-* ‘Wish, long for, desire, love, cherish’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*h₁ueld-</i>	h ₁	u	l	d	1	Wish, long for, desire
<i>*Hleh₂d-</i>	H	l	h ₂	d	2	Love, cherish, wish, desire

1. **h₁ueld-* ‘Wish, long for, desire’

Grk *ἐέλδομαι* ‘wish, long for, eager to reach, desire, be welcome,’ *ἐλδωρ* ‘wish, longing, desire.’ — LIV 254; IEW 1137; L&S 530.

2. **Hleh₂d-* ‘Love, cherish, wish, desire’

Rus *ladyj* ‘dear,’ *láda* ‘wife,’ TochB *lāre* ‘dear,’ Arm *alalem* ‘love, caress,’ Skt *lādayate* ‘cherish, foster, wish, desire,’ Lyc *lada* ‘wife.’ — Mallory and Adams (2006) (**h_xleh_ad-*) 343; Monier-Williams 895.

Table 36: **h₁e(R)k-* ‘Suffer, feel terrible, be hungry, die’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*h₁e(ĥ)-</i>	h ₁			(ĥ)	1	To die
<i>*h₁elk</i>	h ₁		l	k	2	To hunger, to be bad, to be evil, empty stomach

1. **h₁e(ĥ)-* ‘To die’

Hit *āki* ‘die,’ *ākkis* ‘has died.’ — LIV 234.

2. **h₁elk-* ‘To hunger, to be bad, to be evil, to be on an empty stomach’

Lith *álkstu* (*álkti*) ‘to hunger,’ OCS *lačq* (*lakati*) ‘to hunger,’ OIr *olc* ‘bad,’ ON *illr* ‘evil, bad,’ OPrus *alkīns* ‘on an empty stomach.’ — LIV 235; IEW 307.

***h₂-**

Table 37: **h₂(R)eĝ-* ‘Take care of (animals?), tend, to milk, gather, clean’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
----------	---------	----	----	-------	-----	----------------

* <i>h₂le'(ĝ)-</i>	h ₂	l		(ĝ)	1	Look after, care for, give careful attention to
* <i>h₂melĝ-</i>	h ₂	m	l	ĝ	2	Squeeze out, press out, milk animals
* <i>h₂merĝ-</i>	h ₂	m	r	ĝ	3	Squeeze out, gather up, wipe clean, graze animals
* <i>h₂reh₁(ĝ)-</i>	h ₂	r	h ₁	(ĝ)	4	Help, aid, support, be concerned about, care for

1. **h₂le'(ĝ)-* ‘Look after, care for, give careful attention to, gather up’

Grk ἀλέγω ‘to mind, look after, care for,’ Lat *-legō, legere* ‘look after, care for,’ *dīligens* ‘fond of, careful, attentive, diligent,’ *dīligentia* ‘carefulness, attentiveness, give careful attention to,’ *legō* ‘gather up, count up, follow the track of.’ — LIV 276; IEW 658; L&S 61; OLD 543-44, 1014.

2. **h₂melĝ-* ‘Squeeze out, press out, milk animals’

Grk ἀμέλω ‘squeeze out, press out, to milk,’ Mlr *bligim* ‘to milk’ (< *mligim*), OE *melcan*, OHG *melchan* ‘to milk,’ Lith *mélžu* ‘to milk,’ Alb *mjel* ‘to milk,’ Lat *mulgeō* ‘to milk,’ TochA *mālk* ‘milk.’ — LIV 279; IEW 722-23; Mallory and Adams (2006) 261-62; L&S 80; Bomhard 850.

3. **h₂merĝ-* ‘To squeeze out, gather up, harvest, touch, wipe clean, graze animals’

Grk ἀμέρω ‘squeeze out, pluck, gather, harvest,’ ὀμόργνυμι ‘wipe off,’ ἀμοργός ‘press out,’ ἀμόργη ‘the liquid that runs out when olives are pressed’ (also Lat *amurga, amurka*), Ved *mārṣṭi* ‘wipe off, clean,’ YAv *marəzaiti* ‘touch, strip off, take off,’ Arm *meržem* ‘expel, drive cattle out to graze.’ — LIV 280; IEW 738; Mallory and Adams (2006) 169; L&S 81, 1227; OLD 125; EIEC 258.

4. **h₂reh₁(ĝ)-* ‘Help, aid, support, be concerned about, pay attention to, care for’

Grk ἀρήγω ‘help, aid, succor, be good for, ward off,’ ON *røkja* ‘to be concerned,’ pay attention to, take care of,’ OHG *ruoh, ruohha* ‘pay attention to, take trouble

for, care, attention, conscientiousness,’ NE *reck-* (opposite of *reckless* ‘carelessness’). — LIV 284; IEW 857; L&S 238; de Vries 457.

Notes on possible outside root connections:

2. Bomhard 850 cites Proto-Afrasian **mal-*, etc. ‘draw out, squeeze out, suck out, suckle, nurse,’ Uralic **mälke-* etc. ‘breast, chest,’ Eskimo **malak*, etc. ‘upper part of breast, chest, suck (breasts), nipple, milk.’

Conclusions: Despite the lack of final consonant in the Afrasian terms, credible parallels are found in the Uralic and Eskimo words compared by Bomhard, suggesting the probability of ancient root connections.

Table 38: **h₂e(R)g-* ‘To set oneself in motion, grow’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*Heig-</i>	H		ī	g	1	Go, move, agitate, shake
<i>*h₂uerg-</i>	h ₂	u	r	g	2	Turn, move downward, throw oneself
<i>*h₂eug-</i>	h ₂		u	g	3	Grow, enlarge, increase

1. **Heig-* ‘Go, move, agitate, shake’

Ved *inǵayati* ‘to go toward, move, agitate, shake,’ *éjati* ‘stir, move, tremble, shake,’ — LIV 222; IEW 13-14; Monier-Williams 164, 231.

2. **h₂uerg-* ‘Turn around, move downward, throw oneself’

Ved *várk* ‘to turn around,’ Lat *vergō* ‘to move as on a downward slope,’ Dutch *werken* ‘to throw oneself,’ OCS *vrěšti* ‘throw.’ — LIV 290; IEW 1154; OLD 2036.

3. **h₂eug-* ‘Grow, enlarge, increase’

Goth *aukan* ‘increase, enlarge,’ Lith *áugu* ‘grow,’ Lat *auxi* ‘increased, enlarged,’ *augeō* ‘increase in quantity or size, enlarge, extend, swell, to grow,’ Av *uxšyeiti* ‘grows,’ Skt *úkṣati* ‘strengthens,’ TochB *auk-* ‘grow, increase,’ NE *wax*. — LIV 274;

IEW 84-85; OLD 212; Balg 36; EIEC 452; Mallory and Adams (2006) 190; NIL 328; Bomhard 722.

Notes on possible outside root connections:

3. Bomhard 722 cites Proto-Kartvelian **xwaw-*, etc. ‘heap, pile, flock, much, many, multitude.’

Conclusions: Possible but uncertain connection to PIE.

Table 39: **h₂e(R)k-* ‘Have, defend, protect’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*h₂erk-</i>	h ₂		r	k	1	Have, hold, retain, control, ward off, defend
<i>*h₂elk-</i>	h ₂		l	k	2	Ward off, protect, defend, help, avenge wrongs

1. **h₂erk-* ‘Have hold, retain, control, ward off, defend’

Hit *harzi*, *harkanzi* ‘have, hold, keep, retain,’ Lat *arceō* ‘keep close, contain, hold in, control, prevent from approaching, keep away, repulse, protect,’ *arca* ‘box, chest,’ Grk ἀρκέω ‘ward off, defend, keep off, assist,’ Arm *argehum* ‘hinder, restrain, hold back.’ — LIV 273; IEW 65-66; OLD 162; Mallory and Adams (2006) 271; DELG 105; L&S 242; EIEC 270.

2. **h₂elk-* ‘Ward off, protect, defend, help, avenge wrongs’

Grk ἄλαλκε ‘ward off, keep off,’ Ἀλαλκ-ομενηῖς ‘Protectress’ (epithet of Athena), ἄλκαρ ‘safeguard, defense,’ ἀλκή ‘strength, strength to avert danger, defense, help,’ ἀλκ-τήρ ‘one who wards off, protector, helping, healing,’ Lat *ulcīscor* ‘inflict retribution, take revenge, avenge wrongs,’ Goth *alhs* ‘temple,’ Lith *al̃kas* ‘sacred grove.’ — LIV 264; IEW 32; Mallory and Adams (2006) 281; Balg 19; L&S 67; DELG 55-56; OLD 2083.

Table 40: **h₂e(R)k̂-* ‘Take as one’s own, receive an allotment or share’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
----------	---------	----	----	-------	-----	----------------

<i>*Heĩk̂</i>	H		ĩ	ķ	1	Take, seize, lay hold of, receive, accept, possess, own
<i>*h₂enķ</i>	h ₂		n	ķ	2	Hand over, allocate, present, portion, part, share, allotment

1. **Heĩk̂* ‘Take, seize, lay hold of, receive, accept, possess, own’

Oss *īs* ‘take, seize, appropriate, capture, lay hold of, receive, accept,’ TochB *aištār* ‘recognize, perceive, apprehend, know,’ Ved *īśe* ‘have at one’s disposal,’ Goth *aih*, *aigun* ‘possess, own, hold, occupy.’ — LIV 223; IEW 298-99; Mallory and Adams (2006) (**h_aeiķ*) 271.

2. **h₂enķ* ‘Hand over, allocate, present, portion, part, share, allotment’

Hit *hikzi* ‘assign, allot, allocate, distribute, apportion to, hand over, present,’ Ved *ámśa* ‘portion, part, share, allotment,’ Grk *ἀνάγκη* ‘necessity.’ — LIV 268; IEW 45, 318; Mallory and Adams (2006) (**h_{2/3}enķ*) 270.

Table 41: **h₂e(R)-s-* ‘Fire, heat, dry out, burn, altar, blaze’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*h₂eũ-s-</i>	h ₂		ũ	-s	1	Kindle a fire, give fire to a neighbor, apply fire to smoke out bees
<i>*h₂eh₁-s-</i>	h ₂		h ₁	-s	2	Hearth, altar, dry up, suffer from thirst, wither, be parched
<i>*h₂eh₁-</i>	h ₂		h ₁		3	Fire, burn, be hot, kiln, with derivatives meaning ash, fire, heat of day
<i>*h₂el-</i>	h ₂		l		4	Burn a sacrifice, altar, blaze, flare up, firebrand, coal

1. **h₂eũs-* ‘Kindle a fire, give fire to a neighbor, apply fire to smoke out bees’

Grk *αῦω* ‘get a light, light a fire, take fire,’ Grk Att *-αῦσαι* ‘light a fire,’ *ἐναύω* ‘kindle a fire, light a fire, give a light (as was the duty of a neighbor), apply fire (to smoke out bees).’ — LIV 275; IEW 90; L&S 285, 557.

2. **h₂eh₁s-* ‘Hearth, altar, dry up, suffer from thirst, wither, be parched’

TochB *asāre* ‘dry up, wither, desiccate,’ Lat *āreō* ‘to be dry or parched, to be withered from lack of moisture, to suffer from thirst, be dry,’ TochA *asatār*, TochB *osotār* ‘dry up, wither, desiccate,’ Lat *āra* ‘altar,’ Hit *hāssa* ‘hearth.’ —LIV 257; IEW 68; OLD 166; Bomhard 717.

LIV suggests that this root is an extension of the following (see **h₂eh₁s-*, note 1; and **h₂eh₁-*, note 1).

3. **h₂eh₁-* ‘Fire, burn, kiln, with derivatives meaning ash, fire, heat of day’

Palaic *hāri*, *hānta* ‘to burn, to be hot,’ Av *āt(a)r-* ‘fire,’ OIr *āith* ‘kiln.’ —LIV 257; Mallory and Adams (2006) 67, 124.

4. **h₂el-* ‘Burn a sacrifice, altar, blaze, flare up, firebrand, coal’

Lat *altar* ‘altar,’ *adoleō* ‘burn a sacrifice,’ Swed *ala* ‘blaze, flare up,’ Skt *alātam* ‘firebrand, coal.’ —Mallory and Adams (2006) 124; IEW 28; Bomhard 739.

Notes on possible outside root connections:

2. Bomhard 717 cites Afrasian *ḥashasa*, etc. ‘place meat on the coals, roast,’ Uralic **ās₃-* ‘to heat, to ignite,’ Proto-Altai **ase-* ‘catch fire, hot, burn, ignite, warm, heat, hot wind.’

4. Bomhard 739 cites Afrasian **ʕal-aw/y-* ‘burn, burnt offering, make a fire, ignite, kindle, catch fire.’

Conclusions: Both semantically and phonetically these outside roots parallel the PIE forms, suggesting that the two resonant variants here were formed while still in contact with the Afrasian, Uralic, and Altaic families.

**h₃-*

Table 42: **h₃(R)ed-* ‘Hate, be angry at, blame, abhor, detest, despise’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*h₃ed-</i>	h ₃			d	1	Hate, be angry at, be terrible
<i>*h₃neid-</i>	h ₃	n	i̯	d	2	Mock, blame, abhor, detest, hate, despise

1. **h₃ed-* ‘Hate, be angry at, be terrible’

Lat *ōdī* ‘to hate,’ *odium* ‘hate, hatred,’ OE *atol* ‘atrocious,’ Grk *ὀδύσασθαι* ‘be angry at, hate,’ Arm *ateam* ‘hate,’ Hit *hatukzi* ‘is terrible.’ — LIV 296; IEW 773; Mallory and Adams (2006) 344; Bomhard 719.

2. **h₃neǵd-* ‘Mock, blame, abhor, detest, hate, despise’

Ved *nidāná* ‘blame, criticize, reprimand,’ *nid* ‘mocking, ridiculing, contempt, mocker, blamer, scoffer, enemy,’ Lith *nieđu* ‘abhor, abominate, detest,’ Latv *nīdu* ‘hate,’ Arm *anēc* ‘curse, damn, execrate,’ Goth *naitjan* ‘abuse, revile, despise.’ — LIV 303; IEW 760-61; Mallory and Adams (2006) 344; Monier-Williams 547-48; EIEC 313.

Notes on possible outside root connections:

1. Bomhard 719 cites Afrasian *ḥaṭā* ‘to shake,’ Dravidian *atir*, etc. ‘shake, quake, tremble, be startled, alarmed, roar of beasts, fear, shiver.’

Conclusions: The semantics are distant and genetic connections doubtful unless one can accept the semantic development from “fear” to “hate.”

**k̑-*

Table 43: **k̑e(R)k-* ‘Shell, pebble, limestone pebble’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*k̑ork-ā-</i>	ḱ		r	k	1	Gravel, grit, pebble on the sea-shore
<i>*k̑onk-h_aos</i>	ḱ		n	k	2	Mussel shell, conch shell (commonly used as pendants)
<i>*k̑elk-</i>	ḱ		l	k	3	Hypothetical root to account for Latin <i>calx</i> ‘limestone, pebble, rubble’

* <i>keuk-</i>	ĥ		u	k	4	Shine, glow, mussel, pearl oyster, mother of pearl, cockle
----------------	---	--	---	---	---	---

1. **kork-ā-* ‘Gravel, grit, pebble on the sea-shore’

Skt *śárkarā* ‘gravel, grit, pebbles,’ Grk *κροκάλη* ‘pebble on the sea-shore.’ — IEW 615; Moirer-Williams 1058; L&S 997; EIEC 547-48.

2. **konk-* ‘Mussel shell, conch shell’

ON *hengja* ‘hang,’ Hitt *kānki* ‘hang, suspend.’ Extended form **konk-h_aos* ‘mussel and any related shellfish’ (presumably from conch or cowrie shells used as pendants), Grk *κόγχος* ‘mussel shell, conch shell,’ Skt *śaṅkā* ‘(conch) shell.’ — Mallory and Adams (2006) 150, 388, 439 (indicating that **konkh_aos* is derived from **konk-*); LIV 325; Watkins (2011) 45; IEW 566, 614; L&S 966; AHD 382; de Vries 222; Bomhard 601 (hang).

3. **kelk-* ‘Proposed hypothetical root to account for Lat *calx*, *calk-is*’

Lat *calx*, *calkis* ‘lime, limestone, pebble (> NE “calculate,” from the small stone, probably limestone, used in reckoning; also “calcium”), *calculōsus* ‘full of pebbles, pebbly,’ *calculus* ‘a small stone or pebble, stone or gravel in the bladder or kidney, a pebble used in making calculations or on a counting board,’ Poss. Grk *χάλιξ*, *χάλικος* ‘small stone, pebble, rubble and mortar used to make concrete.’ — L&S 1972; OLD 261-62; AHD 262, 267; DELG 1198-99; EIEC 287.

Note that Limestone is derived from the shells of crustaceans like mussels, snails, and conches that are frequently referred to in the other roots in this resonant-series.

4. **keuk-* ‘Shine, glimmer, mussel, pearl oyster, mother of pearl, cockle shell’

Skt *śócāti* ‘glow, shine, glimmer,’ *śukti* ‘mussel, pearl oyster, mother of pearl, a small shell or cockle.’ — LIV 331; IEW 597; Moirer-Williams 1080; EIEC 514.

Notes on possible outside root connections:

2. Bomhard 601 cites Afrasian *šankala* ‘to hook up, peg, hook,’ Dravidian *cuñku*, etc. ‘end of cloth left hanging out in dressing, pleat, or fold of garment, the end of a garment, cloth, dangling tatter.’

Conclusions: Semantically and phonetically this PIE root shows credible parallels to the Afrasian and Dravidian forms, suggesting ancient genetic connections.

Table 44: **k̂e(R)-* ‘Cover, conceal, coat’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*k̂el-</i>	ĥ		l		1	Cover, conceal, cloth garment
<i>*k̂em-</i>	ĥ		m		2	Cover, shirt, wool coat
<i>*k̂er-</i>	ĥ		r		3	Cover of hair, coat of hair

1. **k̂el-* ‘Cover, conceal, cloth garment’

OIr *ceilid* ‘conceals, dissembles,’ Lat *cēlō* ‘conceal,’ *occulō* (<**ob-kelō*) ‘cover, hide,’ ON *hylja* ‘to cover,’ OE *helan* ‘to conceal,’ OHG *helan* ‘to conceal,’ Goth *huljan* ‘to cover,’ OSax *bi-hellian* ‘cover, veil, wrap up,’ Ved *śárman* ‘shelter, cover, protection,’ *śarmara* ‘garment, cloth.’ —IEW 553-54; EIEC 134; Mallory and Adams (2006) 380; LIV 322; Monier-Williams 1058; L&S 871.

2. **k̂em-* ‘Cover, coat’

Late Lat *camīsia* ‘linen shirt, nightgown,’ ON *hamr* ‘skin, slough,’ *hams* ‘snake’s slough, husk,’ OE *hama* ‘dress, covering,’ *ham* ‘undergarment,’ *hemeð* ‘shirt,’ Skt *śāmūla* ‘thick woolen shirt,’ *śamī-* ‘pod, legume,’ Bret *kamps* ‘a ceremonial coat worn at the mass.’ —IEW 556; EIEC 134; Mallory and Adams 379; Bomhard 567.

3. **k̂er-* ‘Cover of hair, coat of hair’

Eng *hair*, Lith *šrys* ‘bristle, animal hair,’ Rus *šerstī* ‘wool, animal hair,’ Latv *sari* ‘bristle,’ Rus-CSlav *sbrstb* ‘wool,’ Slov *sřst* ‘animal hair.’ —IEW 583; Mallory and Adams (2006) 178; Bomhard 598.

Notes on possible outside root connections:

2. Bomhard 567 cites Proto-Afrasian **kam* ‘to cover, hide, conceal, cloak,’ Proto-Kartvelian *qam̃l*, etc. ‘skin of sheep or goat, shoe,’ Proto-Uralic **kama*, etc. ‘peel, skin, surface, crust, scalp, rind, fish scale,’ Eskimo **qamtaq*, etc. ‘roof, ceiling, be filled to the brim, become high tide, attic, upper floor.’

3. Bomhard 598 cites Afrasian (Hebrew) *šēḏār*, etc. ‘hair, fur, pelt, wool, bristle, straw, grass, comb,’ Dravidian *irppi*, etc. ‘nit, to comb out nits, lice, comb for removing nits.’

Conclusions: The phonetics and semantics are close, suggesting that these two resonant variants were created while PIE was still in contact with the outside language families.

Table 45: **ke(R)s-* ‘Praise, predict, tell, teach, announce’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*keNs-</i>	ĥ		N	s	1	Praise, predict, tell, teach, show, announce
<i>*keHs-</i>	ĥ		H	s	2	Praise, predict, tell, teach, announce, proclaim

1. **keNs-* ‘Praise, predict, tell, teach, show, announce’

Ved *śámsati* ‘recite, repeat an invocation, praise, extol, relate, say, tell, report, announce, predict,’ OAv *səṇhaitī* ‘announce, proclaim, preach, prophesy,’ MCymr *dan-gos-* ‘show, demonstrate,’ Lat *cēnsēō* ‘give an opinion, recommend, decide, decree, assess.’ —LIV 326; IEW 566; Monier-Williams 1043-44; OLD 297; Benveniste 424-27.

2. **keHs-* ‘Praise, predict, tell, teach, announce, proclaim’

Ved *śāssi* ‘chastise, correct, censure, control, rule, direct, bid, order, teach, instruct, inform, announce, proclaim, predict, foretell, praise, commend,’ OAv *sāstī* ‘instruct, teach,’ Alb *thom* ‘say,’ *rrēfen* ‘tell, confess, admit, tell the truth.’ —LIV 318; IEW 533; Monier-Williams 1068.

Whitney (1885:172) states that these two roots are “apparently related.”

***k-**

Table 46: **k(R)ep-*, **ke(R)p-* ‘Womb, vulva, uterus, vibrate, sexual excitement’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
----------	---------	----	----	-------	-----	----------------

* <i>ke_up-</i>	k		u	p	1	Desire, covet, shake, tremble, vibrate, be in a passion, vulva
* <i>kuelp-</i>	k	u	l	p	2	Womb, vagina, gulf, arched or vaulted ceiling
* <i>k^ulep-</i>	k	u	l	p	3	Desire
* <i>krep-</i>	k	r		p	4	Body, belly, womb, uterus, midriff
* <i>k^(u)emp-</i>	k	(u)	m	p	5	Tremble, shake, quiver, vibrate

1. **ke_up-* ‘Desire, covet, vibrate, be in a passion’

ON *hjúfa* ‘moan,’ Skt *kupyati* ‘shake, tremble, thrill, vibrate, to be moved, be excited, be agitated, be in a passion,’ Lat *cupiō* ‘wish, want, desire,’ *cupiditās* ‘passionate desire, longing, yearning, lust, passion, the object of one’s desire,’ *cupidus* ‘eager for carnal pleasure, wanton, lecherous, passionately longing,’ *cupītus* ‘that which one desires, beloved,’ Ved *kopáyati* ‘shake, quake, vibrate, be in a passion,’ Slav **kъpъ*, Czech *kep* ‘vulva.’ — LIV 359; IEW 591, 596; Monier-Williams 291; de Vries 233; OLD 472-73; Watkins (2011) 47.

2. **kuelp-* ‘Womb, vagina, gulf, arched or vaulted ceiling’

Grk *κόλπος* ‘bosom, lap, vagina, womb, bay, gulf, fold of garment,’ ON *holf* ‘the domed, arched, curved, or vaulted ceiling of a room,’ OHG *be-welben* ‘surround, encircle, curve or arch over.’ — LIV 375; IEW 630; L&S 974; de Vries 247; Kluge 869; Mallory and Adams (2006) 384; EIEC 62.

Use of this root to denote an arched, domed, or vaulted ceiling probably originally developed from the notion of a curved, concave, womb-like room. It is highly unlikely that the name of the womb or vagina (as in Grk *κόλπος*) would be derived from geographical or architectural features (bay, gulf, arched ceiling). Typically, derivatives develop from the more familiar term to the more abstract term. It is far more likely that the word for *womb* inspired the notion of a bay with a narrow opening, or of a room with a curved ceiling than the other way around.

There are three additional attested words that are not usually placed with this root, but that share strong semantic connections and close (or exact) phonetic form. They are included below for consideration:

- OHG (*h*)*wēlf*, OSax, OE *hwēlp*, MHG *wēlf*, ON *hwēlpr*, Eng *whelp* ‘young offspring of a mammal, such as dog or wolf, to give birth to, to whelp,’ all from Germanic **hwelpa*. — AHD 1958; Kluge 852; EIEC 615.

Germanic **hwelpa* probably dissimulated from earlier **hwelfa* to distinguish this word from the very similar sounding word, *wolf*, which had altogether different origins and an independent history. As can be seen in **gʷelbʰ* (‘Womb, uterus, young animal’), the PIE word for womb was also commonly applied to the fruit of the womb, i.e. the embryo or young offspring of human or animal. The word *whelp* has no known PIE origin.

- Lat *culpa* ‘guilt, blame, an offense (often of sexual misconduct), a moral defect,’ *culpābilis* ‘deserving of censure, reprehensible.’ — OLD 465-66.
- Osc *kulupu* ‘culpa(?)’ with normal anaptyxis. — Buck 50, 51, 252, 314.

In the ancient world, rape, adultery, and fornication were considered some of the most culpable and reprehensible offenses. These all involve unauthorized entry into a woman’s vagina, and the concept of such guilt was apparently derived from that organ. Neither Latin *culpa* nor Oscan *kulupu* has any known PIE origin.

3. **k^wlep-* ‘Desire’

Av *xrap-* ‘desire,’ TochAB *kulyp-* ‘desire.’ — Mallory and Adams (2006) 342; EIEC 158.

The semantics of this root parallel that seen in #1 above. The instinct for procreation, and the focus on the organs of procreation, constitute some of the strongest sources of desire in the human being.

4. **krep-* ‘Body, belly, womb, uterus, midriff’

OHG (*h*)*rēf* ‘belly, womb, uterus,’ OFris *href* ‘belly,’ OE *hrif* ‘womb, uterus, belly,’ *mid(h)rif* ‘midriff,’ Grk *πραπίς* ‘diaphragm,’ Lat *corpus* ‘the body, the generative powers, to live by prostitution (*corpore quaestum facere*), the center of certain physiological needs and desires, especially as representing the grosser elements in human nature,’ Skt *kṛpá* ‘form, beauty,’ Av *kəhrpəm* ‘form, body,’ Mlr *crī* ‘body’ (< *kṛpes*). — Mallory and Adams (2006) 178; IEW 620; OLD 448; Bomhard 526.

5. **k^(u)emp-* ‘Tremble, shake, quiver, vibrate’

Ved *sam-pṛa-kampante* ‘tremble, shake, quiver, vibrate, to be in excited motion,’ YAv *kafsqn* ‘shake, tremble, quiver, vibrate,’ Ved *kampáyāmi* ‘let shake, tremble, vibrate.’ Possibly Lat *con-cumbō* ‘to lie together (for sexual intercourse).’ — LIV 351; [IEW 525; Mallory and Adams (2006) 384]; OLD 392, 464.

On semantic grounds, LIV excludes attested words with distant meanings, such as *field*, *maimed*, *corner*, *edge*, etc., (cited in IEW and Mallory and Adams) as these are probably from a different root. I follow LIV here. Latin *con-cumbō* ‘to lie together (for sexual intercourse)’ belongs here only if one can accept that the /p/ becomes voiced to /b/ through assimilation with the preceding voiced /m/. Otherwise, Lat (*con-*)*cumbō* has no known PIE origin. Perhaps it is a collateral form of Lat *cubō*, ‘to lie down, recline,’ *cubīle* ‘a bed regarded as the scene of sexual relations, a marriage bed,’ as suggested by OLD 392, but Lat *cubō*, *cubīle* likewise has no known PIE origin.

Notes on possible outside root connections:

4. Bomhard 526 cites Afrasian (Akkadian) *karšu*, etc. ‘body, belly, womb, stomach,’ Proto-Uralic **kurs* ‘body, form, figure.’

Conclusions: While semantic parallels seem to be present, the lack of final consonant in the Afrasian and Uralic makes outside root connections doubtful.

Table 47: **k(R)ep-* ‘Steal, hide’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*klep-</i>	k	l		p	1	Steal, conceal, cover, hide
<i>*kreup-</i>	k	r	u	p	2	Hide, conceal, bury, keep secret, steal, betray

1. *klep- ‘Steal, conceal, cover, hide’

Grk κλέπτω ‘steal, carry off, spirit away,’ κλέπτης ‘a thief, robber, cheat, knave,’ Lat *clepō* ‘take away secretly, steal, hide oneself away, steal away,’ Goth *hilfan* ‘steal,’ TochB *kälypi* ‘steal,’ OPrus *anklipts* ‘concealed.’ Probably Grk καλύπτω ‘cover, hide, conceal’ (semantically an exact fit, but with unexplained epenthetic vowel and with altered second vowel probably by analogy with the following root). — LIV 363; IEW 553, 604; L&S 958; OLD 336; Mallory and Adams (2006) 335; EIEC 595; Bomhard 408.

2. *kreup- ‘Hide, conceal, bury, keep secret, steal, betray’

Grk κρύπτω ‘hide, conceal, cover in the earth, bury, keep secret, lie hidden, keep covered,’ TochB *kraup-* ‘gather,’ Latv *krâpju* ‘steal, betray,’ Lith *krópti* ‘steal.’ — Mallory and Adams (2006) 267; IEW 616; L&S 1000; EIEC 217.

Mallory and Adams (2006) and IEW analyze this root with final in *-b^h* as a root extension.

Notes on possible outside root connections:

1. Bomhard 408 cites Dravidian *qale*, etc. ‘rob, steal, thief, theft, deceitful.’

Conclusions: While semantic parallels exist, lack of final consonant in the Dravidian makes root connections doubtful.

Table 48: *(s)k(R)et- ‘Shake, shudder, quake, vibrate’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
*kret-	k	r	ø	t	1	Shake, agitate, rattle, strike
*kreut-	k	r	u	t	2	Move, quick, shake, agitate, flutter
*(s)k _u eh ₁ t-	(s)k	u	h ₁	t	3	Hurry, strew, sprinkle, shake, agitate,
*(s)k _u (n)t-	(s)k	u	(n)	t	4	Shake, jolt, quake, convulse

1. *kret- ‘Shake, agitate, rattle, strike’

OHG *redan* ‘sift,’ OE *hraðe* ‘quick,’ Lith *krečiù* ‘shake, agitate, vibrate, strew by shaking,’ Grk *κροτέω* ‘rattle, strike, clap,’ Mlr *crothaid* ‘shakes.’ — LIV 370; Mallory and Adams (2006) 380; IEW 620; L&S 999; EIEC 509.

2. **kreut-* ‘Move, quick, shake, agitate, flutter’

ON *hraustr* ‘quick,’ Lith *krutù* ‘move, stir,’ MHG *rütten* (**hrudjan*) ‘shake, agitate,’ OE *hrēaðe-mūs* ‘bat’ (literally “fluttering mouse”). — Mallory and Adams (2006) 380; IEW 623; EIEC 509.

3. **(s)kueh₁t-* ‘Hurry, strew, sprinkle, shake, agitate, vibrate, strike, jolt’

ON *skynda* ‘hasten, go quickly, anything hurried,’ OE *scyndan* ‘hurry, hasten, urge, incite,’ Grk *πάσσω* ‘strew, sprinkle,’ Lat *quatiō* ‘shake, rock, agitate, tremble, vibrate, hurry, strike,’ OHG *scutten* ‘shake, agitate, vibrate, jolt, joggle.’ — LIV 563; Mallory and Adams (2006) 380; IEW 632, 957-58; EIEC 509; Vigfusson 563; Bosworth and Toller 847; L&S 1346; OLD 1544-45; Bomhard 520.

4. **(s)ku(n)t-* ‘Shake, jolt, quake, convulse’

OHG *scutten* ‘shake violently, convulse, quake, vibrate,’ NE *shake, shudder*, Lith *kuntù* ‘recover, get better,’ OCS *skytati se* ‘wander,’ Lith *kutù* ‘shake up, arouse.’ — Mallory and Adams (2006) 380; IEW 957-58; EIEC 509.

Notes on possible outside root connections:

3. Bomhard 520 cites Afrasian (Egyptian) *ktkt*, etc. ‘shake, quiver, make with the hands, touch, build,’ Dravidian *kuti*, etc. ‘jump, leap, bound, frolic, splash, boil, bubble, stamp, trot, agitation, shake violently,’ Proto-Kartvelian **kwet-* ‘move, shake, swing, sway, move something.’

Conclusions: Root 3 appears to correspond semantically and phonetically with the outside non-PIE roots.

Table 49: **ke(R)h₁-* ‘Sing, call, praise, extol, proclaim, chant incantations’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*kan-</i>	k		n		1	Sing, celebrate, extol, proclaim, sound a call, chant incantations, cry of birds, cock
<i>*kerH</i>	k		r	H	2	Praise, celebrate, extol, announce, report, fame

* ^(k) elh ₁ , *kleh ₁	(^k)		1	h ₁	3	Proclaim, praise, extol, call, charm by incantation and music, the cock
---	------------------	--	---	----------------	---	---

1. **kan-* ‘Sing, celebrate, proclaim, sound a call, chant incantations, the cock’

OIr *canaid* ‘sings,’ *cechain* ‘sang,’ Wels *canu* ‘sing, play an instrument,’ Lat *canō* ‘sing, chant incantations, celebrate (in verse), relate, tell, extol, proclaim, tell rumors, sound a call, (of birds) to cry,’ prophesy, foretell’ *carmen* ‘song, prophecy, form of incantation,’ Grk *η-κάνος* ‘cock’ (literally ‘dawn-singer), probably TochB *kene* ‘song, tune,’ Umb *kanetu* ‘let sing,’ Goth *Hahn* ‘cock.’ — Mallory and Adams (2006) 358; LIV 342; IEW 525-26; EIEC 519; OLD 266; Bomhard 414.

2. **kerH* ‘Praise, extol, fame’

Ved *akāriṣam* ‘have praised, have extolled,’ *carkarmi* ‘to praise, celebrate, extol,’ YAv *carəkərəmahī* ‘we praise,’ OE *hrēp* ‘fame,’ ON *herma* ‘announce, report,’ OHG *hruom* ‘fame.’ — Mallory and Adams (2006) (**kar-*) 337; LIV 353; IEW 530-31; deVries 224; EIEC 449.

3. *^(k)elh₁, *kleh₁ ‘Proclaim, praise, extol, call, charm by incantation, the cock’

OIr *cailech* ‘cock,’ Wels *ceiliog* ‘cock,’ Lat *calō* ‘announce, proclaim, summon,’ ON *hjala* ‘chatter, talk,’ Grk *καλέω* ‘call,’ *καλήτωρ* ‘herald,’ *κηλέω* ‘charm, bewitch, beguile (“especially by music”), charm by incantation,’ Hit *kalless* ‘call,’ Skt *uṣā-kala* ‘cock’ (literally “dawn caller”), ON *høla* ‘praise, extol, celebrate.’ — LIV 349, 361; IEW 548-551; EIEC 90; OLD 260; L&S 947; deVries 278; Bomhard 404.

Notes on possible outside root connections:

1. Bomhard 414 cites Afrasian (Egyptian) *kny* ‘to call,’ Dravidian *kaṇakaṇa*, etc. ‘to sound, rattle, jingle, ring, tinkling,’ Proto-Uralic **kaṇ3*, etc. ‘to call, to invite, ask, request, beg,’ Chuk-Kamch *kəŋ(læ)*, etc. ‘growl, snarl.’

3. Bomhard 404 cites Proto-Afrasian **kal*, etc. ‘make a noise, to sound, to call out, to shout, cry out, howl, argue, quarrel, resound,’ Dravidian *kalakala*, etc. rustle, tinkle, rattle, sound, clamor, roar, chatter, gurgle, noise, sound, clamor, tumult chattering of birds, shout,’ Eskimo **qaləR* ‘yell, ring, whistle, growl, cry, shriek, whine, twitter, bark, make a characteristic animal sound.’

Conclusions: These two roots appear to have differentiated as resonant-variants while still in contact with the outside language groups.

Table 50: **(s)ke(R)p-* ‘Cut, scratch, carve, take, gather, catch, seize, reap, harvest’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*(s)kep-</i>	(s)k		ø	p	1	Cut, hack, hew, dig, strike
<i>*(s)kerp-</i>	(s)k		r	p	2	Cut off, shear, shape, harvest, reap, seize
<i>*(s)kelp-</i>	(s)k		l	p	3	Scratch, carve, engrave, split or hew
<i>*keh₂p-</i>	k		h ₂	p	4	Take, gather, reap, seize, catch, have, hold

1. **(s)kep-* ‘Hack, hew, cut’

Grk κόπτω ‘smite, cut off, chop off, fell trees,’ Lith *kapù* ‘hew, hack,’ OCS *skopljǫ* ‘cut away, cut off, cut down,’ Alb *kep* ‘hewn, hacked,’ NPers *kāf* ‘split,’ Grk σκέπαρνος ‘hatchet for hewing wood.’ — LIV **(s)kep-* 555; IEW **(s)kep-* 931-32; L&S 979.

2. **(s)kerp-* ‘Cut off, shear, shape, pluck, pull, pick, harvest, reap, seize’

Lith *kerpù* ‘cut, shear,’ OCS *po-črvpǫ* ‘to shape,’ Lat *carpō* ‘pluck, pull, pick, harvest, crop, seize, pull off, take away,’ Grk καρπώ ‘take as fruit or produce, reap crops from, exploit, bear fruit,’ καρπάλιμος ‘eager, ravenous,’ κάρπασος ‘cotton,’ καρπός ‘fruit, fruits of the earth, corn, harvest, crops, wool, produce,’ NE *harvest*, Skt *karpāsa* ‘cotton.’ — LIV **(s)kerp-* 559; OLD 279; IEW **(s)kerp-* 944-45; Moirer-Williams 258; L&S 879-80; EIEC 258.

3. **(s)kelp-* ‘Scratch, carve, engrave, hew wood’

Lat *scalpō* ‘scratch, carve, engrave,’ *sculpō* ‘carve or engrave,’ OHG *scelifa*, MHG dial. *schelfe* ‘skinned bark,’ MNG *schelver* ‘piece (of wood) with leaves removed,’ ON *skjǫlf* ‘bench,’ OE *scielfe* ‘story, floor, tier,’ MNG *schelf* ‘book-shelf, wooden framework,’ (without s-): Got *halbs*, ON *halfr*, OE *healf*, OSax *half*, OHG *halb* (literally ‘divided’) ‘grip, handle, shaft,’ NE *helve*, Lith *kálpa* ‘cross-beam on a sledge,’ OPrus *kalpus* ‘upright pole,’ Lith *sklempiù* ‘smoothly hew or dress timber, to polish.’ — IEW **(s)kelp-* 926; OLD 1698, 1713.

4. **keh₂p-* ‘Take, gather, reap, seize, catch, have, hold’

Lat *capiō* ‘take into the hand, take hold of, take food or drink, catch, gather, reap, capture, seize, take booty,’ Grk *κάπτω* ‘greedy, gulp down,’ Goth *haffjan* ‘lift, heave,’ OHG *habēn* ‘have, hold,’ Latv *kāmpju* ‘seize,’ Alb *kap* ‘catch, grab, seize,’ Skt *kapaṭī* (dual) ‘two handfuls.’ — Watkins (2011) 38; IEW 527; LIV 344; EIEC 563; L&S 876; OLD 269-71; Balg 148; Mallory and Adams (2006) 270-71; Bomhard 415.

Notes on possible outside root connections:

4. Bomhard 415 cites Proto-Afrasian **kap-*, etc. ‘take, seize, hand, palm, paw, claw, flat of the hand, cut off the hands,’ Elamo-Dravidian *kap-pi*, etc. ‘catch, latch, clasp, brooch, cover or press gently with the hand, throw the hand or claws upon in order to catch, feel with the hand, touch,’ Uralic (Proto-Finno-Ugrian) **kapp₃-*, etc. ‘take seize, grasp, captive, hand, paw,’ Proto-Altaic *k^hap^hV-*, etc. ‘press, grasp, strangle, pinch, squeeze, hold, join, press together, snatch, take, bite, carry off, acquire, loot,’ Proto-Eskimo **kapat-*, etc. ‘be narrow, constricted, tight-fitting, pull outer garment over inner one.’

Conclusions: This root is well-represented in the outside language families and therefore appears to be a distant cognate.

Table 51: **ke(R)-* ‘To love, desire, be pleased, copulate; friend, pleasure, whore’

PIE Root	Initial	R1	R2	Final	Ref.	Semantic Value
<i>*keh₂-</i>	k		h ₂		1	Love, desire, gladness, friend, adulterer, whore, greedy
<i>*kem-</i>	k		m		2	Love, desire, hunger, lasciviousness, charming, beautiful, copulates with
<i>*ken-</i>	k		n		3	Love, be pleased, demand, request, tendency, pleasure

1. **keh₂-* ‘Love, desire, gladness, friend, whore’

Ved *kāyamāna* ‘desire,’ OAv *kaiiā* ‘to be glad,’ Lat *cārus* ‘love,’ Goth *hors* ‘adulterer,’ Ved *kamī* ‘desire, love,’ OIr *caraid* ‘loves,’ *cara* ‘friend,’ Wels *caraf* ‘love,’ NE *whore*, Latv *kārs* ‘greedy.’ — IEW 515; EIEC 357; LIV 343.

2. **kem-* ‘Love, desire, hunger, lasciviousness, charming, beautiful, copulates with’

Lith *kamaros* ‘lasciviousness,’ Latv *kāmēt* ‘hunger,’ Skt *kāmáyati* ‘desires, longs for, is in love with, copulates with,’ *kamra-* ‘charming, beautiful,’ *kamana-* ‘greedy,’ TochB *kāñm* ‘play.’ — EIEC 357; IEW 515.

3. **ken-* ‘Love, be pleased, demand, request, tendency, pleasure’

MIr *cin* (< **kenu-*) ‘love, tendency,’ Av *čakana* ‘be pleased,’ *čana-* ‘demand, request,’ Skt *cākana* ‘is pleased,’ *cānas-* ‘pleasure.’ — EIEC 358; IEW 515.

***k_u-**

Table 52: **k^(u)se(R)b^h-* ‘Shake, vibrate, whirl around, swing, toss’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*k^(u)seub^h-</i>	k ^(u) s		u	b ^h	1	Shake, tremble, vibrate, swing, toss
<i>*k^(u)sueib^h-</i>	k ^(u) s	u	i	b ^h	2	Throw, toss, move hastily, turn, swing

1. **k^(u)seub^h-* ‘Shake, tremble, vibrate, swing, toss’

Ved *kṣobhate* ‘shake, tremble, be agitated or disturbed, be unsteady, stumble, stir up, excite,’ *kṣubhita* ‘agitated, shaken, tossed, set in motion,’ YAv *xšufsqn* ‘shake, tremble, vibrate,’ Pol *chybać* ‘swing, rock, pitch, move back and forth.’ — LIV 372; IEW 625; Monier-Williams 331.

2. **k^(u)sueib^h-* ‘Throw, toss, move hastily, turn, swing’

Ved *kṣipāti* ‘throw, cast, toss, move hastily,’ YAv *xšuaēḡaiiat̪.aštra* ‘swing the whip,’ OCS *o-šibati* ‘turn oneself around,’ Rus *šibát* ‘throw.’ — LIV 373; IEW 625, 1041; Monier-Williams 328.

Table 53: **k_e(R)-* ‘Make, do, gather, fabricate, spin, build’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
----------	---------	----	----	-------	-----	----------------

* <i>k^uer-</i>	k ^u		r		1	Make, do, manufacture, cultivate, execute, build, create
* <i>k^ueĭ-</i>	k ^u		ĭ		2	Make, do, manufacture, create, construct, gather up, arrange in order
* <i>k^uel-</i>	k ^u		l		3	Turn, turn the earth (plow, cultivate), spin (i.e. manufacture yarn), wheel, spindle
* <i>k^uer-pH-</i>	k ^u		r		4	Turn, wrist, whirlpool

1. **k^uer-* ‘Make, do, manufacture, cultivate, build’

Ved *kṛṇóti* ‘make, do, manufacture, cultivate, execute, build’ OIr *cruth* ‘form,’ Lith *kuriù* ‘make, build, create,’ OCS *kručĭjĭ* ‘smith,’ Av *kərənaoiti* ‘does, makes,’ Lith *kēras* ‘magician,’ Rus *čáry* ‘sorcery.’ — LIV 391; IEW 641-42; Watkins (2011) 47; Mallory and Adams (2006) 370; Monier-Williams 300-303; Mayrhofer I.307; Bomhard 525; EIEC 362.

2. **k^ueĭ-* ‘Make, do, manufacture, create, gather up, construct’

Grk *ποιέω* ‘make, do, manufacture, create, produce, bring about, cause,’ OCS *čini* ‘order,’ Skt *cinóti* ‘arrange in order, heap up, pile up, construct, gather together.’ — LIV 378; IEW 637-38; Watkins (2011) 46; Mallory and Adams (2006) 219-20; L&S 1427; Monier-Williams 394; Bomhard 523.

Probably the first manufacturing activity that human beings engaged in was the production of textiles, which was based on the spinning of yarn from raw fleece and fibers. As the early Indo-Europeans transitioned from an economy built around hunting, gathering, and herding animals to one of settled agriculture, the next most important activity would have been the cultivation of the soil, which involved turning the earth through plowing. **k^uel-* includes both of these concepts, and these link it to the roots cited above. Since the notions “*make, do, manufacture*” that the above roots express, are more general than the the specific concepts expressed by **k^uel-*, it may very well be that **k^uel-* retains the earliest and most fundamental sense of this resonant series, as semantic development usually proceeds from the specific to the more general.

3. **k^wel-* ‘Turn, turn the earth (i.e. plow, cultivate), spin (i.e. manufacture yarn), wheel, spindle, lead to pasture’

Grk *περι-τέλλομαι* ‘move in a circle,’ OE *hwēol* ‘wheel,’ NE *wheel*, Grk *κύκλος* ‘circle, wheel,’ *πολέω* ‘turn or rotate,’ *πόλος* ‘the pole or axis of the celestial sphere, the center of a circular threshing floor, the vault of heaven’ (from the circular movement of the stars), *αἰπόλος* ‘goat herd,’ Skt *cāraṭi* ‘move oneself, wander, lead or drive to pasture,’ *cakrá* ‘wagon wheel, disk, pulley, potters wheel,’ *karṣū* ‘furrow’ (where the earth has been turned), *kārṣati* ‘turn, turn over, plow,’ Av *čarāna* ‘field,’ TochB *kokale* ‘wagon’ (from the turning/spinning wheels), Lat *colus* ‘distaff, spindle, spinning,’ *collum* ‘neck’ (that which turns the head). — LIV 386; IEW 639-40; Watkins (2011) 46; Mallory and Adams (2006) 377; OLD 358; L&S 1436; Watkins 46; DELG 846; EIEC 606-7; Bomhard 510, 511, 516.

4. **k^wer-pH-* ‘Turn, wrist, whirlpool’

OE *hweorfan* ‘turn, change,’ Grk *καρπός* ‘wrist,’ OHG *(h)werban* ‘turn,’ *wirbel* ‘swirl, whirlpool.’ — LIV 392-93; EIEC 607; IEW 631; Mallory and Adams (2006) 379.

Notes on possible outside root connections:

1. Bomhard 525 cites Afrasian *k^wir-*, etc. ‘twist or twine together, tie, fasten, twist a rope, woven basket, encircle, wrap, surround, turn,’ Uralic *kure-*, etc. ‘twist, turn, plait, tie together, twine, braid, plait, stitch together.’

2. Bomhard 523 cites Afrasian *kayyafa*, etc. ‘form, shape, fashion, mold, fit,’ Dravidian *key-*, etc. ‘do, make, create, act, work, perform,’ Altaic *khi-*, etc. ‘do, make, act perform.’

3. Bomhard 510 cites Afrasian *k^wal-* ‘revolve, go around, roll, surround, encompass, encircle, circuit, turn, circle,’ Dravidian *kulavu*, etc. ‘bend, curve,’ Altaic *k^hulo-*, etc. ‘roll, turn, dance, walk around, turn around, bend in river, go round and round.’

Conclusions: Strong phonetic and semantic parallels to all three of these PIE forms are seen in the outside language families. A very credible example that suggests a differentiation into the attested resonant variants while still part of an ancient linguistic community that included at least PIE, Afrasian, Dravidian Uralic, and Altaic.

1-*Table 54:** **le(R)p-* ‘Remove outer peel or bark, strip off, pare’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*lep-</i>	l		ø	p	1	Peel, pare, strip off skin or bark
<i>*leup-</i>	l		u	p	2	Peel the skin off, strip off outer covering

1. **lep-* ‘Peel, pare, strip off bark’

Grk λέπω ‘pare, peel, remove bark, strip,’ λέψαι ‘strip, peel, pare,’ Lat *lapit* ‘to cause pain or grief to someone.’ — LIV 413; OLD 1001; L&S 1040; IEW 678; EIEC 568.

2. **leup-* ‘Strip off skin or bark, peel, pare’

Lith *lupù* ‘peel, pare, strip off skin or bark,’ Lith *laupýti* ‘peel, pare, strip,’ Rus *lupljú* ‘remove skin or bark, peel.’ — LIV 420; IEW 690-91; EIEC 567-68.

Table 55: **le(R)d-* ‘Leave, let loose, set free, set in motion’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*leh₁d-</i>	l		h ₁	d	1	Leave, let be, set free, release, make weary, tired
<i>*leid-</i>	l		i	d	2	Let loose, set free, set in motion, play

1. **leh₁d-* ‘Leave, let be, set free, release, make weary, tired’

Goth *letan* ‘leave, let, let be, let alone, set free, release,’ Alb *lodh* ‘make weary, tired, exhausted, worn out,’ Goth *lailot* ‘left,’ Lat *lassus* ‘weary, tired.’ — LIV 400; IEW 666; Balg 247; OLD 1004.

2. **leid-* ‘Let loose, set free, set in motion, play’

OLith *léidmi* ‘let loose, set free, set in motion,’ Lat *lūdō* ‘to play,’ Grk *λίνδεσθαι* ‘vie with, contend with,’ Alb *lindet* ‘was born,’ Lith *láidyti* ‘let loose, set in motion,’ Alb *len* ‘leave behind.’ — LIV 402; IEW 666.

m-*Table 56:** *(s)*me(R)k-* ‘Moisture, wetness, milk’

PIE Root	Initial	R1	R2	Final	Ref.	Semantic Value
* <i>mak-</i>	m		∅	k	1	Wet, moist, skin that forms on liquid
* <i>māk-</i>	m		∅	k	2	Knead, soak, steep
* <i>merk-</i>	m		r	k	3	Wet, moist, languid
* <i>melk-</i>	m		l	k	4	Milk, wet, damp, moisture
* <i>(s)meuk-</i>	(s)m		u	k	5	Slippery, slime, swamp, mucus, rain, moist

1. **mak-* ‘Wet, moist, puddle, pool’

Lith *makonė* ‘puddle, pool,’ OBulg *mokrb* ‘moisture,’ Russ *móknutb* ‘make wet,’ Alb *makë* ‘skin that forms on liquid.’ — IEW 698.

2. **māk-* ‘To make wet, soak, steep, squeeze’

Lat *mācerō* ‘make wet, soak, steep, bathe,’ Latv *mākt* ‘press,’ Czech *mačkati* ‘press, squeeze.’ — EIEC 450; OLD 1057; IEW 698.

3. **merk-* ‘Bog, swamp, soak, limp’

Lat *marceō* ‘faded, languid, limp, flaccid, slack, loose, lazy, to languish,’ Gallorom **bracu* (< **mraku*) ‘bog, morass,’ Slav **morky* ‘bog, morass,’ Cymr *brag-wellt* ‘swamp grass,’ Gall *mercasius* ‘swamp,’ MHG *murc* ‘faded, limp,’ MNG *meren* ‘bread dunked in wine or water,’ Lith *mirkstù* ‘to lay in water,’ *merkiù* ‘soak.’ — IEW 739; OLD 1078.

4. **melk-* ‘Wet, damp, moisture, milk’

Grk μέλκτιον ‘well, spring, fountain,’ Goth *milhma* ‘cloud,’ Russ *molokó* ‘milk,’ ORuss *molokita* ‘swamp, waters, flood,’ Serb *mlâkva* ‘puddle,’ Czech *mlklý* ‘moisture.’ — IEW 724; L&S 1098, 994.

5. **(s)meuk-* ‘Slick, slippery from wetness’

OIr *mocht* (< *muk-to*) ‘soft, tender,’ Lat *mungō* ‘blow nose, mucus,’ ON *mugga* ‘drizzle,’ Grk μύσσομαι (< **muk-ie/o*) ‘I blow my nose,’ Cymr *mign* ‘swamp, bog,’ ON *mugga* ‘drizzle,’ Latv *mukls* ‘pools of water.’ “These forms have been connected, farther from the sense central to this etymology, to forms meaning ‘to run away, slip away, flee’: Lith *mùkti* ‘slip away from,’ OInd *muñcāti* ‘looses, frees,’ [etc.] (EIEC 528).” — EIEC 527; IEW 744; LIV 443; Mallory and Adams (2006) 400; OLD 1287.

Table 57: **(s)me(R)d-* ‘Melt, smear, daub, anoint, remedy, bad-smelling fat’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*(s)meld-</i>	(s)m		l	d	1	Allow to melt, become soft, become liquid, dissolve, become digested
<i>*(s)meid-</i>	(s)m		i	d	2	Smear, daub, anoint, filth, foul pollution, smudge, be dirty
<i>*med-</i>	m		ø	d	3	Salves, ointments, unguents, and potions; a person who prepares and administers these
<i>*(s)merd</i>	(s)m		r	d	4	Spreading stink, foul odor, make an evil smell, bad-smelling fat

1. **(s)meld-* ‘Melt, become soft’

Ved *vī mradā* ‘soften,’ Grk μέλδω ‘allow to melt,’ ἀμέλδεν ‘τήκειν’ (Hsch.): “melt, bring clouds down in rain, dissolve, cause to waste or pine away, of putrefying flesh, fall away, of a corpse, of food in the digestive organs, come to

naught,” OE *meltan* ‘melt,’ OHG *smelzan* ‘melt,’ ON *melta* ‘melt, digest,’ OHG *smelzen* ‘melt, dissolve,’ NE *melt*, *smelt*. —LIV 431; IEW 718; Mallory and Adams (2006) 125; L&S 1096, 1786-87; de Vries 383; Watkins (2011) 55; Bosworth and Toller 677, 889; EIEC 378; NIL 482.

2. **(s)meǵd-* ‘Smear, daub, anoint, filth, foul pollution’

OE *smītan* ‘daub, smear, anoint, smudge, defile, pollute,’ *smīte* ‘a foul, miry place,’ OHG *be-smeizen* ‘be dirty,’ MHG *smitze* ‘spot, filth,’ Goth *smait* ‘smears,’ OCS *smědb* ‘dark brown,’ Arm *mic* ‘filth,’ OBul *smīta* ‘smear thinly.’ —LIV 569; IEW 966; Mallory and Adams (2006) 382; EIEC 528.

Of OE *smītan*, Bosworth and Toller write, “Later English takes the word in the sense of *strike*.” The modern English spelling of this word is “smite.” The probable semantic development would be something like the following: The OE word *smirels* signifies unguent, ointment, unction, salve. Anciently, such unguents were prepared by melting, rendering, and clarifying solid animal products (butter, fatty tissue, fat, beeswax, etc.) until they reached a clean liquid state. Then medicinal herbs were added and thoroughly mixed. The whole concoction was then allowed to cool and re-solidify, and finally daubed, smeared, or anointed onto the skin or wound where needed.

Later, when the smelting of metals came into use in PIE society, the process involved the same steps: First, dirty metal chunks and ore were melted in a cauldron in order to separate the pure metal from the dross, which was typically skimmed off the surface (a process called *smelting*). Then the clarified metal was poured into molds for further elaboration. The work of the metal-smith paralleled the earlier work of the unguent-maker/apothecary.

When the work of the metal-smith assumed greater importance in social life, the sense of the OE word, *smītan*, changed from that of applying unguents, to that of striking metal, for that is how gold, silver, copper, bronze and iron were worked into their final form. The smith smites the metal that he has melted and smelted.

The references here to filth, foul, miry pollution, defile, be dirty, etc., are because the process of rendering animal fat creates an unbearably foul stench. In addition, if these

unguents were applied to open wounds, say after a battle, the infected, gangrenous, putrid, rotting flesh would create an absolutely horrible smell.

3. **med-* ‘Salves, ointments, unguents, potions; a person who prepares them’

Lat *medeor* ‘heal, cure, remedy, bring to health,’ *medicus* ‘doctor,’ *medica* ‘a female physician,’ *medicābulum* ‘a healing agent, restorative,’ *medicāmentum* ‘a substance administered to produce spec. effects upon the body, a remedy; a cosmetic, a dye,’ Grk *Μηδός* ‘god of medicine,’ Av *vi-madaya* ‘act as healer.’ —LIV 423; IEW 705-06; Watkins (2011) 53; Mallory and Adams (2006) 195, 201, 317-18; OLD 1087-88; EIEC 261-62; Benveniste 406-11.

Most authorities place these attestations with a root that signifies “to measure.” This fails to satisfy on semantic grounds, since medicine in the ancient world was not the quantitative science that it is today. Typically it involved magic rituals, prayers, and herbal remedies that were prepared and administered by a shaman or other tribal healer.

Mallory and Adams write, “There are two words of Proto-Indo-European status that refer to ‘healing.’ **h₁/4eis-* [...] finds cognates in Anatolian indicating ‘salving’ or ‘anointing’ (Hit *iski(ya)-*) while **med-* (which gives Lat *medicus* ‘doctor,’ Av *vi-mad-* ‘healer’) is probably a specialized development of PIE **med-* ‘measure’.”

Mallory and Adams are very likely correct in their reasoning about the concept ‘healing’ arising from concepts for ‘salving’ or ‘anointing,’ but I would suggest that the source for **med* is more likely to be found in a root connected directly with the process for producing such remedies, rather than in the abstract concepts of weighing and measuring.

4. **(s)merd-* ‘Stink, foul odor, evil smell, bad-smelling fat’

Lith *smardyti* ‘makes an evil smell,’ OCS *o-smraždq* ‘a spreading stink,’ Lith *smirdžiu* ‘to stink,’ OCS *smrbždq* ‘a putrid smell, stink,’ Lat *merda* ‘ordure,

excrement, dirt, dung.’ OLith *smarstas* ‘stink, bad-smelling fat.’ — LIV 570; IEW 970; OLD 1102.

For an explanation of the relation of this root to the overall resonant series, see the commentary to #2 above.

Table 58: **me(R)h₂-* ‘Strike, crush, grind, diminish, pulverize, destroy’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*melh₂-</i>	m		l	h ₂	1	Pound, crush, pulverize, rub, grind, mill
<i>*melh₂-u̯-</i>	m		l	h ₂	2	Crush, grind, press
<i>*merh₂-</i>	m		r	h ₂	3	Crush, pulverize, beat, strike
<i>*menH-</i>	m		n	H	4	Tread, stamp, press together, break, crush
<i>*meiH-</i>	m		i̯	H	5	Diminish, harm, injure, damage, hurt, lessen

1. **melh₂-* ‘Pound, crush, pulverize, rub, grind, mill’

Arm *malem* ‘beat to pieces, pound, crush, pulverize,’ Lat *molō* ‘grind in a mill,’ Umb *maletu* ‘ground, milled,’ OIr *melid* ‘ground, crushed, milled,’ ON *mylja* ‘rub away, crush, pulverize,’ NE *meal*, OCS *meljo* ‘crush, grind, mill,’ CLuv *malw*, *mālhu-* ‘crush, break,’ Goth *malan* ‘ground, crushed, milled,’ Grk *μύλη* ‘mill,’ Lith *malù* ‘grind, crush, pulverize.’ — LIV 432; IEW 716; CLL 132; OLD 1129; Buck 338; L&S 1152; Bomhard 887; EIEC 247.

2. **melh₂-u̯-* ‘Crush, grind, press’

Goth *ga-malwjan* ‘press,’ ON *mølva* ‘crush, grind,’ TochA *malywät* ‘press.’ — LIV 433; IEW 717; Bomhard 878.

3. **merh₂-* ‘Crush, pulverize, beat, strike’

Ved *mṛṇāti* ‘crush, grind, mill, destroy,’ Grk *μαραίνω* ‘fight, pulverize, destroy,’ Alb *merr* ‘take, grab,’ Hit *marritta* ‘break up, reduce to small pieces, crush, grind, pulverize,’ ON *merja* ‘beat, batter, pound, strike.’ —LIV 440; IEW 735-36; Mayrhofer 2.319; L&S 1081; Bomhard 893.

4. **menH-* ‘Tread, stamp, press together, break, crush’

Lith *minù* ‘tread, stamp, break,’ ChSlav *mьnъ* ‘tread, knead, press, squeeze,’ Skt *carma-mnās* ‘refine, polish, thrash,’ Cymr *mathru* ‘stamp with the feet,’ Bret *mantra* ‘stamp,’ Mlr *men* ‘meal, dust,’ Rus *mnu*, *mjatъ* ‘break, knead, stamp, crush, crumble.’ —LIV 438; IEW 726; ALEW 755.

5. **meiH-* ‘Diminish, harm, injure, damage, hurt, lessen, make smaller’

Ved *mināti* ‘diminish, harm, injure, damage,’ Grk *μινύθω* ‘lessen, diminish, curtail, become smaller,’ Lat *minuere* ‘lessen, diminish, reduce,’ *minus* ‘smaller,’ Osc *menvum* ‘diminish,’ Corn *minow* ‘make smaller, diminish,’ TochAB *mi-* ‘hurt, harm.’ —LIV 427; IEW 711; Mallory and Adams (2006) 319; EIEC 351.

Notes on possible outside root connections:

1. Bomhard 887 cites Afrasian *móöldó*, etc. ‘grinding stone,’ Uralic **mol3-*, etc. ‘grind, crush, break, smash, crumb, little bit, piece, morsel, crumble away,’ Proto-Altaic **mole-*, etc. ‘rub, crush, grind, wear out, weak, weary, tired, destroy, ruin,’ Eskimo **mul̥ṣa-* ‘be careful, gentle.’

2. Bomhard 878 cites Afrasian (Proto-Semitic) **mal-al-*, etc. ‘be or become worn out, weak, tired, weary,’ (Ethiopic) *malala*, etc. ‘plane a board, smooth with a plane, rub smear,’ anoint, grease, smear,’ Dravidian (Tamil) *mel*, etc. ‘soft, tender, slowly, gently, woman, weak, poor, cause much suffering,’ Proto-Chuk-Kamch. **m̥al*, etc. small, fine, supple, soften.’

3. Bomhard 893 cites Dravidian *muri*, etc. ‘break, be defeated, perish, cease to exist, cut, discontinue, wound, destroy, crushing destruction, break in pieces, crack,’ Proto-Uralic **mura-*, etc. ‘break, shatter, crumb, fragment, crumble, burst, beat to pieces, split apart,’ Eskimo **mur̥iiq-*, etc. ‘sharpen, grind, whet.’

Conclusion: PIE forms with resonants in *-r* and *-l* show probable cognates in outside language families, suggesting that these variants were formed while still in linguistic contact with them.

Table 59: **(s)me(R)-* ‘Remember, think, worry, say’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
----------	---------	----	----	-------	-----	----------------

*(s)mer-	(s)m		r		1	Thought, remember, worry about, mourn, care
*men-	m		n		2	Think about, feel, remember, believe, speak, rage, yearn
*mn-eh ₂ -	m		n		3	Think about, remember, experience, chosen
*mei̯n-o-	m	i̯	n		4	Opinion, desire, bemoan, remorse, think, say
*ml-euh ₂	m		l		5	Know, say, speak, bemoan, express, utter
*mel-	m		l		6	Think, suppose, worry about, thought, idea, speech, quarrel

1. *(s)mer- ‘Thought, remember, worry about, mourn, care’

NE *mourn*, Lith *merėti* ‘worry about,’ Grk *μέριμνα* ‘thought, care, anxiety,’ Av *maraiti* ‘observes,’ Skt *smárati* ‘remembers, longs for,’ Lat *memoria* ‘remembrance,’ OE *mimorian* ‘remember,’ Arm *mormok* ‘care,’ OHG *mornēn* ‘worry about, mourn.’ —LIV 569; IEW 969; EIEC 483; Mallory and Adams (2006) 323.

2. *men- ‘Think, feel, remember, believe, speak’

OAv *man̥tā* ‘think about,’ Ved *manuté* ‘think, feel, remember,’ Grk *μαίνομαι* ‘rage, rave, be consumed with madness,’ *μέμολα* ‘yearn,’ Lat *re-miniscor* ‘remember,’ *comminiscī* ‘sense, think through,’ *moneō* ‘remind, warn, admonish,’ OIr *-mainethar* ‘to mean, to believe,’ Hit *mēmai* ‘speak,’ Goth *man* ‘to mean, to remember,’ Lith *miniù* ‘think, remember,’ OCS *mbnjǫ* ‘to believe, to mean.’ —LIV 435; IEW 726-28; EIEC 575; Mallory and Adams (2006) 322; Bomhard 856.

3. *mn-eh₂- ‘Think about, remember, experience’

Grk *μνάομαι* ‘think about, remember, woo for a bride,’ *μνήσκειται* ‘thought, chosen, remembered,’ Late Ved *ā-manati* ‘chosen,’ poss. CLuv *manāti* ‘see, experience,’ —LIV 447; IEW 726-27; CLL 135; L&S 1138.

4. *mei̯n-o- ‘Opinion, desire, bemoan, remorse, think, say’

OIr *mīan* ‘wish, desire,’ NE *mean*, *bemoan*, OCS *měnjǫ* ‘mention,’ TochB *onmīn* ‘remorse’ OHG *meinen* ‘to mean, to say,’ OE *mænan* ‘think, say.’ — Mallory and Adams (2006) 323; IEW 714.

5. **ml-euh₂-* ‘Know, say, speak, bemoan, express’

Ved *brāviti* ‘say, speak,’ *bruve* ‘is known,’ OAv *mraomī* ‘say, speak,’ YAv *mruiiē* ‘is said,’ TochB *palwam* ‘bemoan,’ Rus *mólvitī* ‘say, express,’ Czech *mluviti* ‘utter.’ — LIV 446; EIEC 535-36.

The semantic pairing of “think/say” is very common throughout PIE.

6. **mel-* ‘Think, suppose, worry about, thought, idea, speech, quarrel’

CLuv *mali-/malai-*, ‘think, suppose,’ *māli* ‘thought, idea,’ Grk *μέλω* ‘to be an object of care or thought, to weigh on one’s soul, to worry about, to take an interest in, to be in one’s thoughts,’ ON *māl* ‘speech, legal dispute,’ OE *mǣl* ‘speech, quarrel.’ — CLL *mali* 132; L&S 1100; DELG 658-59; IEW 720; EIEC 125; Bomhard 848.

Notes on possible outside root connections:

2. Bomhard 856 cites Proto-Afrasian **man-*, etc. ‘count, reckon, consider, think, portion, share, number, allot, fortune, mind, to know, word, speech, intention.’ Dravidian *maṇi*, etc. ‘speak, scold, abuse, utter, petition, request, prayer, word,’ Proto-Uralic **man₃-*, etc. ‘consider, recount, say, speak, warn, admonish, curse, bewitch, wish evil to, ruin, slander, appoint, order, legend, saga, myth, repeat,’ Proto-Altaic **mana-*, etc. ‘learn, try, strive.’

6. Bomhard 848 cites Proto-Afrasian **mal-*, etc. ‘do good, be pleasant, be efficient, beneficent, excellent, potent, trusty, well-disposed, devoted, splendid, costly, lavish, famous,’ Dravidian *mālimi* ‘youthful friendship, familiarity, love, affection,’ Etruscan *mlac* ‘beautiful,’ Proto-Chuk-Kamch **mæl-*, etc. ‘good, good weather, dear, easy, well, strongly, cure, treat, get better.’

Conclusion: Root 2 shares strong phonetic and semantic parallels with the outside language families.

Root 6 differs slightly semantically, but still within range of the semantic field. These two resonant variants were likely formed while in contact with the outside language families.

Table 60: **me(R)d-* ‘To be happy, satisfied, drunk, joyful’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
* <i>med-</i>	m		ø	d	1	Rejoice, be glad, be drunk, be satisfied
* <i>meud-</i>	m		u	d	2	Merry, glad, rejoice, cheerful

1. **med-* ‘Rejoice, be glad, be drunk, be satisfied’

Ved *mándati* ‘rejoice, be glad, be delighted, be drunk, be intoxicated,’ *mádati* ‘gladden, delight, satisfy, exhilarate, intoxicate, inflame, inspire,’ YAv *maḍaite* ‘be drunk, be intoxicated,’ ON *mettr* ‘satisfied,’ Lat *madeō* ‘be wet or sodden, be satisfied, be drunk,’ Grk *μεστός* ‘full,’ OE *mettian* ‘to satiate.’ — LIV 423; IEW 694-95, 706; NIL 463; Monier-Williams 777, 787; Bomhard 876.

2. **meud-* ‘Merry, glad, rejoice, cheerful’

Ved *mudīmahi* ‘be merry, glad, happy, rejoice, delight,’ *módate* ‘rejoice,’ Lith *mudrūs*, Latv *mudrs* ‘lively, cheerful, blithe, merry.’ — LIV 443; IEW 741-42; Monier-Williams 822.

Notes on possible outside root connections:

1. Bomhard 876 cites Proto-Afrasian **mat*’, etc. ‘be or become wet, moist, rain, be soaked by rain, be rotten, dew.’

Conclusion: Latin *madeō* ‘be wet or sodden, satisfied, drunk’ parallels the Afrasian terms, at least with respect to the ‘wet and sodden’ elements, suggesting that these may be distant cognates.

Table 61: **me(R)g-* ‘To deceive, charm, cheat; guile, trickery, thief, dice cheat’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
* <i>meng-</i>	m		n	g	1	Deceit, guile, spell, magic charm, trickery, illusion
* <i>meug-</i>	m		u	g	2	Concealed, smothered, dice cheat, thief, highwayman

1. **meng-* ‘Deceit, guile, spell, magic charm, trickery, illusion’

MIr *meng* ‘deceit, guile, illusion,’ Grk *μάγανον* ‘spell, magic charm, philter,’ *μαγανεία* ‘trickery,’ Oss *mæng* ‘deceit.’ — EIEC 154; IEW 731.

2. **meug-* ‘Concealed, smothered, dice cheat, thief, highwayman’

OIr *formūchtha*, *for-mūigthe* ‘smothered, concealed,’ Lat *muger* ‘dice cheat,’ ME *micher* ‘thief,’ OHG *mūhhari* ‘highwayman.’ —EIEC 154; IEW 743-44.

*n-

Table 62: **ne(R)-* ‘Bow, bend, incline, nod, beckon’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
* <i>nem-</i>	n		m		1	Bow, bend, bow down
* <i>neū-</i>	n		u		2	Bend, bow the head, incline, nod, beckon

1. **nem-* ‘Bow, bend, bow down’

Ved *námate* ‘bend, bow,’ YAv *nəmaite* ‘bow down,’ TochB *nmetär* ‘bow oneself,’ Ved *nānāma* ‘bend over, bow.’ —LIV 453; IEW 764; Monier-Williams 528.

2. **neū-* ‘Bend, bow the head, incline, nod, beckon’

Lith *niausiù* ‘bend, bow, bow the head,’ Grk *νέω* ‘incline, nod, beckon, bow, bend forward,’ Lat *ad-nuō* ‘beckon, nod, bow,’ Ved *āti nāvayet* ‘shall bow.’ —LIV 455; IEW 767; L&S 1171; OLD 51; EIEC 394.

*p-

Table 63: *(s)*pe(R)-* ‘Spin, twist, weave, wind, coil’

This group of roots shows variations on the concept: spun thread and its resulting woven cloth, winding thread, moving in a revolving motion, and winding up cloth in flat segments (folding).

PIE Root	Initial	R1	R2	Final	Ref.	Semantic Value
*(s) <i>pen-</i>	(s)p		n		1	Spin, thread, weave, toil

* <i>sper-</i>	(s)p		r		2	Spin, spiral
* <i>pan-</i>	p		n		3	Weave, wind up thread, cloth
* <i>per-i-</i>	p		r		4	Round, round about, all around
* <i>pel-</i>	p		l		5	Woven cloth, garments, folded cloth

1. *(s)*pen-* ‘Spin, weave, thread’

NE *spin*, OE *spinnan* ‘spin,’ ON *spinna* ‘spin,’ OE *spinel* ‘spindle,’ OHG *spinala* ‘spindle,’ *spannan* ‘stretch,’ OE *spithra* ‘spider’ (“spinner and weaver of webs”), Lith *pinù* ‘weave,’ OCS *pǫnq* ‘tighten, strain,’ Alb *pe* ‘thread,’ Grk *πένομαι* ‘toil (at household tasks),’ Arm *hanum*, *henum* ‘weave,’ TochB *pānn* ‘draw out, stretch.’ — Mallory and Adams (2006) 234, 237; IEW 988; LIV 578; EIEC 571; Watkins (2011) 85.

Stretching the combed raw fleece is part of the process of spinning (see photo of spinner stretching and spinning raw fiber).

2. **sper-*, (s)*per-* ‘Turn, twist, wrap around, band, ribbon, coil, surround’

Lith *spartas* ‘band ribbon,’ Grk *σπεῖρα* ‘winding, spiral, whirl, coil, twist,’ *σπεῖρον* ‘linen cloth, sail cloth, wrapper, garment,’ *σπάρτον* ‘rope, cable,’ Arm *p’arem* ‘enclose, surround.’ — Mallory and Adams (2006) 380; Watkins (2011) 85; IEW 991; DELG 999; AHD 1676; EIEC 644.

Traditionally, the initial *s- in this root is not seen as the s-mobile, but I would argue that **peri* (see below #4) is a related form.

3. **pān-* ‘Weave, garments, wind up thread, cloth, flag’

Grk *πῆνος* ‘woven fabric,’ *πήνη* ‘thread on the bobbin in the shuttle,’ *πηνίον* ‘wound-up thread, bobbin, spool,’ *πηνίζομαι* ‘wind thread off a reel for the woof,’ Lat *pannus* ‘piece of cloth, rag,’ Goth *fano* ‘cloth,’ OE *fana* ‘flag, cloth.’ — IEW 788; de Vries 111; OLD 1290; L&S 1401; DELG 865; EIEC 569.



4. *peri- ‘Around, all around, round about’

Skr̥t *pári* ‘round, around, about, round about,’ *pari-karoti* ‘to surround,’ *pari-kṛit* ‘to wind round,’ *pari-kṛishati* ‘to draw a circle,’ *pari-kramya* ‘walk around, circumambulate,’ *pari-krānti* ‘revolution,’ *pari-kshit* ‘dwelling or spreading around,’ *pari-kshipya* ‘to wind round, to surround, encircle, embrace,’ *pari-khā* ‘a moat, ditch, trench around a town,’ *pari-dhi* ‘an enclosure, fence, wall, any circumference or circle’ *pari-bhramya* ‘turn or whirl around, move in a circle, round, revolve, rotate,’ Grk *περί* ‘round about, all round, extension in all directions as from a center, all round,’ *περιάγω* ‘completion of an orbit and return to the same point, rotate, cause to revolve, turn round, turn about,’ *περιάγωγός* ‘a circular canal,’ *περιδρομάς* ‘running around, encircling,’ *περικάθημαι* ‘to be seated all around, to surround and besiege a town, to blockade with ships all around,’ Lith *pér-jousti* ‘to gird around.’ —Mallory and Adams (2006) 289; IEW 810; Monier-Williams 591-598; L&S 1366-94; Bomhard 119.

Traditionally this preposition is grouped with *for*, *pro*, *per*, etc. as in *forward*, *progeny*, *permit*, but its connotations are significantly different. To go forward is quite distinct from going around something, and so this is better seen as a variation of *(s)*per*- ‘turn, twist, wrap around.’

5. *pel- Woven cloth, gown, folded cloth (double/triple folded, etc.)

Grk *πέπλος* ‘any woven cloth used for a covering; sheet, carpet, curtain, veil; a cloth laid over the face of the dead; upper garment or mantle in one piece worn by women,’ *πέπλῦφος* ‘weaver of πέπλοι,’ *πέπλωμα* ‘robe, garment,’ (“The word *πέπλος* would be a reduplicated form with zero grade, cf. *κύκλος*.” DELG 852), Alb *palē* ‘fold,’ ON *fel* ‘fold,’ *faldr* ‘a woman’s head covering, fold,’ *feldr* ‘coat,’ MHG *valte* ‘fold, winding, corner,’ Skt *puṭati* ‘to fold, to envelope,’ *puṭa* ‘a cloth worn to cover the private parts, fold, pocket,’ OCS *pelena*, Russ *pelená* ‘diaper, cloth, cover,’ Lat. *-plex* (duplex, triplex) ‘two-fold, three-fold, etc.’ Lat *palla* ‘a rectangular mantle, worn esp. as an outdoor garment by women or used

as a curtain or covering.’ —Mallory and Adams (2006) 384; IEW 802; Kluge 182; OLD 1284; EIEC 63; Bomhard 93.

This root is traditionally glossed as *fold*, but that would seem to be a secondary meaning. The primary sense is ‘spun and woven cloth,’ which is then folded for storage or transport.

Notes on possible outside root connections:

4. Bomhard 119 cites Dravidian *piri*, etc. ‘twist, strand, wisp, curl, turn, cord, twine, rope, spiral, string,’ Proto-Uralic **pire*, etc. ‘round, any round object, around, round about, circumference, periphery, extent, compass, circle, district, ring, wheel,’ Proto-Altaic **p^herkV-*, etc. ‘tie round, surround, bind, wrap, envelop, girdle, go round, turn, move around, revolve, rotate, spin a spindle,’ Proto-Eskimo **piRðar-*, etc. ‘braid, weave, twisted sinew thread.’

5. Bomhard 93 cites Proto-Kartvelian **pal-*, etc. ‘hide, bury, grave,’

Conclusion: Root 4 shares strong phonetic and semantic parallels with the outside language families — a very likely cognate. The Kartvelian form cited by Bomhard with respect to Root 5 would be cognate only if ON *fela* ‘to hide’ and other related Germanic forms belong here, which is not certain.

Table 64: **p(R)eu-* ‘Breathe, breathe heavily, pant, lungs, wind, spirit’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*preu₂-</i>	p	r		u	1	Pant, blow, breathe heavily, snort, foam, froth
<i>*pneu-</i>	p	n		u	2	Blow, breathe heavily, pant, snort, sneeze, spirit
<i>*pleu₂-mon-</i>	p	l		u	3	Lungs, float, swim, sail
<i>*peu-</i>	p	ø		u	4	Pant, gasp, puff, wheeze, lungs, breath, wind, soul, spirit

1. **preu₂-* ‘Pant, blow, breathe heavily, snort, foam, froth’

Ved *próthati* ‘pant, blow, breathe heavily, gasp, snort,’ *pra-próthati* ‘pant, blow up, inflate,’ YAv *fraoθat.aspa-* ‘with snorting horse,’ OE *ā-frēoðan* ‘foam, froth,’ ON *frauð* ‘foam.’ —LIV 494; IEW 810; Monier-Williams 711; Bosworth and Toller 27; de Vries 140.

2. **pneũ-* ‘Blow, breathe heavily, pant, snort, sneeze, puff, spirit’

Grk πνέω ‘blow, breathe, draw breath, fragrance,’ πνέυμα ‘blast, wind, breath, spirit, soul,’ ON *fnýsa* ‘pant, blow, breathe heavily, snort,’ OE *fnēosan* ‘sneeze,’ *fnæst* ‘puff, blast, breath.’ —LIV 489; IEW 838-39; L&S 1424-25; de Vries 136; Bosworth and Toller 296.

3. **pleũ-mon-* ‘Lungs,’ **pleũ-* ‘Float, swim’

Skt *klōman-* ‘right lung,’ Grk πλεύμων ‘lung,’ Lat *pulmō* ‘pl. lungs,’ Lith *plaũčiai* ‘lungs,’ ORus *pljuča* ‘lungs,’ Ved *plāvate* ‘swim, float,’ Grk πλέω ‘to sail, to swim,’ TochB *plyewsa* ‘float.’ —Mallory and Adams (2006) 187; IEW 837; OLD 1518; EIEC 359, 561; LIV 487.

PIE **pleũ-* ‘swim, float,’ has been seen as the source for Latin *pulmō* ‘lungs’ etc., but this is unlikely. Names for parts of the body generally do not derive from abstract concepts, rather the contrary is much more common. We say, for example, “the mouth of the river,” “the foot of the mountain,” “the head of the department,” “the heart of the artichoke.” For this reason, the concept “floating” is much more probably derived from the notion: *breathe air into the lungs*.

4. **peũ-* ‘Pant, lungs, breath, wind, spirit’

Skt *phupphukāraka* ‘pant, gasp, puff, wheeze,’ *phuphusa* ‘lungs,’ Arm (*h*)ogi ‘breath, spirit, soul,’ Mlr *ūan* ‘foam,’ Grk φῦσα ‘breath, wind, blast, bellows,’ Latv *pūga* ‘squall of wind.’ —IEW 847; Mallory and Adams (2006) 386; L&S 1963; EIEC 72; Bomhard 137.

Notes on possible outside root connections:

4. Bomhard 137 cites Proto-Afrasian **fuw-*, etc. ‘puff, blow, exhale, inflate, breath, wind, diffuse an aroma, fragrant emanation, catch one’s breath, smell,’ Dravidian *pūcci*, etc. ‘fart,’ Proto-Kartvelian **pu-*, etc. ‘swell up, inflate, rise (dough), boil, seethe, blow at somebody, whiff (puff),’ Proto-Uralic **puw3-*, etc. ‘blow,’ Proto-Eskimo *puvə-*, etc. ‘swell, inflate, lung, bubble, gas, air, be fat, ball or balloon-like thing, swim bladder, become swollen with air.’

Conclusion: If not onomatopoeic, then this root would have clear parallels to the outside language families cited.

Table 65: **pe(R)-* ‘Buy, sell’

PIE Root	Initial	R1	R2	Final	Ref.	Semantic Value
<i>*per-</i>	p		r		1	Sell, barter, exchange
<i>*pel-</i>	p		l		2	Sell, profit, booty, bargains

1. **per-* ‘Sell, barter, exchange’

OIr *renaid* ‘sells, barter, exchanges,’ Lat *inter-pres* ‘go-between,’ *pretium* ‘price,’ Grk *πέρνημι* ‘sell,’ *πόρνη* ‘prostitute,’ Av *pairyante* ‘they compared,’ NE *price*. — Mallory and Adams (2006) 273; L&S 1394-95; DELG 856; LIV 474; IEW 817; Bomhard 98; Benveniste 98-101.

2. **pel-* ‘sell, profit, booty, bargains’

ON *falr* ‘to be sold,’ Lith *pelnas* ‘profit,’ Russ *polón* ‘booty,’ Grk *πωλέω* ‘sell,’ Skt *pāṇate* ‘bargains, haggles.’ — Mallory and Adams (2006) 273-74; DELG 925-26; IEW 804; EIEC 185; Benveniste 98-101.

Notes on possible outside root connections:

4. Bomhard 98 cites Proto-Afrasian **par-*, etc. ‘separate, divide, break, scatter, judge, deliver, set free, sever, distribute, rend, burst, break out or open (blister or boil), crush, crumble, cut, tear, smash,’ Dravidian *pari*, etc. ‘separate, sunder, break off, destroy, cut, tear, rend, piece, portion, split, cleave,’ Uralic **päre*, etc. ‘small piece, fragment, splinter, chip, crumb, bit,’ Altaic *farsi*, etc. ‘piece, strip, cut or make in pieces,’ Chuk-Kamch **pər-*, etc. ‘pull tear, pluck, rip out, pull out by root, harvest, peel, take off.’

Conclusion: These outside forms are somewhat distant semantically.

Table 66: **(s)pe(R)s-* ‘Breathe, blow, blast, fragrance, soul, spirit’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*(s)peṯs-</i>	(s)p		ṯ	s	1	Breathe, blow, soul, spirit, whistle
<i>*pes-</i>	p		ø	s	2	Blast, breathe, blow, fragrance

1. **(s)peṯs-* ‘Breathe, blow, soul, spirit, whistle’

Lat *spīrō* ‘breathe, blow, respire,’ *spīritus* ‘breath, air, spirit, soul, divine inspiration,’ OCS *piskati* ‘whistle,’ Skt *picchorā* ‘flute,’ OE *fisting* ‘play pan pipes, fart,’ TochA *pis-* ‘blow an instrument.’ — IEW 796; Mallory and Adams 385-86; OLD 708, 1805-06; Bosworth and Toller 289; EIEC 72.

2. **pe-s-* ‘Blast, breathe, blow, fragrance’

ON *fōnn* ‘blast of snow,’ OCS *pěchyrb* ‘breathe,’ *pachati* ‘ventilate, fan, blow,’ Rus *pachnútb* ‘blowing snow,’ *zápachb* ‘fragrance, scent, smell,’ Pol *pęchnąć* ‘blow upon, drift against.’ — IEW 823-24; Mallory and Adams (2006) 184.

Table 67: **p(R)eth₂-* ‘Spread out, stretch out, be wide, be open’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*peth₂-</i>	p	ø		th ₂	1	Spread out, stretch out the arms, be open, extend in space
<i>*pleth₂-</i>	p	l		th ₂	2	Spread, extend, become larger or wider, broaden, spread itself out

1. **peth₂-* ‘Spread out, stretch out the arms, be open, extend in space’

Grk *πίτνημι* ‘spread out, stretching out the arms, open,’ Lat *pandō* ‘to spread out, splay, extend the hands, open, open out,’ Osc *patensíns* ‘open,’ Lat *pateō* ‘to be open, to extend in space, cover a wide field.’ — LIV 478; IEW 824-25; L&S 1409; OLD 1289; Buck 227, 321; EIEC 539; OLD 145, 1307; Bomhard 121.

2. **pleth₂-* ‘Spread, extend, become larger or wider, broaden, spread out’

Ved *práthate* ‘spread, extend, become larger or wider,’ YAv *fraθa.sauuuh-* ‘the spreading power,’ Lith *plečiù* ‘to broaden, spread itself out,’ Grk *πλατύς* ‘broad, wide.’ — LIV 486; IEW 833; Monier-Williams 678; Bomhard 88; EIEC 133, 539.

Notes on possible outside root connections:

1. Bomhard 121 cites Proto-Afrasian **pit-*, etc. ‘open, untie, loosen, release, free, forgive, be wide, spacious, open, broad, widen,’ Dravidian *pituṅku*, etc. ‘protrude, bulge, gush out, press out, squeeze out, blow up as a bladder, milk (a cow), open up, burst open, cause to burst, pinch,’ Proto-Eskimo **pita-*, etc. ‘come up, rise (sun), come into view or existence, sprout, flower, go out, grow, become, make.’
2. Bomhard 88 cites Proto-Afrasian **pal-*, etc. ‘flat, level, broad, even, wide, spacious,’ Dravidian *halu*, etc. ‘thinned, rare, not dense, sparse, slight, contemptible, thinness, transparent,’ Proto-Altaic **phāla*, etc. ‘field, level ground, meadow, floor, threshing floor, clearing, open space, plain,’ Proto-Chuk-Kamch **paɣar(ra)-*, etc. ‘flat, flatten, bend down close to the ground, smooth out, huddle up in a ball.’

Conclusion: Root 1 shows parallels between the PIE and outside forms which suggest that they may be distant cognates. Semantically, root 2 shares concepts of “open, wide, spacious” with the PIE forms, but phonetically lack of final consonant leaves too much uncertainty to draw definite conclusions.

Table 68: **(s)pe(R)-* ‘Nourish, take food or drink, suck, care for, feed, be full, thrive’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*peh₂(i)-</i>	p		h ₂		1	Protect, preserve, feed, pasture animals, maintain, grow rich or fat
<i>*pen-</i>	p		n		2	Feed, fatten, fodder, food, provisions, stock of a household
<i>*peh₃(i)-</i>	p		h ₃		3	Drink, suck, sip, swallow, enjoy, feast upon, partake of a meal
<i>*(s)peh₁(i)-</i>	(s)p		h ₁		4	Be satisfied, thrive, prosper, have success, be filled, get full
<i>*(s)peh₂-</i>	(s)p		h ₂		5	Suck, absorb, draw in, (of a female) to be sucked, derive, enjoy
<i>*pleh₁-</i>	p	l	h ₁		6	Have the belly full, fill, satisfy, glut, be filled, have enough

1. **peh₂(i)-* ‘Protect, preserve, feed, pasture animals, grow rich or fat’

Ved *pāti* ‘to watch, keep, preserve, protect, defend,’ Lat *pāscō* ‘to feed, to pasture, keep, rear animals, feeding the young, provide food for, maintain, support, grow rich or fat on, nurture, gratify hunger,’ TochB *paskenträ* ‘protect, safeguard, care

for,’ Hit *pahhasmi* ‘I care for, I protect,’ OCS *pasq* ‘graze, guard.’ — LIV 460; IEW 787, 839; Monier-Williams 613; OLD 1304-05; Bomhard 83.

2. **pen-* ‘Feed, fatten, fodder, food, provisions, stock of a household’

Lith *penù*, (*penè’ti*) ‘feed, fatten,’ *pēnas* ‘feed, fodder,’ Lat *penus* ‘food, provisions, the stock of a household.’ — LIV 471; IEW 807; OLD 1326; Bomhard 116; EIEC 199.

3. **peh₃(i)-* ‘Drink, suck, sip, swallow, enjoy, feast upon, partake of a meal’

Ved *píbatī* ‘drink, suck, sip, swallow, enjoy, feast upon, draw in,’ *pātriya* ‘worthy to partake of a meal,’ *pāka* ‘drinking, sucking,’ Grk *πῶθι* ‘drink,’ Arm *əmpem* ‘drink,’ Lat *bibō* ‘to drink.’ — LIV 462; IEW 839-40; Monier-Williams 612-13.

4. **(s)peh₁(i)-* ‘Be satisfied, thrive, prosper, have success, be filled, get full’

Ved *sphāyātai* ‘become fat,’ Khot *spaiye* ‘be satisfied,’ OE *spōwenlice* ‘thriving, prosperously, abundantly,’ OCS *spějǫ* ‘have success,’ Hit *ispā(i)* ‘get full, be filled, be satiated,’ TochB *spāw* ‘spread out.’ — Mallory and Adams (2006) 275, 342; LIV 584.

5. **(s)peh₂-* ‘Suck, absorb, draw in, (of a female) to be sucked, derive, enjoy’

Grk *σπάω* ‘draw in, suck in, suck, (of a female) to be sucked, draw breath, absorb, derive, enjoy,’ Arm *hanem* ‘draw, pull.’ — LIV 575; IEW 982; L&S 1625.

6. **pleh₁-* ‘Have the belly full, fill, satisfy, glut, be filled, have enough’

Ved *ápiprata* ‘have the belly full,’ Grk *πίμπλημι* ‘fill, full, satisfy, glut, to be filled, satisfied, have enough of a thing,’ Arm *lnowm* ‘full,’ Alb *m-blón* ‘fill.’ — LIV 482; IEW 798-800; Mallory and Adams (2006) 319; L&S 1405; Bomhard 90.

Notes on possible outside root connections:

1. Bomhard 83 cites Proto-Afrasian **pah-*, etc. ‘take into the mouth, eat, bite, serve up portions of food.’

2. Bomhard 116 cites Dravidian *pēnu*, etc. ‘treat tenderly, cherish, foster, protect, regard, esteem, honor, care for, nurture, protecting with loving care, nourish, support, rear, fatten, increase,’ Proto-Uralic **punʷa-*, etc. ‘watch over, protect, preserve, keep, hold, value, herdsman, to pasture, to herd.’

6. Bomhard 90 cites Dravidian *pala*, etc. ‘many, several, assembly, be multiplied, to breed, to rear,’ Proto-Uralic **paly₃-*, etc. ‘much, dense, tight, thicken, swell up, fester, many,’ Proto-Altaic *pʰūle*, etc. ‘to be left

over, surplus, excess, remain, be enough, sufficient,’ Proto-Chuk-Kamch derivational affix **pal-* ‘completely, intensely, well, to swell, to increase, big.’

Conclusion: All three of these roots show quite plausible connections to outside language families, suggesting that the differentiation of the resonants occurred before the separation of the ancient language stocks.

Table 69: **pe(R)k̂-* ‘Pick, pluck, shear, tear off’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*pek̂-</i>	p		ø	ĥ	1	Pick, pluck, pull, shear, comb, card, and plait wool
<i>*perk̂-</i>	p		r	ĥ	2	Pain, ache, suffering, to be painful
<i>*pleh₁k̂-</i>	p	l	h ₁	ĥ	3	To skin, to flay, peel off the skin, tear off, strip off

1. **pek̂-* ‘Pick, pluck, pull, shear, comb or card wool; plait, braid or twist it’

Grk *πέκω* ‘shear, comb, or card wool,’ Lith *pešù* ‘pluck, pull, pick,’ Lat *pectō* ‘to comb, to card wool,’ OHG *feh₁tan* ‘fight, fence,’ Arm *hiwsem* ‘plait, braid, twist, wreath.’ —LIV 467; IEW 797; L&S 1356; OLD 1315; EIEC 570.

2. **perk̂-* ‘Pain, ache, suffering, to be painful’

Lith *peřšti* ‘pain, ache, suffering, to be painful.’ —LIV 475; IEW 821; ALEW 875; Mallory and Adams (2006) 139.

Attempts to link this root with “furrows” or “pigs” (*porcus*) are dubious due to the semantic distance involved. Probably those stem from a separate root. On the other hand, pain and suffering are closely linked to plucking wool, which, long before the availability of metal shears, would have been a painful experience for the fleece-bearing animals.

3. **pleh₁k̂-* ‘To skin, to flay, peel off the skin, tear off, strip off’

ON *flá* ‘to skin, to flay,’ OE *flēan* ‘pull off the skin, flay,’ Lith *plė’šiu* ‘tear off, peel off, strip off.’ —LIV 483; IEW 835; Bomhard 132.

Notes on possible outside root connections:

3. Bomhard 132 cites Proto-Afrasian **fil-*, etc. ‘cleave, split, divide, canal, stream, hew, hollowed, ravine, cut open, break to pieces,’ Dravidian *piḷ-*, etc. ‘burst open, be rent or cut, break to pieces, divide, crush, tear apart, split, crack,’ Proto-Kartvelian **plet-*, etc. ‘tear apart, rip apart, be worn out, tear to pieces, pluck,’ Proto-Uralic **pilʷ3-*, etc. ‘split, cleave, cut asunder, divide, crack off, splinter, small piece of wood, little bit, fragment,’ Proto-Eskimo **pilay-*, etc. ‘to butcher, slit, cut into, cut or saw up, knife for butchering.’

Conclusion: This root shows close semantic parallels to the outside language families, but their lack of final consonant makes the connection uncertain.

Table 70: **pre(R)s-* ‘Spray, sprinkle’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*pres-</i>	p	r	ø	s	1	Sprinkle, spray, squirt, spit, splatter, rain
<i>*preus</i>	p	r	u	s	2	Spray, spit, sprinkle, wash, dewdrop, frost

1. **pres-* ‘Sprinkle, spray, squirt, splash, spit, splatter, rain’

Ved *pṛṣant* ‘sprinkle,’ TochB *pärsāte* ‘squirt, spray, sprinkle,’ Hit *papparaszi* ‘spatter, splash, spurt,’ Lith *purškiù* ‘spray, sprinkle, spit,’ OCS *ras-prašq* ‘burst, blast,’ Czech *prším* ‘spit, splatter, sprinkle, rain.’ — LIV 492; IEW 823; Monier-Williams 647.

2. **preus* ‘Spray, spit, sprinkle, wash, dewdrop, frost’

Ved *pruṣā* ‘spray, spit, sparkle,’ ON *friósa* ‘to freeze,’ Lith *prausiù* ‘wash,’ Skr *prṣkati* ‘spray, sprinkle,’ Ved *pruṣvā* ‘dewdrop,’ Lat *pruīna* ‘frost, hoar-frost,’ Germanic **frusta-* ‘frost.’ — LIV 493; IEW 809-10, 846; Bomhard 99.

Notes on possible outside root connections:

2. Bomhard 99 cites Proto-Afrasian **par-*, etc. ‘spread, scatter, expand, stretch, extend, pull apart, piece, disperse,’ Dravidian *para*, etc. ‘spread, be diffused, be flattened, be broad, extend, large,’ Altaic *fara-* ‘to spread freshly harvested grain out to dry.’

Conclusion: Semantic and phonetic differences (lack of final *-s*) make this connection uncertain.

Table 71: **pe(R)k̂-* ‘Adorn (oneself), to ornament, paint, draw, make ready’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
* <i>peĥ-</i>	p		ø	ĥ	1	To adorn, to ornament, to clean, to dress, satisfy, delight
* <i>peiĥ-</i>	p		i	ĥ	2	Adorn (oneself), ornament, paint, write, draw, decorate, make ready

1. **peĥ-* ‘To adorn, to ornament, to clean, to dress, satisfy, delight’

Lith *púošiu* ‘to adorn, to ornament,’ Latv *puôšu* ‘to clean, to adorn,’ ON *føgja* ‘clean, dress, adorn,’ Goth *fulla-fahjan* ‘be satisfied,’ OE *ge-fēon* ‘make glad, delight.’ — LIV 467; IEW 796-97.

2. **peiĥ-* ‘Adorn (oneself), ornament, paint, write, draw, decorate, make ready’

Ved *piśāná* ‘make ready, adorn oneself, form, fashion,’ *pís* ‘ornament, decoration,’ OPers *api_nθa* ‘adorn, ornament,’ TochB *piñkeṃ* ‘paint, write,’ YAv *aṇku* ‘*paēsəmna* ‘adorn oneself,’ Lith *piešiù* ‘draw, paint, write,’ Ved *pipéśa* ‘has adorned.’ — LIV 465; IEW 794-95; Monier-Williams 628; EIEC 414.

**s-*

Table 72: **sue(R)-* ‘Stake, beam, plank, column, sacrificial post’

PIE Root	Initial	R1	R2	Final	Ref.	Semantic Value
* <i>suel-</i> , * <i>sel-</i>	s	u	l		1	Plank, board, shaped wood, doorsill, pillar
* <i>suer-</i>	s	u	r		2	Post, prop, support, stake, sacrificial post

1. **suel-*, **sel-* ‘Plank, board, shaped wood, pillar, post, stake’

NE *sill* ‘sill, window sill, door sill,’ Grk *σέλις*, *σέλμα*, *ἐλματα* ‘plank, beam, decking,’ ON *syll*, *svill* ‘doorsill, threshold,’ *svalar* ‘arcade,’ OE *syll* ‘doorsill, threshold,’ OHG *swelli*, *swella* ‘doorsill, threshold,’ OHG *sūl* ‘pillar,’ Lith *súolas*

‘bench.’ —Mallory & Adams (2006) 227, IEW 898, L&S 1191-92, Watkins (2011) 91, EIEC 431, de Vries s.v. “súl” 560, Vigfusson, “súla, syll,” 605, 614.

2. **suer-* ‘Post, stake, support, sacrificial post’

Lat *surus* ‘post, stake,’ Grk *ἔρμα* ‘prop, support,’ Skt *sváru* ‘sacrificial post, stake.’ —Mallory & Adams (2006) 224-225; IEW 1050; OLD 1888; Monier-Williams 1282.

Table 73: **sne(R)h₁-* ‘Spin, weave, sew’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*sneh₁-</i>	s	n	ø	h ₁	1	Spin, sew
<i>*sneuh₁-</i>	s	n	u	H	2	Spin, wind, warp, knot
<i>*sieuH-</i>	s	i	u	H	3	Sew, stitch
<i>*seuh₁-</i>	s	ø	u	h ₁	4	Set in motion, twist, turn, spin

1. **sneh₁-* ‘Spin, sew’

Grk *νῆ* ‘spins,’ Lat *nēre* ‘spin,’ OIr *sní* ‘bind,’ Cymr *nyddu* ‘spin,’ OHG *nāen* ‘sew, stitch.’ —LIV 571; IEW 973; Mallory and Adams (2006) 234; EIEC 571.

2. **sneuh₁-* ‘Spin, wind, warp, knot’

ON *snúa* ‘wind, spin,’ ChSlav *snovq* ‘warp’ (weaving), Goth *sniwan* ‘make haste,’ ON *snúðr* ‘spinning, knot, loop.’ —LIV 575; IEW 977; EIEC 571; Bomhard 320.

3. **sieuH-* ‘Sew, stitch’

Lat *suō* ‘sew, stitch together, suture a wound,’ Lith *siuvù* ‘sew, stitch,’ Ved *sīvyati* ‘sew, stitch,’ NE *sew*, Oss *xwyj* ‘sew,’ Goth *siujan* ‘sew, stitch,’ ChSlav *šijq* ‘sew.’ —LIV 545; IEW 915-16; Mallory and Adams (2006) 234; OLD 1872; EIEC 573.

4. **seuh₁-* ‘Set in motion, twist, turn, spin’

Hit *suwezzi* ‘push,’ Ved *suvāti* ‘drive on, set in motion,’ OIr *im:soí* ‘twist, turn, spin about,’ OAv *hunāitī* ‘carry across,’ Ved *asāviṣur* ‘set in motion,’ OIr *soa* ‘shall rotate.’ —LIV 538; IEW 914; Mallory and Adams (2006) 392 (**seuh₃-*).

Notes on possible outside root connections:

2. Bomhard 320 cites Proto-Uralic **sene*, etc. ‘sinew, tendon, vein.’

Conclusion: This may be a PIE-Uralic isogloss as the roots are both phonetically and semantically congruent.

Table 74: **se(R)h₂-* ‘To bear a child, be blest, obtain one’s desire, be satisfied’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*seuH-</i>	s		u	H	1	Beget, bear, bring forth a child, give birth, son, child
<i>*selh₂-</i>	s		l	h ₂	2	Well-disposed, merciful, kind, favorable, gracious, propitious
<i>*senh₂-</i>	s		n	h ₂	3	Obtain, gain, be fulfilled, have, hold, seek, accomplish
<i>*seh₂-</i>	s		ø	h ₂	4	Satiate, take one’s fill, be satisfied, to have enough

1. **seuH-* ‘Beget, bear, bring forth a child, give birth, son, child’

Ved *sūte* ‘to beget, bring forth, bear,’ *sū* ‘child bearing, begetting, procreating,’ *sūtā* ‘a woman who has given birth to a child,’ *sūnú* ‘son, child, offspring,’ YAv *hunahi* ‘you give birth,’ Ved *sasūva* ‘has given birth,’ Lith *sūnùs* ‘son.’ — LIV 538; IEW 913-14; Monier-Williams 1239-40; ALEW 1141; Bomhard 275.

2. **selh₂-* ‘Well-disposed, merciful, kind, favorable, gracious’

Grk *ἔλαμαι* ‘disposed or inclined to be merciful, kind, favorable, gracious, propitious,’ Arm *alač‘em* ‘request, entreat,’ Grk *ἔλῃθι* (impv.) ‘Be merciful!, Be favorable!,’ — LIV 530; IEW 900; L&S 927-28.

3. **senh₂-* ‘Obtain, gain, be fulfilled, have, hold, seek, accomplish’

Ved *saniṣat* ‘have obtained,’ *sánati* ‘gain, acquire, obtain, possess, enjoy, be successful, be granted, be fulfilled,’ Arm *ownim* ‘have, hold, come into possession,’ OHG *sann* ‘strive after,’ OIr *sennid* ‘pursue, follow,’ Hit *sanahzi* ‘seek,’ Grk *ἄννυμι* ‘achieve, accomplish, bring about, fulfill, complete,’ ἥνεσα

‘have accomplished, have fulfilled, have completed.’ —LIV 532; IEW 906; Monier-Williams 1140.

4. **seh₂-* ‘Be satisfied, have enough’

Grk *ἄμεναι* ‘satisfy, take one’s fill, be satisfied,’ *ἔωμεν* ‘to have enough,’ Ved *á-sinvant* ‘insatiable,’ TochB *sinask* ‘satisfied, be satisfied,’ *soyem* ‘will be satisfied.’ —LIV 520; IEW 876; L&S 299; Monier-Williams 121.

Notes on possible outside root connections:

1. Bomhard 275 cites Dravidian *cēy*, etc. ‘son, child, youth, child at the breast, baby, female child, boy, servant,’ Proto-Kartvelian **škw-* ‘to give birth, beget,’ *šv-a*, etc. ‘child, son, first-born.’

Conclusion: Although few potential cognates can be shown, still the phonetics and semantics are close enough to suggest possible external connections.

Table 75: **s(R)eġ-* ‘Salve, apply an unguent, smear on an ointment’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*seġ-</i>	s			ġ	1	Apply ointment, salve, unguent, oil
<i>*sleiġ-</i>	s	l	ī	ġ	2	Smear, dab, apply ointment

1. **seġ-* ‘Apply ointment, salve, unguent, oil’

Hit *iskiyanzi* ‘apply ointment, anoint,’ *sakan* ‘oil.’ —LIV 517; Mallory and Adams (2006) 195.

2. **sleiġ-* ‘Smear, dab, apply ointment’

OIr *-sliġ*, *-slegar* ‘to smear, to dab, smear on a substance,’ Grk *λίγδην* ‘touch the surface of,’ OCS *slbzьkь* ‘slippery.’ —LIV 566; IEW 663-64; OLD 1033.

Table 76: **(s)te(R)-* ‘Steal, conceal, bring secretly, deprive, rob, thief’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*(s)teh₂-</i>	(s)t		h ₂		1	Steal, hide, rob, thief

* <i>ster-</i>	st		r		2	Deprive, rob, thief
* <i>stel-</i>	st		l		3	Steal

1. *(s)te_h₂- ‘Steal, hide, rob, thief’

OCS *tajō* ‘hide,’ *taj* ‘secret,’ Hit *tāyezzi* ‘steals,’ Av *tāyu-* ‘thief,’ Skt (s)*tāyu* ‘thief,’ TochB *ene-stai* ‘in secret,’ OIr *tāid* ‘thief,’ Grk *τητάομαι* ‘deprive, rob.’ — EIEC 543; IEW 1010.

2. **ster-* ‘Deprive, rob, thief’

MIr *serb* (< **steru*os) ‘thief,’ Grk *στερέω* ‘deprive, rob.’ — EIEC 543; IEW 1028; LIV **sterh*₁- 599; Mallory and Adams (2006) 275-76.

3. **stel-* ‘Steal’

ON *stela* ‘steal,’ OE *stelan* ‘steal,’ NE *steal*, Goth *stilan* ‘steal.’ — EIEC 543; Mallory and Adams (2006) 275-76.

t-*Table 77:** *(s)te(R)k- ‘Rotate: spin, twist, churn, bore, weave, thresh’

This group of roots shows variations on the concept *spin, twist, rotate*. *Spinning* yarn is fundamental; *weaving* reflects the fact that spinning was a major part of the overall weaving process; *tormenting* results from the twisting of limbs; *churning* milk is accomplished by turning or spinning the churning stick; *boring* was done with a friction-stick rotated by a bow with a string under tension like the ancient fire-drill; *threshing* was performed by leading oxen in a circle to stamp the grain out of the husk,

or to drag a threshing sledge around the threshing floor. All these activities involve circular rotation, probably originally based on the notion of spinning wool.

PIE Root	Initial	R1	R2	Final	Ref.	Semantic Value
*tek-	t		ø	k	1	Turn, twist, roll, spin, plait, weave, spindle, break flax
*terk ^(u) -	t		r	k ^(u)	2	Spin, twist, spindle, torment (twisting the limbs), wind up, writhe, wood turner
*tenk-	t		n	k	3	Twisting a churning stick, coagulate by churning, churned milk, buttermilk
*teuk-	t		u	k	4	Bore, thresh, weave, drill,
*telk-	t		l	k	5	Thresh, husks of grain, stamp, crush, pound, beat, grist
*(s)trenk-	(s)t	r	n	k	6	String, cord, spun yarn, be twisted, strong, strangle

1. *tek- 'Weave, plait, twist, spin'

Arm *t'ek'em* 'turn, twist, roll, plait,' *hiwsem* 'plait, weave,' Lat *texō* 'weave, plait, spin, put together,' MHG *dehsen* 'break flax,' OHG *dehse, dehsa* 'spindle.' — LIV 619; IEW 44, 1058-59; Bomhard 185.

2. *terk^(u)- 'Twist, spin, spindle, yarn (and other products of spinning)'

Lat *torqueō* 'twist, turn, wind up, spin, torment,' OE *bræstan* 'turn, twist, writhe,' OHG *drāhsil* 'roller, wood turner, wood spinner,' OPrus *tarkue* 'reins,' OCS *trakŭ* 'band, belt,' Rus *tōrok* 'reins,' Alb *tjerr* (<*terkne/o) 'spin,' (also *tjerr* 'flax yarn spun with a spindle'), Grk *ἄτρακτος* 'spindle,' Hit *tarku(wa)*- 'turn oneself, dance,' Skt. *tarkú* 'spindle,' TochB *tärk-* 'twist around, work wood.' — Monier-Williams 440; L&S 101, 272; EIEC 572; OLD 1951; Mallory and Adams (2006) *terk^(w)- 234; LIV *terk^u- 635; IEW *terk- 1077.

3. *tenk-, temk- (By turning a butter-churn): 'Make thick, coagulate, buttermilk, curdle, churning-stick, (twisted) seaweed'

Hit *tamekzi* ‘attach, cling,’ Ved *tanakti* ‘churned buttermilk,’ OIr *téici* ‘coagulated,’ ON *bēl* (< *tenklo*) ‘buttermilk,’ Lith *tánkus* ‘thick, copious,’ Pashto *tāt* (< **tahta-* < **tḡkto-*) ‘thick,’ NPers *talxina* ‘sour milk,’ Skt *a-tanákti* ‘makes curdle,’ *takram* (< *tḡklóm*) ‘buttermilk,’ *takrâṭa* (< *tañc*) ‘churning stick,’ TochB *tanki* ‘very full, blocked,’ ON *þang* ‘seaweed’ (from the tendency of seaweed to twist itself around other seaweed strands and make a thick, strong, ropelike tangle). — LIV 625; Mallory & Adams (2006) 320; IEW 1068; EIEC 516; Monier-Williams 431; de Vries 608.

This root is typically understood to represent thickened or coagulated milk products, rather than the rotating, churning process employed to reach such coagulation. Understood in this way, however, makes sense out of the attested forms signifying ‘churning stick’ and ‘(twisted) seaweed,’ as well as all of the terms related to coagulated milk. A parallel example is the English word, *grain*. This term signifies a diverse range of cereal crops, but it is derived originally from a word meaning, *rub, crush, grind*, denoting the process involved in preparing the items for consumption.

4. **teyk-* ‘Thresh, bore, drill, hole made by boring, tool for boring, weave’

Grk *τυκίζω* ‘to work stone,’ *τύκος* ‘tool for working stone,’ *τυκάνη* ‘a kind of drag used as a threshing instrument, a threshing sledge (This implement was drawn in a circular motion by a draft animal.), OIr *toll* ‘hollow, hole, aperture’ (< *tukslo*), Cymr *twill* ‘an aperture, hole or cavity (“originally one produced by boring”), perforated,’ OCS *tbkati* ‘weave, prick.’ —L&S 1833, 1807; OLD 1958, 1971, 1927; IEW 1032; LIV 640.

The attested OCS word *tbkati* ‘weave’ presumably refers to the spinning component of the weaving process. See also L&S s.v. “πόλος,” 1436, for a reference to the circular threshing floor.

5. **telk-* ‘Thresh, stamp upon, grist, husks of grain

OCS *sb-tlbče* ‘break up, smash,’ *tlbkq* ‘beat, pound, break,’ Cymr *talch* ‘fragment, grist,’ OCorn *talch* ‘husks of grain,’ Slav *tolko* ‘stamp, crush,’ Russ *toloknó*

‘pounded oat meal.’ —Mallory & Adams (2006) 406; LIV 623; IEW 1062; Bomhard 189.

This root denotes the process of threshing grains. Since, in the ancient world, this activity typically involved leading oxen in a circle around a central post, it implies rotational motion.

6. **(s)trenk-* ‘String, spun yarn, be twisted, strong, strangle’

OE *streng* ‘cord’ (> NE *string*), *strang* ‘strong,’ ON *strangr* ‘stark, strong,’ Grk *στραγγαλή* ‘halter,’ *στραγγαλιζω* ‘strangle,’ *στραγγαλόομαι* ‘to be twisted or knotted up,’ *στραγγός* ‘twisted,’ Mlr *sreng* ‘string, cord,’ ON *strengr* ‘rope, cord,’ OHG *stranc* ‘cord,’ Lat *stringō* ‘bind fast, string a bow, tighten,’ *strangulō* ‘strangle, throttle, suffocate, choke’ (presumably with a cord). —Watkins (2011) 90; EIEC 574; IEW 1036-37; OLD 1828; LIV 604; Mallory and Adams (2006) 236.

Notes on possible outside root connections:

1. Bomhard 185 cites Afrasian **tak-al-*, etc. ‘fix, fasten, drive in, plant, set up, establish, peg, stake, nail, post, build,’ Dravidian *takai*, etc. ‘stop, resist, deter, obstruct, forbid, subdue, enclose, bind, fasten, yoke, surrounding wall, fortress, palatial building, section of house, apartment,’ Proto-Uralic **takka-*, etc. ‘fasten together, stick together, adhesive state of the snow, sticky thick mass, cling, get stuck, hang,’ Eskimo **taquq*, etc. ‘braid, cheek, braid hair.’

5. Bomhard 189 cites Dravidian *tallu*, etc. ‘push, shove, expel, reject, remove, lose, fall, thrust, press through,’ Proto-Kartvelian **tel-*, etc. ‘press, tread down, crush, touch, trample,’ Uralic **talʷa-*, etc. ‘trample, tread on, press, stamp, crush.’

Conclusion: The semantics are not particularly close in either of these roots. Lack of final consonant in root number 5 makes the connection to PIE uncertain.

Table 78: **te(R)k̑-* ‘Colonize: build, cultivate, and control the earth’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*teḱ-s,</i> <i>*te-tḱ-</i>	t	∅		ḱ	1	Establish, produce, hew, cut, fabricate, fashion, axe, craft, skill
<i>*tḱ-ej-</i>	t	∅		ḱ	2	Cultivate soil, settle, dwell, linger, build on, work land, settlement, people a country
<i>*tḱ-eh₁-</i>	t	∅		ḱ	3	Gain control of, possess, gain power over, rule, kingdom, dominion

<i>*t_uerĥ-</i>	t	u	r	ĥ	4	Carve, cut, form, fashion, mold, shape, maker, creator
---------------------------	---	---	---	---	---	--

1. **teĥ-s*, **te-tĥ-* ‘Establish, produce, hew, cut, fabricate, fashion, axe’

Lith *tašýti* ‘hew, trim,’ OCS *tesati* ‘hew,’ Skt *tákṣati* ‘fashions, creates, carpenters, cuts,’ Grk τέκτων ‘architect,’ τέχνη ‘art, craft, skill, technique,’ Skt *tákṣan* ‘carpenter,’ Hit *taksanzi* ‘undertake, prepare, cause, joint,’ OHG *dehsa* ‘axe.’ — LIV **tetĥ-* 638; IEW **teĥp-* 1058-59; Watkins (2011) 92; Mallory and Adams (2006) 220, 243, 283; Bomhard 205; EIEC 139.

2. **tĥ-ei-* ‘Cultivate soil, settle a land, dwell in a place’

Ved *kṣéti* ‘dwells, lingers,’ GrkMyc *ki-ti-je-si* = */ktiensi/* ‘to build on, cultivate, or work land,’ Lat *pōnō* ‘put, place, sit down,’ Grk κτίσις ‘settlement,’ κτίζω ‘people a country and build houses and cities in it,’ Av *šiti* ‘settlement,’ Arm *šēn* ‘dwell, build on, farm, town.’ — LIV **tĥei-* 643; IEW 626; Watkins (2011) 95; Mallory and Adams (2006) 223.

3. **tĥ-eh₁-* Gain control of, gain power over, rule, kingdom

Skt *kṣáyati* ‘possess, rule over, govern, control,’ Av, OPers *kšaθra* ‘dominion, control, command,’ Grk κτάομαι ‘gain, acquire, earn, win.’ — IEW **kĥē(i)-* 626; Watkins (2011) 95; Mallory and Adams (2006) 269; EIEC 490.

4. **t_uerĥ-* ‘Carve, cut, form, fashion, mold, shape’

YAv *θβərəsaiti* ‘carve, cut, form, fashion, shape,’ OAv *θβarōždūm* ‘have formed, have shaped,’ Skt *tváṣṭar* ‘maker or creator god,’ Grk σάϥξ ‘flesh, piece of flesh.’ — LIV 656; IEW 1102.

Notes on possible outside root connections:

1. Bomhard 205 cites Proto-Kartvelian **tik-*, etc. ‘small tool or implement, a stick, a pick, toothpick, tooth,’ Uralic *teke-*, etc. ‘do, make, deed, act.’

Conclusion: The semantic parallels here are not particularly strong.

Table 79: **t(R)ep-* ‘Strike, beat, stamp’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
* <i>tep-</i>	t	ø		p	1	Stroke, smear, beat, strike, whip, hammer
* <i>trep-</i>	t	r		p	2	Trespass, tread (crush) grapes, tramp

1. **tep-* ‘Stroke, smear, beat, strike, whip, hammer’

Lith *tepù* ‘stroke, smear,’ OCS *tepŏ* ‘beat, strike, pound,’ ORus *tepu* ‘beat, strike, scourge, lash, whip,’ OCzech *tepati* ‘beat, strike, hammer,’ ON *þōfi* ‘to felt wool.’ —LIV 630; IEW 1056; ALEW 1260-61; Bomhard 192.

2. **trep-* ‘Trespass, tread (crush) grapes, tramp’

OPrus *er-treppa* ‘run over, trespass,’ Grk *τραπέω* ‘tread grapes,’ Lith *trepénti* ‘tramp.’ —LIV 650; IEW 1094; L&S 1811.

Notes on possible outside root connections:

1. Bomhard 192 cites Dravidian *tappu*, etc. ‘strike, kill, a blow, stroke, slap, attack, hit,’ Proto-Uralic **tappa-*, etc. ‘hit, beat, strike, slay, kill, put to death, stamp, tread on, trample on, clap hands, kick.’

Conclusion: Strong semantic and phonetic parallels suggest that this root is cognate to the outside language forms cited.

Table 80: **te(R)-* ‘Rotation: spin, bore, churn, throw pots, whisk, whirl’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
* <i>ter-h₁-</i>	t		r		1	Rub, turn, twist, bore, drill, pierce, thresh, grind, whirling motion
* <i>t_uer-</i>	t	u	r		2	Circular motion: rotate, whirl, stir, agitate, churn, vortex, whirlwind
* <i>ten-</i>	t		n		3	Stretch, spin, weave, twist, string (as spun fiber), musical tone from string under tension
* <i>tel-h₂-</i>	t		l		4	Raise, lift, cause to rise into the air, uphold, turn, spin, endure, rise (of the stars)

1. **ter-h₁-* ‘Rub, turn, twist, bore, drill, pierce, thresh, grind’

Grk *τείρω* ‘pierce by rubbing,’ *τορέυς* ‘a boring tool,’ *τορνεύμα* ‘whirling motion as of a lathe,’ *τορνεύω* ‘to turn round as a carpenter turns an auger,’ *τρύπανον* ‘a

carpenter’s tool, a borer rotated by a thong,’ $\tau\rho\upsilon\pi\alpha$ ‘a hole,’ OIr *tarathar* ‘instrument for drilling,’ Lat *terō* ‘wear down, rub, thresh, grind,’ *tribulum* ‘a threshing sledge,’ *terebrā* ‘borer,’ Lith *trinù* ‘rub,’ OCS *trъjъ* ‘rub,’ Alb *tjerr* ‘spin,’ Skt *tārā* ‘piercing,’ OE *therscan* ‘thresh,’ *thráwan* ‘turn, twist, throw pots on a potter’s wheel,’ *thræd* ‘thread’ (from Germanic **thrēdu* ‘twisted yarn’), MidDutch *drillen* ‘to drill.’ — IEW 1071; Mallory and Adams (2006) 375-76; LIV 632; OLD 1927; Watkins (2011) 93; L&S 1830; Bomhard 196.

See Ozolins (2015:29) for an argument by Anttila (1969:154) that this root is **ter-h₁* rather than **terh₁*. I follow Anttila here.

2. **t_uer-* ‘Move in circular motion: whirl, stir, churn, vortex, whirlwind’

OE *þweran* ‘stir, churn, agitate,’ OHG *dweran* ‘turn about quickly,’ ON *þvara* ‘whisk,’ *þyrlla* ‘turn, whirl or swirl around,’ OE *dwēre* ‘olive press,’ MNG *dwarl* ‘whirlpool, vortex, NHG *dorlen* ‘rotate.’ (With -b extension): Lat *turbō* ‘whirlwind, vortex, spinning motion, top (toy).’ — Mallory and Adams (2006) 379; IEW 1100; LIV 655; EIEC 607.

3. **ten-* ‘Stretch, spin, weave, twist, thread, string, cord, rope, musical tone’

Skt *tanyate* ‘stretch a cord, bend a bow, spread, spin out, weave,’ NPers *tanīdan* ‘rotate, spin,’ Skt *tānti* ‘cord, musical string,’ *tantu-* ‘thread, cord, string, the warp in weaving,’ *tāntra* ‘the warp on a loom,’ *tāna* ‘sound, musical note, thread,’ Grk $\tau\acute{\epsilon}\nu\omicron\varsigma$ ‘bow string,’ $\tau\acute{\omicron}\nu\omicron\varsigma$ ‘tension, sound, musical tone,’ Goth *uf-þanjan* ‘stretch out,’ ON *þinull* ‘rope,’ Latv *tinu* ‘plait, twist,’ *tanis* ‘spider, spider web.’ — LIV 626; IEW 1064-66; Mallory and Adams (2006) 299; OLD 1922; DELG 1053; Monier-Williams 435; NIL 690-91; Bomhard 190.

4. **tel-h₂-* ‘Raising, lifting, turning’

Lat *tollō* ‘lift, cause to rise into the air,’ TochAB *tāl* ‘uphold, raise,’ Grk $\tau\acute{\epsilon}\lambda\lambda\omega$ ‘come into being, accomplish, turn, to rise (of stars).’ — LIV 622; IEW 1060; Mallory and Adams (2006) 406; L&S 271, 1754, 1772; Bomhard 212; EIEC 352.

Liddell and Scott write of Greek $\tau\acute{\epsilon}\lambda\lambda\omega$, “The sense *rise* is perhaps derived from that of *revolve* as used of stars.” That this is correct can be seen from the name, *Anatolia*,

signifying Asia (or more particularly, Asia Minor), as the place (the East) where the stars “up-turn” (ανα=up, τέλλω=turn), or as we commonly say in English, “where the stars come up,” but the ancients were well-aware that the stars move in a circular motion, i.e. that they turn. Other attestations of this root have drifted into the metaphorical realm: Grk *ταλάσσαι* ‘bear, suffer,’ Goth *þulan* ‘bear, suffer, endure,’ etc., but evidence that the original sense of this root was, as suggested by Liddell and Scott, *turning up, revolving, spinning*, can be seen from the fact that a group of related Greek words indicate just that: *ταλασῆϊος* ‘of wool spinning,’ *ταλασίουργέω* ‘spin wool,’ *ταλασίουργός* ‘wool spinner.’

Another Greek word, Ἄτλας ‘the titan, Atlas,’ who is said (by Hesychius) to be the “axis of the earth,” is often ascribed to this root (ἀ- euphonic, and τλάς from *τλάω). Since “axis of the earth” is, by definition, “axis of rotation,” this supports the notion that this root ultimately shares the fundamental semantic value of *revolve, rotate*, as do the other roots in this resonant series.

Notes on possible outside root connections:

1. Bomhard 196 cites Dravidian *taṛayuka*, etc. ‘be worn out, rubbed, ground (as a knife), habituated, practiced, try, abrade, wear away, become thin, become wasted, become abraded by moving over a rough surface or by having something rubbed over it, be chafed, grazed.’
3. Bomhard 190 cites Proto-Afrasian **tan-*, etc. ‘extend, spread, stretch out, endure, be long-lasting, be continuous, perpetual, steadfast, great and strong, solidly built,’ Dravidian *taṇi*, etc. ‘abound, be profuse, increase in size, grow fat, full, strong, developed, matured, rich, rise, shine, be well, progress, advance, thrive,’ Proto-Altaic **t^hāno-*, etc. ‘stretch, pull, bent backwards, arched, become straight, stretch oneself, be stretched.’
4. Bomhard 212 cites Proto-Afrasian **tul-*, etc. ‘lift, raise, pile up, stack in a heap, hill, mound, hang, mound, be exalted, lofty, elevation, rise, spread, long, outstretched, extended, high, tall,’

Conclusion: All three of these roots show credible connections to the outside language families, suggesting a separation into the resonant variants seen in PIE while still in mutual contact.

Table 81: **(s)te(R)g-* ‘Touch, stroke, touch gently, show affection for, be fond of’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
<i>*teh₂ǵ-</i>	t		h ₂	ǵ	1	To touch, lay hands on, reach out and touch, lay hold of, stroke
<i>*terǵ-</i>	t		r	ǵ	2	To rub against, to rub a person down after a bath
<i>*streig-</i>	(s)t	r	i	g	3	Touch, stroke, rub, touch gently
<i>*streug-</i>	(s)t	r	u	g	4	Stroke, caress, fondle, hug, rub, rub down, wipe
<i>*stelǵ-</i>	(s)t		l	ǵ	5	Stroke, rub smooth
<i>*sterg-</i>	(s)t		r	g	6	Show affection for, be fond of, love, watch over

1. **teh₂ǵ-* ‘To touch, lay hands on, reach out and touch’

Lat *tangō* ‘to touch, to touch in a sexual or erotic sense, lay hands on, reach out and touch,’ Grk *τεταγών* ‘hold on to, lay hold of,’ Goth *tekan* ‘to touch,’ OE *þaccian* ‘touch lightly, stroke,’ TochB *ceśām* ‘to touch.’ — LIV 616; IEW 1054; EIEC 595; OLD 1904-05; L&S 1779; Autenrieth 267; Balg 435; Bomhard 186; Mallory and Adams (2006) 336.

2. **terǵ-* ‘To rub against, to rub a person down after a bath, to wipe dry’

Lat *tergō* ‘rub, wipe dry, to rub a person down after a bath, to rub oneself down, to rub against, press.’ — LIV 632; IEW 1073; OLD 1924-25.

3. **streig-* ‘Touch, stroke, rub, touch gently’

Lat *stringō* ‘to touch,’ OHG *strīhhan* ‘stroke, touch gently, rub,’ OCS *strigŏ* ‘shear, clip.’ — LIV 603; IEW 1028; OLD 1828.

LIV suggests that two separate roots have fallen together in Latin *stringō*. Besides the sense described here, the other signifies “twist together,” and forms part of the resonant series above (**te(R)k-* ‘rotate’). See LIV 604, note 1 to 1. **streig-*.

4. *streug- ‘Stroke, caress, fondle, hug, rub, rub down, wipe off’

ON *strjúka* ‘stroke, wipe off, smooth, hurry,’ OCS *o-stružq* ‘scrape off,’ NDutch *stroken* ‘stroke, caress, fondle, hug,’ Grk *στρέυγομαι* ‘exhausted, worn out, rub, rub down,’ OE *stroccian* ‘rub, rub down,’ Latv *strūgains* ‘rub.’ —LIV 605; IEW 1029; de Vries 554; DELG 1026.

5. *stelǵ’ ‘Stroke, rub smooth’

Hit *istalakzi* ‘stroke, rub smooth,’ *istalkiyattari* ‘is smoothed.’ —LIV 595.

6. *sterg- ‘Show affection for, be fond of, love, watch over’

Grk *στέργω* ‘love, feel affection (between parents and children), be fond of, show affection for,’ OCS *strěgq* ‘guard, watch over.’ —LIV 598; IEW 1032; L&S 1639.

Notes on possible outside root connections:

1. Bomhard 186 cites Afrasian *-tak’, etc. ‘touch, push, strike, break,’ Dravidian *tagalu*, etc. ‘come into contact with, touch, hit, have sexual intercourse with, draw near, strike against, follow, pursue, be entangled, be caught, hurt, rub or graze in passing, give a very slight knock.’

Conclusion: These are quite plausible outside connections to the PIE root.

*u-

Table 82: *(s)uē(R)- ‘Turn, spin’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
*(s)uēr-	(s)u		r		1	Spin, turn, spindle, whirlwind, spindle whorl, string, coil of yarn, warp of loom,
*uel-	u		l		2	Turn, turn around, circle, enclosure, roll, wind up, round, rotate
*uei, *ueis-	u		i		3	Weave, twist, roll, plait, braid, wind, weave, whirlwind
*uen-	u		n		4	Reel, winch, ring, circle, turn, twist, wind, spindle whorl

1. **(s)u̯er-* ‘Spin, turn, spindle, whirlwind, spindle whirl’

(From **u̯er-bʰ*): Rus dial. *voróba* ‘circular string, cord,’ *voróby* ‘coil of yarn,’ ON *verpa* ‘warp, to warp a loom for weaving,’ *varp* ‘the warp of a weaving, yarn used for warp in weaving, beating the loom,’ NE *warp*. With s-mobile (**su̯er-bʰ*): Cymr *chwerfu* ‘whirl, whirlpool, vortex, rotate, revolve,’ *chwerfan* ‘whorl for a spindle,’ OHG *sworbo* ‘eddy, whirlpool, vortex,’ OSwed *svarva* ‘turn on a lathe,’ Latv *svarpst* ‘borer.’ (From **u̯er-p*): Lith *verpiù* (Latv *vērpt*) ‘to spin,’ *varpstė* ‘spool, spindle,’ Latv *verpelī* ‘whirlwind.’ (From **u̯er-t*): Skt *vartati* ‘turn, rotate, roll,’ Av *varət* ‘rotate,’ *vartáyati* ‘to set in a turning motion,’ Lith *vartana* ‘the turning,’ *vartula* ‘round,’ *vartulā* ‘spindle whorl,’ OCS *varti* ‘rolling,’ Grk ἄρρατος ‘not turnable,’ Lat *vertō* ‘revolve, turn, spin, churn,’ *vortex* ‘whirl, whirlpool, whirlwind,’ Mlr *fertas* ‘spindle,’ Cymr *gwerthyd* ‘spindle,’ OCorn *gurrhthit* ‘hand spindle with spindle whorl,’ OHG *wurt* ‘destiny’ (from the fates who are spinners), Russ-CSlav *vrěteno* ‘spindle.’ — LIV 691; IEW 1050, 1153-57; OLD 2042; EIEC 607; Mallory and Adams (2006) 378, 380 (**su̯erbʰ-*).

2. **u̯el-* ‘Turn, roll, wind up, round, rotate’

Skt *válati* ‘turn, turn around,’ *valaya* ‘circle, round enclosure,’ Arm *gelowm* ‘turn,’ Lat *uoluō* ‘roll, turn,’ *uolūtō* ‘to impel forward by rolling, roll, form by rolling,’ Grk εἰλύνω ‘to turn, to wind,’ ON *valr* ‘round,’ MNG *walen* ‘turn, rotate, roll.’ — LIV 675; IEW 1140-42; EIEC 607; Monier-Williams 927; OLD 2101-02; Bomhard 792.

3. **u̯ei-*, **u̯ei-s-* ‘Weave, twist, roll, plait, whirlwind’

Skt *váyati* ‘weave, plait, twist, braid,’ *vāya* ‘weaver, the weaving,’ *vāyaka* ‘weaver, one who sews,’ *vyáyati* ‘roll, roll up, wind, twist,’ Lat *vieō* ‘bend or twist into basketwork, plait, weave,’ Skt *věṣṭatē* ‘wind, twist around,’ Neth *wier*, OFris *wīr*, OE *wār* ‘algae, seaweed’ (from its tendency to twist itself around other seaweed strands to make a strong rope-like tangle), OCS *vichrb* ‘whirlwind.’ — Mallory

and Adams (2006) 233; IEW 1120-21, 1133; OLD 2060; Moirer-Williams 1019; EIEC 571.

4. **u*_{en}- ‘Reel, winch, ring, circle, turn, twist, wind, spindle whorl’

**u*_{en}-g: OE *wince* ‘reel, windlass, winch,’ NE *winch*. **u*_{en}-dh: Arm *gind* ‘ring, circle,’ Grk *ἄθρας* ‘wagon,’ Umbr *pre-uendu* ‘turn,’ Goth, OE, OSax *windan*, OHG *wintan*, ON *vandr* ‘wind, twine, reel, twist, coil,’ OHG *wanda* ‘turbo’ = “an object that spins or revolves, a spinning top, the whorl or fly-wheel of a spindle, whirlwind, whirlpool.” —Mallory and Adams (2006) 378-79; IEW 1148; LIV 681-82; OLD 1992; EIEC 607; Buck 98, 343; Bomhard 798.

Notes on possible outside root connections:

2. Bomhard 792 cites Proto-Afrasian **wal*-, etc. ‘revolve, turn, turn around, turn back, wheel around, flee, turn towards,’ Dravidian *vaḷai*, etc. ‘surround, hover around, walk around, move about, circle, circumference, ring, bracelet, enclosing, wander about, be surrounded, encompassing,’ Chuk-Kamch **wəltə*- ‘to twist face.’

4. Bomhard 798 cites Proto-Afrasian **wan*-, etc. ‘bend, twist, be crooked, be twisted, press, oppress, deceive, trick, tread down, trample, cheat, delude, mistreat, vex, be faint, be weak, do wrong, commit a fault,’ Dravidian *vaṅki*, etc. ‘kind of armlet, hook, gold armlet of a curved shape, bend, yield, submissive, curl, vault, bow, reverence, curve, inclination, curve, crookedness,’ Uralic **waŋka*, etc. ‘bent or curved, hook, lever for rolling logs, handle,’ Chuk-Kamch **wən*- ‘bend.’

Conclusion: Both of these PIE roots show credible parallels in outside language families, suggesting that separation into the resonant variants occurred while still in contact with them.

Table 83: *(s)*u*_e(R)- ‘Wound, injure, sore, hurt’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
*(s) <i>u</i> _e r-	(s) <i>u</i>		r		1	Wound, pain, sore
* <i>u</i> _e l(h ₂₋₃)	<i>u</i>		l		2	Wound, pain, scar, tear, strike
* <i>u</i> _{en} -	<i>u</i>		n		3	Wound, injure, hurt’
* <i>u</i> _e h ₂ -, (* <i>u</i> _a -)	<i>u</i>		h ₂		4	Wound, damage, sore

1. *(s)*u*_er- ‘Wound, pain, sore’

OHG *sweran* ‘abscess, ulcer, pain, fester,’ Av *x^vara* ‘wound, hurt, damage, injury,’ Alb *varrē* ‘wound, injury, sore,’ Skt *vraṇa* ‘wound, sore, ulcer, abscess,’ OCS *rana*

‘wound,’ Russ *rana* ‘wound.’ — LIV 613; IEW 1050; EIEC 650; Mallory and Adams (2006)198; Moirer-Williams 1042.

2. **uel(h₂₋₃)-* ‘Wound, pain, scar, tear, strike’

Grk *ἐάων* ‘painful, distressing, causing sorrow, causing pain,’ *ὀνλή* ‘scar, wound,’ TochA *wlatär* ‘will die,’ Lat *uolnus* wound, injury, blow,’ *vellō* ‘pluck, tear,’ ON *valr* ‘corpse on the battlefield,’ OE *wæl* ‘battlefield,’ Hit *walahzi* ‘strike,’ OIr *fuil* ‘blood,’ *fuili* ‘bloody wounds,’ Welsh *gweli* ‘wound, blood.’ — LIV 679; IEW 1144-45; Watkins (2011) 101; L&S 465, 1066; Mallory and Adams (2006) 198; EIEC 150, 567, 650; Bomhard 786, 816.

3. **uen-* ‘Wound, injure, hurt’

OE *wund* (< Germanic **wundaz*) ‘wound,’ *wen(n)* ‘wen, cyst on scalp or face, a swelling,’ Goth *wunds* ‘wound, injure, hurt,’ ON *und* ‘wound.’ — Watkins (2011) 101; IEW 1108; de Vries 634; Mallory and Adams (2006) 280; Bomhard 799; EIEC 548-49.

4. **ueh₂₋* (**uā-*) ‘Wound, damage, sore’

Grk *ἀάω* ‘hurt, wound, damage,’ *ἄτη* ‘damage, blame, offense, guilt,’ *ὀντάω* ‘wound,’ Latv *vāts* ‘wound,’ Lith *voṭis* ‘open sore.’ — IEW 1108; de Vries 634; L&S 1; Bomhard 783.

Notes on possible outside root connections:

2. Bomhard 816 cites Dravidian *vel*, etc. ‘conquer, overcome, destroy, victory, kill,’ Uralic *wel₃₋*, etc. ‘strike, kill, slay, slaughter, put to death, butcher, massacre, catch.’

3. Bomhard 799 cites Dravidian *vaṅki*, etc. ‘dagger, knife, sword,’ Proto-Kartvelian **wn-*, etc. ‘injure, harm, torment, suffer,’ Uralic **waṅ₃₋*, etc. ‘strike, cut, cut off, stab, hew, hammer, chop, slaughter, slash, gash, killing, blow, wound made by cutting.’

4. Bomhard 783 cites Proto-Afrasian **wāh-*, etc. ‘strike, wound, hew, cut stone, reap, pluck, kill, quell, stab, sting, blade, knife, sword,’ Altaic **wā-*, etc. ‘kill, slay.’

Conclusion: The parallels in the outside language families suggest that the resonant variants of PIE were created while still in contact with them.

Table 84: **ue(R)-* ‘See, look’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
* <i>uel-</i>	u		l		1	See, appearance, seer, investigate, examine
* <i>uer-</i>	u		r		2	Beware, notice, see, guard, put one's attention

1. **uel-* ‘See, appearance, seer, investigate’

OIr *fil, feil* ‘exists, seen,’ Cymr *gwel* ‘see,’ Lat *uoltus* ‘appearance,’ Goth *wulþus* ‘glory,’ Air *fili, filed* ‘seer,’ possibly OE *wlitan* ‘see,’ TochB *yel* ‘examine, investigate.’ — LIV 675; IEW 1136-37; EIEC 505; Mallory and Adams (2006) 326; Bomhard 821.

2. **uer-* ‘Beware, notice, see, guard, put one’s attention’

Lat *vereor* ‘honor, fear,’ NE *ware and wary*, Latv *vērt* ‘look, gaze, notice,’ Grk *οὔρος* ‘guard,’ *οπάω* ‘see,’ Hit *werite* ‘put one’s attention,’ TochAB *wär* ‘smell.’ — LIV 685; IEW 1164; EIEC 417; Mallory and Adams (2006) 327; Bomhard 801.

Notes on possible outside root connections:

1. Bomhard 821 cites Proto-Afrasian **wil-*, etc. ‘become bright, appear, come into view, appear suddenly, emerge into view, come out of hiding,’ Dravidian *vel*, etc. ‘white, pure, shining, bright, clear, whiten, dawn, be manifest, know, show itself clearly, kindle, scour.’

2. Bomhard 801 cites Afrasian *wrš*, etc. ‘spend the day, spend one’s time, be awake, guard, sentry, watch, vigil, watch-tower,’ Uralic **war3-*, etc. ‘watch over, look after, tend, attend to, keep, guard, wait for, wait on.’

Conclusion: These two PIE roots both show credible parallels in the outside language families. This suggests that they differentiated into the resonant variants while still in contact with them.

Table 85: **ue(R)h₁-* ‘Want, choose, desire’

PIE Root	Initial	R1	R2	Final	Ref	Semantic Value
* <i>uelh₁-</i>	u		l	h ₁	1	Choose, wish, want, be willing, desire,

* $\text{u}^{\text{en}}\text{H-}$	u		n	H	2	Wish, yearn, desire, love, lust, friend, wife, long for,
* $\text{u}^{\text{ei}}(\text{h}_1)\text{-}$	u		i	h ₁	3	Want, strive for, eager for, desirous of, liked, loved

1. * $\text{u}^{\text{el}}\text{h}_1\text{-}$ ‘Choose, wish, want’

Ved *vr̥ṇīté* ‘choose,’ Goth *wili* ‘want,’ Lat *uult* ‘wish, want,’ OLith *velmi* ‘wish, want,’ OCS *veljō* ‘be willing, wish, want, desire,’ Umb *veltu* ‘shall choose,’ Grk *λέώ* ‘want, wish,’ NE *will*, Av *var* ‘choose, wish.’ — LIV 677; IEW 1140-43; Mallory and Adams (2006) 341.

2. * $\text{u}^{\text{en}}\text{H-}$ ‘Wish, yearn, desire, love, lust’

ON *vinr* ‘friend,’ Av *vantā* ‘wife,’ Lat *venus* ‘lust,’ Skt *vānas* ‘longing, desire,’ *vanī* ‘wish, desire,’ *vená* ‘yearning, longing, anxious, loving,’ TochA *wañi*, TochB *wīna* ‘pleasure,’ and in a further derived form, OE *wýscan* ‘wish,’ OHG *wunsc* ‘wish,’ NE *wish*. — LIV 682; IEW 1146-47; Mallory and Adams (2006) 341; Monier-Williams 917, 1018; EIEC 158; Bomhard 822.

3. * $\text{u}^{\text{ei}}(\text{h}_1)\text{-}$ ‘Want, chase, strive for, enjoy, eager for, desirous of, liked, loved’

Lat *uīs* ‘thou wantest,’ Lith *vejù* ‘chase, drive, pursue,’ Grk (✱)*ίεμαι* ‘strive,’ Skt *véti* ‘follow, strive, seek or take eagerly, enjoy, arouse, excite,’ *vī* ‘eager for, desirous of, fond of,’ *vītá* ‘desired, liked, loved, pleasant.’ — LIV 668; IEW 1123-24; Mallory and Adams (2006) 402; OLD 2068-69; Monier-Williams 1004; Bomhard 826.

Notes on possible outside root connections:

1. Bomhard 822 cites Proto-Afrasian **win-*, etc. ‘be pleasant, joyful, rejoice, nice, comfortable, soft, gentle, good, clean,’ Dravidian *vēṇṭu*, etc. ‘want, desire, beg, entreat, request, be required, necessary, indispensable, petition, longings, sexual passion, amorous pleasure.’
5. Bomhard 826 cites Uralic **woye-*, etc. ‘be able, have power or capability, strength, force, power, win, gain, conquer, beat, overcome, victory, triumph,’ Altaic **u(y)-*, etc. ‘be able, have power or capability, endure.’

Conclusion: Outside language parallels to the two PIE roots here indicate probable genetic connections, suggesting contact with those language families during the time that the resonant variants were developed.

Conclusion

It is evident from these examples that pre-Proto-Indo-European used resonant variation as a kind of grammatical ablaut, as a morphological process to express nuance to ancient roots in the same way that modern languages use vowel modifications, as in the English series: sing, sang, sung, song. The resonants changed, but the fundamental semantic value of the primitive root remained relatively constant.

A further and more comprehensive evaluation of the PIE lexicon to determine the precise extent of this linguistic feature, and to classify roots according to their ancient affiliations, would accomplish two valuable objectives: First, it would push back in time the limits of our knowledge of IE word histories. And second, it would reveal the form of the language at a stage where meaningful comparisons with other language families could be more productive.