Investigating internal ways of lexicon expansion in early PIE

Observations on IE roots with potential $*b^h$-extension

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*Today's syntax
is tomorrow's morphology*

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The focus of this paper lies on IE roots which, though considered primary in the daughter languages, show evidence to suggest that their morphological structure as well as their meaning are not primary but derived. These are the so-called extended roots. The author offers some observations on the nature of the last radical in verbal roots ending in $*°b^h$ in postconsonantal position (consonantal glides included). Speculative cases left aside, several groups come into consideration, depending on the origin of the root-final $*°b^h$. It is argued that while certain extended roots hark back to former univerbations of syntagmas with the light intransitive verb IE $*b^h\underset{.}{u}eh_2$- 'become, turn' as the second component, several others contain a semantically weakened deictic element IE $*b^hi$-, and a third group strongly suggests a $*b^h°$ formative with former causative semantics/function. Finally, the author touches upon several isolated cases of root variation and/or parallel extension with $*b^h$ and offers a tentative analysis of the derivation processes involved.

The primary material of PIE word stock, being semantically organized in word families, is made up of verbal and nominal roots. Ideally, the knowledge of word formational mechanisms allows a more or less precise identification of most roots as such. However, many roots reconstructable for late PIE fail to comply with morphonological constraints generally observed in IE word structure; and, moreover, certain roots with a divergent last radical seem to be epidigmatically interrelated.[1]

Traditionally, segments in the structure of certain IE words that take the position between the root morpheme and derivational or flexional suffixes and are neither part of the root itself in its pure form, nor constitute a productive derivational morpheme (in the function of modification of the semantic meaning of the root), nor an inflectional morpheme in synchronic terms, are referred to as *root extensions*. Though some of them are apparently identifiable as former derivational morphemes or cropped remnants of what used to be stable syntactical units or collocations, in most cases the etymology of root extensions remains a difficult question. Therefore, a closer analysis of the morphonemic and syntactic context in accordance with a set of parameters is indispensable.

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[1] Epidigmatic relations describe the structure of semantic derivation that is the interdependence of semes within one word or a cluster of related words.

1. The Proto-Indo-European root

1.1. Formal criteria of root identification in PIE. The minimal structure

The minimal structure of the Indo-European root was established by Benveniste (1935): firstly, it should consist of at least one syllable, and secondly, it should ideally have more than one consonant. His idea was taken over in many subsequent studies. Accordingly, an IE root requires at least two consonantal radicals (including non-syllabic i and u) and may have more, on the condition that the root remains monosyllabic: *$di̯eu̯t$- 'shine', for instance, has four radicals. The order and co-occurrence of radicals in an IE root comply with certain constraints; to give an example, forms with two voiced plosives were not in use. Dunkel (2009: 37–38) disputes this with regard to particles. For those, if considered a separate word class, the second statement would not apply.

Along with radicals, the location of the vowel plays an important role in the structure of the IE root. In *biradical* forms the vowel takes the middle position (C_1eC_2), in *triradicals* it takes the position either before or after the middle radical ($C_1eC_2C_3$ or $C_1C_2eC_3$). *Schwebeablaut* occurs when both variants are found in the same root: *$pleh_1$- 'fill' vs. *$pelh_1$-u- 'full' as in Lat. *plēnus* vs. *plūs*. Normally, a PIE root shows *e*-vocalization, very rarely -*a*- (the existence of which is disputed for the proto-language). The root vowel is expected to exhibit any of the five ordinary ablaut variants Ø, *e, ē, o, ō*. If the root vowel occurs after a resonant (R = *r, l, m, n*) or a semivowel ($i̯, u̯$), the resulting ablaut is called *samprasāraṇa* (in the terms of the Sanskrit grammarians) and may display syllabic zero-grade: *prek̂- : pr̥k̂*- 'ask', *u̯ek^ʷ- : uk^ʷ*- 'speak'.

1.2. The extended root

The constituents defined in the introduction as potential root extensions are of diverse origin. Some represent former productive suffixes, e.g. the former present suffix *-$u̯$- in *$u̯e/ol$-$u̯$- 'wind', Lat. *uoluo*, Arm. *gelow*-, Gk Hom. aor. part. *ἐλυσθείς* of unattested *ἐλύομαι* (Klingenschmitt 1982: 234, 269; Dvoreckij I: 517; LIV²: 675); others look like cropped elements of former syntagmas, e.g. -d^h- < *d^heh_1- 'put, place' (LIV²: 136) as in *b^herd^h- 'take booty' (Kümmel in LIV²: 77–78 note 1, cf. Janda 2000: 240–242), probably resulting from earlier *b^her- 'take' realized as a root noun and *d^heh_1- 'do'. An example of this process is recently given by Hackstein (2012: 90–92), who with reference to Schindler (1975: 266), sees the origin of the Greek secondary root *μενθ-/μαθ*- in the collocation *$men[o]s$ *d^heh_1- 'to give/implement thinking'. In the first case, the root extension is historically the result of reanalysis of the boundary between an autosemantic and a synsemantic morpheme. In the second case, the merger of several autosemantic morphemes is implied. Apart from individual cases like the ones mentioned above, the origin of the vast majority of root extensions remains unclear; due to the complexity of the matter, it requires a systematic approach.

2. Criteria for identification of root extensions

The analysis applied in the present investigation is based upon a set of parameters that were worked out during the preparatory stage of a collaborative project on the investigation of PIE root extensions which involves the University of Vienna and the Institute for Linguistic Studies RAS in St. Petersburg. These parameters include an exact identification of root extensions by the following means:

1   Observation of minimal (*biradical*) root structure (as introduced by Benveniste [1935]), that is C_1eC_2.[2]

2   Comparison of two roots that are identical except for an extra radical on the second one (LIV²: 6) according to the following formula: **R' = R + C**, where **R'** stands for an extended root, and **R** for the corresponding primary/basic one.

3   Observation of phonemic rules organizing the root structure: e.g. the systematic avoidance of successive sonorants in root auslaut, or of co-occurring tenuis and media aspirata in roots without *s*-mobile.

4   Observation of morphonemic compatibility, which suggests, for instance, the co-occurrence of the so called 'primary' and/or 'secondary' suffixes; or the rules guiding infixation, whereby the minimal root structure could contain neither of the two final radicals, the first being an infix, the second an extension, as seems to be the case, for instance, in the root constellation involving PIE *$k^wsu̯ei̯b^h$- and *$k^wseu̯b^h$- denoting 'swinging' movements.[3]

5   Observation of further mechanisms of stem formation, with regard to:
   · the refunctioning of pure stem-forming suffixes
   · the phenomenon of root variation and the role of possible 'root determinants'
   · the question of 'parallel extension or root variation' as opposed to 'parallel extension along with root variation'
   · the process of syntactic merger or *univerbation*.

Being one of the common outcomes of grammaticalization, univerbation is a complex of several subsequent phenomena. Various semantic and phonological changes occur in several stages starting from desemanticisation (metaphorically called 'bleaching'), and ending in complete semantic erosion, thus yielding a lexically empty element accompanied by phonological reduction, including the process of so-called allegro-reduction. Not all stages are necessary for the process to stop, especially when desemanticisation, presumably starting during the PIE period, has carried on in the daughter languages after their dispersal. Consequently, various degrees of semantic/functional explicability of the morphemes attached to the primary root are a priori possible. In other words, traces of a particular root extension in different language branches may reflect varying productivity of the cropped elements (correlating with their semantic and functional load) acquired during their individual development, and are dependent on how far the semantic erosion and the phonological reduction have been realized in a particular language branch.

3. Roots with potential *b^h-extension

Out of nearly thirty reconstructed verbal roots, whose structure could formally imply the extension by *-b^h-, approximately half can, more or less hypothetically, be considered to be extended. Despite obvious morphonemic constraints, the functional value of the third radical is unclear, due to the scarce attestation of different root variants, particularly of those without the extensional element. The cases listed (1) through (16) comprise roots exhibiting root variation, parallel root extension or the combination of both (though the semantic relation between both variants is not always obvious). A great many of them pose more problems than could be discussed in this framework.

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2   Which does not mean, however, that every instance of a tree-radical root should automatically be considered derived, but in accordance with the parameters 2. to 5.

3   For further details, see §3.4., example (14).

Most of the roots presumably extended by $*$-b^h- could be grouped on semantic (and obviously functional) grounds into (1) intransitives, (2) verbs with a specified direction of an action, and (3) causatives.

3.1. Intransitives out of univerbations involving $*b^h\underset{.}{u}eh_2$- *'get/turn'* as the second component

It seems plausible that the roots that make up our group of intransitives are derived by means of univerbation from former syntagmas whose second member is the PIE verb $*b^h\underset{.}{u}eh_2$- 'become/turn' (LIV²: 98–101), of which merely the first radical remained. The meaning is perceivable in the common semantics of 'transition into a new state, or quality' [*A* turns *A¹*] otherwise called *fientive*,[4] which correlates with the intransitivity of the attested forms. The verb for *get/turn* belongs to the so-called universal semantic primes, also including *have, make, let* etc. (cf. Wierzbicka 2002: 168), and due to its 'light' semantics it is compatible with numerous nominal and verbal roots. In actual discourse, *allegro-reduction* (as defined by Hackstein 2012: 90–91) may occur in frequent collocations, with the result that more elements disappear, as we would expect on a purely phonological basis.[5] As long as only the first radical of $*b^h\underset{.}{u}eh_2$- remains attached to morphemes with 'core' semantics, the alternative scenario involving two autosemantic morphemes, that of composition, can be ruled out.

The following cases come into consideration:

1     $*(s)d^herb^h$-[6] intrans. 'get firm, rigid' fig. 'die' (LIV²: 512)

Results of pejorative narrowing can be seen in OHG *sterban* 'die', as well as in ORuss. *sterb-nu-t'* 'grow stiff, die back', otherwise meliorative narrowing takes place in Slavic: OCS causative *u-strabiti* 'heal' ← 'make firm, strong', cf. ORuss. *u-storobiti sja*, Cz. *ostrabiti se* 'grow strong, mature' (Vasmer 3: 192, 11–12, SCiRJ IV: 363, Trautmann: 284–285). Continuants of the extended root without *s*-mobile are attested only in Germanic (cf. Seebold 1970: 154): OE *dearf* to *deorfan* 'labour,[7] perish' OSax. *far-dervan* 'perish' (Bosworth-Toller: 202), further MHG *ver-derben*. The primary root without *s*-mobile, IE $*d^her$- trans. (LIV²: 145–146) 'make sth. steady, fix, stabilize sth.', is attested in Indo-Iranian, e.g. OAv. 3.sg.mid. *dərətā* 'keeps hold of sth.', Ved. 3.sg. iterative *dhāráyati* 'id.' (Mayrhofer 1: 778–780), as well as in Baltic: Lith. *derù* 'suit' ← 'sit steady, tight', (cf. Smoczyński: 126, and LIV²: 145 note 2). Thus there are at least three independent, fairly mobile segments at different periods of time: $*(s)d^herb^h$- = [$*s$] + [$*d^her$-] + [the remnant of $*b^h\underset{.}{u}eh_2$-].

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4   LIV²: 25.

5   For more examples of the kind see Hackstein 2012.

6   With Siebs' law: $\#sd^h > \#st^h > \#st$.

7   The meaning seems to be transferred from the continuants of IE $*derb^h$- trans. 'braid, bond together' as in Lith. *dìrbti* 'work' ← 'do wickerwork', further Latv. *dar̂bs* 'work' (Karulis 1: 199–200), reconstructed with a pure media in anlaut due to the Germanic root noun $*turb$ (with further suffixal derivates) > OSax., OFr. *turf,* OHG hapax *zurba* 'turf, grass' (Seebold 1970: 154, LIV²: 121, but cf. Griepentrog 1995: 408). Corresponding *o*-grade nominals are found in Ved. m. *darbhá-* 'tussock' (Mayrhofer 1: 703–704), Toch.A *tarp* 'river-bed with tussocks', ESlav. *dorob* 'wickerwork', cf. also Russ. dial. f. *derbá* 'clearing, wasteland', and probably Arm. *toṙn* 'string, wine, rope'. Most likely $*derb^h$- itself is a causative extension of PIE intrans. $*der$- 'split, rive' (here against Griepentrog 1995: 414–415).

2   *(s)kerb^h- 'be/turn sharp' (LIV²: 557–558)

PIE *ker- 'cut'[8] shows traces of intensive derivational and/or grammaticalization processes in the past, still visible in several unextended forms with or without mobile s- as possibly in the Hittite i̯e-denominative kartae- 'cut' < adj. *kr̥-to- (Oettinger 2002: 375–376[9]) or Greek κείρω (Frisk I: 810–811[10]), extended with radicals at the latest stage identifiable as (a) a formerly productive suffix *-s: visible in rhotacized form in OHG skerran, OS scerran 'scrabble' (Seebold 1970: 416, Kluge-Seebold: 794)[11] or Lat. carrō 'scrabble with sth. sharp, like the paw of an animal' → 'willow' (cf. EDLIL[12]); cf. Anat. karš-, e.g. Hitt. karaszi, Lyd. fa-karsed 'cuts off' (Oettinger 2002: 200–201; EDHIL: 454–455), the Greek abstract feminine noun κουρά 'cutting, shearing' or Toch. kärs-t-/kärṣ-t- 'cut off' as well as (thus LIV²: 355–356 note 3) Toch.B. śarsa 'knows'; (b) *-t: Ved. 2.sg.aor. ákr̥tas 'cut, chop' (Mayrhofer 1: 315–316), Lith. kertù, kiřsti 'cut, chop' (Smoczyński: 289); (c) *-d^h: Lith. skerdžiù, Latv. šķèržu (Smoczyński: 560) 'cut, incise', OE adj. scort 'short' (Bosworth-Toller: 839); (d) *-p: in Hit. karp-ii̯e- (EDHIL: 452), Lat. carpō (EDLIL), Lith. kerpù (Smoczyński: 289) 'cut off, pluck off' and many further derivatives in the meaning 'pluck' (LIV²: 559), and (e) *-H:[13] Umbr. 3.sg.ipv. kartu 'put apart', Lat. nominal n-stem carō, carnis < *ker-H-/*kr̥-H-n- (EDLIL l.c.), Lith. skiriù, Latv. šķiṛu 'cut, split, disjoin' (Smoczyński: 563), as well as with an abstract meaning 'separate' PCl. *skara-: OIr. 3.sg.aor. scarais (Schumacher: 576).

In the case of *(s)ker-b^h- (LIV²: 557–558) we are dealing with the outcome of a univerbation: [*s] + [*ker] + [the first radical of the semantically weakened *b^hueh₂-] in the intransitive meaning 'be sharp', as e.g. in OIr. cerb or Lith. skerbi̯ù (Smoczyński: 559).

3   *sneu̯b^h- intrans. 'be/get married' (LIV²: 574)

Attested in Lat. nūbō 'marry, be married to'; R.-CSl. snubiti 'to couple' (Vasmer 2: 683), the relation to *sneu̯- (LIV²: 574) 'make smth. (milk) pour out' as in Ved. snuvanti, Gk νάει is impossible. De Vaan (EDLIL: nūbō) following Ernout-Meillet: 449 (but similarly already Meringer[14]) connects it with nūbes 'cloud' → 'veil'. Much more attractive is the seeming connection to PIE *neu̯- originally 'nod, bow, tilt the head' (LIV²: 455) developing a ritual meaning with plentiful attestations in Celtic: OIr. 3.sg.ipf. imma·n-ántis 'confide, entrust', 1.sg. ad·nuu 'swear', etc. (Schumacher: 491) and implying the involvement of an s-mobile in the extended root.[15]

A number of cases of more limited attestation, but semantically and structurally fitting the same scheme, offer complementary evidence:

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8   The relation to the widely attested PIE root *k^wer- of the same meaning but with a labiovelar is unclear. Cf. Hyllested (2009: 209) who draws further parallels with Proto-Uralic.
9   According to Kloekhorst (EDHIL: 455–456), however, the stem would belong to our (b) extension with -t.
10   Cf. Chantraine 1968: 510 who, following Risch (1937: 219), admits that κείρω is not necessarily an original i̯e-present, but could also go back to *κέρσω.
11   Where, according to Lühr (1976: 74), Germ. *rr < *rH, OHG skerran would reflect the extension with *-H and belong to group (e).
12   A later corrected form of attested carō (Ernout-Meillet: 101 apud de Vaan EDL: carrō). Cf. Walde 1910: 135.
13   Against LIV²: 558 note 1 – H is identifiable as a root extension from a former suffix (?) – the laryngeal value is most probably h₂- whereby the extended root (former derivative) acquired an abstract meaning: 'cut' → 'separate'.
14   Meringer 1913: 167–168.
15   The relation of the two roots in detail in Ackermann forthc.

?4 *$(s)\hat{k}eu̯b^h$- intrans. 'be/become glaring, beautiful' (LIV²: 330)

Cf. RV(+) śobh-: śubh-āná- 'beautiful', śubh-rá- 'glaring', Arm. sowrb 'holly' (Mayrhofer 2: 647, 657–658). The phonemic rules mentioned in §2 under 3 suggest that the radical sequence *$\hat{k}eu̯b^h$- is secondary. Assuming that b^h- goes back to late *$b^hu̯eh_2$, it fully complies with the semantics of the Vedic forms. The unextended counterpart, presumably from *$(s)\hat{k}eu̯$- 'glow' (likewise Lubotsky: 30), is feasible in n-derivatives in Toch.A koṃ, Toch.B kauṃ 'day, sun'. Parallel extensions are possible in *$(s)\hat{k}eu̯$-k- (RV 3.pl.pres. śócanti still in the initial meaning 'glow') and *$(s)\hat{k}eu̯$-d^h-: YV 3.sg.pres. śudhyati 'becomes clear' (Mayrhofer 2: 655–657, LIV²: 330–331).

?5 1.*d^hemb^h- intrans. 'be/become amazed' (LIV²: 143, Pokorny: 233, 1063)

Reliably attested solely in Greek: aor. ταφεῖν, pf. τέθηπα, nominal derivative n. τάφος (=θάμβος) 'astonishment' (Dvoreckij II: 1608; Chantraine I: 421–422; Frisk I: 652, but differently Beekes EDG: θάμβος). Further etymological connection to any possible unextended cognate is questionable.

?6 *$leu̯b^h$- 1. 'be/become dear, nice'

Originally intransitive (cf. o-adj. Goth. liufs, OCS ljubъ), it develops a secondary causative meaning 'infatuate, baffle' (LIV²: 414 note 1) as reflected in a further derived Ved. intransitive (AV) lúbhyati 'is baffled'.[16] The first component of the IE root could be nominal, but the hypothetical *leu̯-/*lu- with compatible semantics does not seem to be attested anywhere.

3.2. Verbal roots with a deictic postposition *b^hi-

Several cases extended by *-b^h- apparently hark back to a combination (in syntactical terms) or composition (in word-formational terms) with the deictic element IE *b^hi- suggestive of locative semantics. We find its continuants used both independently as in Goth. bi or German bei, where it is clearly locative, and as part of different composite formations: in adverbials: Ved. abhí as in RV1,164,52 abhīpató 'against the stream' (against Mayrhofer 1: 93); YAv. aiβi 'to, towards' and prepositions Gk ἀμφι-, OCS obъ. Moreover, *b^hi- is recognizable in the primarily ablative and subsequently instrumental plural ending, PIE *-b^his. Correlating with the purely locative meaning, directional semantics (both ablative and allative) is widely attested. Although most classical dictionaries give the direction 'to, towards (mostly the speaker)' as the primary meaning, there is evidence from different IE branches that the particle can easily come to denote the reverse direction. Such re-functioning of deictic elements has been addressed in detail by Hackstein (2007: 138f) and, following him, by Melchert-Oettinger (2009: 62), who speak in this respect of 'Wechsel zwischen ablativischer und direktivischer Funktion'. Cf. also Dunkel (2009: 38) on the phenomenon of 'deictic order inversion'. If we take a closer look at the attestations of formations like abhí in Old Indic, it becomes evident that the directional semantics can easily be attributed to pure ā́, which, depending on the context, may also denote either 'to', if prepositioned, or 'away', if postpositioned (RV attestations by Mayrhofer 1: 91–92). It is reconstructed by Dunkel (2009: 42) as an adessive *h_2o- 'beside, at, etc.' The circumessive formation *$h_2m̥b^hí/h_2emb^hí$ 'on both sides' as in Gk ἀμφί, Lat. amb(i) etc. (cf. *$h_2n̥t$-bhí suggested by Jasanoff 1976: 123) and YAv. bōiṯ 'indeed' would also belong here as the merger of Proto-IIr. *b^ho- and *-íd (Dunkel l.c. 52 fn. 55). The transition from ablative to allative and vice versa seems to be uncontroversial. All this evidence makes it fairly reasonable to

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16   As an outcome of a third derivational step, classified in LIV² (414 note 2) as an "Oppositionsbildung zum Kausativ".

seek a sort of bleached locative meaning, obviously a mere deixis often combined with other locative particles as well as verbal roots. This is apparent in examples 7, 8, and possibly 9.

?7 *(s)u̯erbʰ- trans. 'wipe off, rub off' (LIV²: 613)

Found in Goth. *swairban* (Lehmann 1986: 7, Köbler 1989: 10), Gk συρφετός 'sweepings, rubbish, litter', and also attested without s-mobile but with s-extension in OLat. *uorro* < *u̯ers- (LIV²: 690–691) 'wipe, sweep', thus representing a case of parallel extension.

8 *gʷeh₂bʰ- [gʷabʰ] trans. 'press down' (LIV²: 205–206)

Attested in Germanic, e.g. ON *kefja* 'submerge, plunge' (Holthausen: 150, de Vries: 304); and Greek βάπτω 'dip, plunge' (if the latter is not related to Ved. *gabhīrá-* 'deep' LIV²: 206 note 1). A connection to the plausible, unextended counterpart, the well-attested root *gʷeh₂- Ved. *ágāt*, Arm. 2.pl. *ekak'*, etc. 'stepped (+/- down)', requires a series of semantic changes. If the primary meaning of *gʷeh₂- included deixis, the relation to the extended *gʷeh₂bʰ- would be that of causativity (group 3). If not, it could be the deixis itself (group 2).

9 *knei̯bʰ- trans. 'hang sth. down, droop', (LIV²: 365)

Also found in Germanic with a secondary -p: ON *hnípa* 'droop' (Holthausen: 121, 91; de Vries: 243), and Balt.: Lith. *knem̃ba, knèbti* 'hang down' (Smoczyński: 302). Lat. *cōnīveo* and Germanic: OHG (h)*neigen*, (h)*nīgan,* OFr. *hnīga* (Kluge-Seebold: 649) of the same semantic field hark back to IE intrans. *knei̯gʷʰ- 'bend down' (LIV²: 366). However, it is not quite clear whether this is a case of parallel root extension (showing different degrees of absorption into the root structure in different language branches) or of root variation, arising essentially in the same manner, but being of PIE age.

A typological parallel may be found in modern German '*hin*' in '*hinauf*', or Engl. '*there*' in '*over there*', or as observed in children's language, e.g. Germ. '*da da*' instead of regular '*da*' denoting '*here you are*'/'*here it is*' (where *da* is not an intensifier).

3.3. Causatives

The identification of the source of the *bʰ-extension is more difficult in cases where the extended root appears to be causative. Apart from examples 10–12 (and perhaps 8) treated below, a dozen roots ending in °bʰ would fit both semantically and structurally into this group, but due to a lack of solid attestation of the basic root, they will not be considered here. The material providing more or less analyzable evidence comprises:

10 *u̯elh₁bʰ- trans. caus. 'to confuse, puzzle' (LIV²: 678, Pokorny: 1137–1138)

Cf. Vedic (ŚB) °*valhante* 'puzzle (with a question)' (Mayrhofer 2: 527), cognate to Lith. *vìlbinti* 'lure, deceive', the meaning of which is probably the result of a metaphoric transition. According to § 2 above, a plausible unextended counterpart would be *u̯elh₁- (LIV²: 677–678; Pokorny: 1140) 'choose, wish'. The corresponding nominals and secondary denominatives fall into the semantic field of 'deceive'. The exact semantic relation to the continuants of *u̯elh₁bʰ- is not transparent in every case, yet if we interpret ṚV *valhati*, the Greek *ro*-derivative ἐλεφαίρομαι 'mislead the mind' and Lith. *vìlbinti* as originally 'cause sb. to wish sth', it becomes fairly interpretable. The survival of both roots in Lithuanian is peculiar in this respect: extended in *vìlbinti* 'lure', and unextended in *vìlti* (Latv. *viÎt*) 'deceive', two verbs that obviously cannot have any derivational relation to each other within Baltic itself.

11 Obvious epidigmatic interrelations between roots as they are reconstructed today can be observed between *skreį(H)bʰ- 'scratch', 'kratzen, ritzen' (LIV²: 562) as in Lat. scrībō, where we are clearly dealing with a secondary root, and

- *(s)kreb⁽ʰ⁾- 'scrape', 'schaben, kratzen' as in OE screpan (Bosworth-Toller: 842), Lith. skrēbo, Russ. skrebu 'id.' (LIV²: 562; Vasmer 2: 650);
- a possible unextended counterpart in *(s)k⁽ʷ⁾reį- 'draw a circle' (according to Kümmel [LIV²: 562], who sees the root without mobile s-in PSl. *krivъ) as in Lith. skrejù, skriēti (cf. Smoczyński: 567);
- continuants of a parallel extension in -t that are attested throughout the Germanic languages, e.g. OE scrīðan (Bosworth-Toller: 842) and in Baltic: Lith. skriēsti, skriedžiù (Smoczyński: 567). Both probably (thus LIV²: 563) hark back to IE *skreįt- 'move in circle'.

12 Continuants of *gʰreįbʰ- 'grab, seize', (LIV²: 203–204) are found in Germanic: Goth. greipan (Lehmann 1986: 160, Köbler 1989: 243) and Baltic: Lith. griebiù. We find supplementary evidence in OAv. 1.sg.aor. grabəm, Ved. agrabham (semantically divergent in Hitt. kar(ap)p-), as well as Russ.dial. (s)grabat' (Dal' 1882: 165), Lith. gróbiu with o-grade and identical meaning, all derived from *gʰrebh₂- (LIV²: 201). It is quite possible that two root variants, perhaps earlier stems, co-existed, both of which were 'extended' in several stages. Another possibility is that an i-infixation was productive at approximately the same time. This could also be the case in (11) *skreį(H)bʰ-.[17]

Causative continuants of PIE extended roots may be analyzed from different perspectives. The first possibility would be to ascribe the causativity to the forerunner of the remaining *bʰ-formant itself. Thus all extended roots discussed in §3.3. would typologically correspond to the way causatives are synchronically formed in Eastern Armenian, structurally as well as functionally, affixing the bound morpheme -cʿn [tsʰ(n)] to the verbal root:

Usucʿičʿə	vaz-e-cʿn-um ē	erexa-ner-i-n	erku žam.
Nom.sg.def.	vaz-caus. 3.sg.pres.	erexa-acc.pl.def.	
Teacher	makes run	children	2 hours.

The construction lacks external arguments and is thus monoclausal.

Another typological parallel appears in the Indonesian verbal particles -ma, and -kan.[18]

Causative constructions of this type in both these languages, Armenian and Indonesian, imply that the causative semantics are to be attributed to a distinct morphological element attached to the root. No element containing PIE *-bʰ- so far seems to be a satisfactory candidate if we look at the matter on the morphological level. In view of a generally wide use of internal derivation in 'classical' PIE and notably the productivity of the CoC-(e)įe- type in PIE and in certain language branches long after the common period, mere suffixation (that is with no visible ablaut/accent class change or vṛddhi)[19] seems rather improbable.

The alternative solution would be to turn to syntax again and seek a 'light' root denoting something like 'make/let' which would have subsequently developed into a bound morpheme in collocations with a certain number of roots. The apparently causative -bʰ- is therefore still in need of a satisfactory etymology.

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17 A further complicating issue (widely disputed at present) are the diverging reflexes of *-h₂ when following a stop (as in *gʰrebh₂-).

18 Extensive analysis and the comparison to the Dutch prefix ver- is given by M. den Dikken (1995).

19 For instance, occasional o-grades of the root are dispersed among different derivatives and cannot be automatically linked to those extended with *-bʰ.

3.4. Miscellaneous cases of root variation involving °bh

14   *k⁽ʷ⁾su̯ei̯bʰ- intrans. (fientive?) 'swing' (LIV²: 373–374)

Alongside there is *kʷsei̯bʰ- 'start swinging' (LIV²: 372). Both root variants are found in Indo-Iranian: Ved. (1008,1–3) kṣipá- vs. ŚB (I 4,4,15) ví kṣobhante, and in Slavic: OCS o-šibati[20] vs. Pol. chybać. Cf. also OE *swaipa ~ *swapan (Bosworth-Toller: 944) fig. 'swing the broom'. This case suggests a parallel extension of the primary and the secondary root which, in turn, implies a productive derivational mechanism involving a morpheme (grammatical/lexical or of an in-between status) with the first radical *bʰ at that time. Alternatively it is possible to account for the structure Ce-i̯-C where the second C is *bʰ by means of an i-infixation for the purpose of a fientive formation.

Numerous root variants attested within the semantic field of 'glide, slip, smear, make sleek, smooth' (LIV²: 566–567), probably onomatopoeic as to their anlaut (all starting with *s-l°), are to be found, predominantly in North IE: Germanic, Celtic, Baltic:

15a *sleu̯bʰ- intrans. 'glide, slip' (LIV²: 567)

Attested in Germanic: OE slūpan (Bosworth-Toller: 886), Goth. af-slaupjan (Lehmann 1986: 6–7);

15b *slei̯bʰ- 'slip' in OHG slīfan (Kluge-Seebold: 808); *slei̯ĝ- 'smear, make smooth' in OHG slīhhan (l.c.), OIr. fo-slig (Schumacher: 591);

15c *slenkʷ-'slip, sleek' in ON slyngva 'sling' (Holthausen: 266, de Vries: 518); OHG slingan 'creep in', cf. Schumacher: 591–592; Kluge-Seebold: 810, Seebold 1970: 433, 428).

All of these may be considered root variants. The origin and function of such root determinants would, however, require a separate study.

16   *dʰreu̯bʰ- (LIV²: 155–156)

Trans. in Gk θρύπτω 'crumble' (Frisk 2: 688–689), possibly in Lith. driáubti 'trample down' (Smoczyński: 124); could also imply a deictic element, which is less probable in our view. A further root variant is *dʰreu̯s- 'drop off, spall, crumble away' (LIV²: 157–158) as attested in Goth. driusan (Lehmann 1986: 95, Köbler 1989: 122–123). Both seem to derive by means of metathesis from PIE *dʰu̯er- with the more abstract meaning 'to damage' (cf. LIV²: 159–160); compare RV dhū́rvant-, YVed. dhvār[i]ṣur (KS) 'damage'.

4. Conclusions

The analysis offered here is not meant to be exhaustive; it merely tries to lift the veil a little on the early stages of root genesis, as the roots obviously got fixed prior to their attestation in the daughter languages. The complexity of the matter arises from many parallel and subsequent derivational processes involving syntactic change and morphological operations, all of them – as I tried to show – leaving a number of traces in the structure of the derivative bases, dispersed throughout the IE daughter languages.

Judging by the relative mobility of segments identified as potential root extensions, it is possible to form an estimate of how productive the corresponding morphemes could have been prior to their lexicalization, as well as to clarify derivational relations of a large scope of roots of common semantics, showing auslaut variation. The correct identification of root

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20   The problem of Slav. and YAv. *bʰ vs. Ved. p will not be addressed here.

extensions and their semantics allows an insight into what naming mechanisms should have functioned in early PIE, particularly as concerns derived meanings.

I believe to have found at least two plausible sources of final -b^h- not belonging to the basic root structure in PIE – both of them suggesting changes starting in syntax and transferring to morphology. In a broader sense, what are now called root extensions making their way from originally free syntactic contexts into a word and subsequently into a root structure imply a general, growing preference for synthetic ways of expression to analytical ones within PIE.

Furthermore, I believe to have offered the tentative groundwork treatment of roots, definitely making part of one epidigm on the semantic level (see fn. 1) and showing variation of the last (or two last) radicals in their morphology, which is to be further specified/adapted as necessary in successive research.

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