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The outcome of PIE *#*Hi*- and *#*Hu*- in Germanic

Abstract: It has been established with a great amount of certainty that PIE *#*Hu*- > Gr. #*V*̓ὐ- and that PIE *#*Hi*- > Gr. #ἰ-. It still remains to be demonstrated what happens in other Western Indo-European branches, including Germanic. In this article[1], I reject the statement by Ringe (1988: 433) that PIE *#*Hu*- becomes PG *#*u*- and propose the possibility of differentiated outcomes dependent on the timbre of the PIE laryngeal, viz. that PIE *#h_1*i*- > PG *#*i*- and PIE *#h_1*u*- > PG *#*u*- as assumed by most scholars, but that PIE *#h_2*i*- and PIE *#h_2*u*- might yield PG *#*ai*- and PG *#*au*-, respectively. Furthermore, I tentatively propose that PG *#*au*- > PG *#*u*- when followed by a labial consonant; a development partially paralleled in Greek and in English.

Keywords: Indo-European, Germanic, phonology, laryngeals, diphthongs, vowel prothesis

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As the adjective ‘radical’ is ambiguous, we would like to replaced it with ‘root’. Are you okay with that?

1 PIE *#*Hi*- and *#*Hu*-: the classical view

In many grammars of Proto-Indo-European one may come across the statement that the outcome of PIE *#*Hi*- and *#*Hu*- in the individual Indo-European languages, with the sole exception of the languages of the Anatolian branch, is Post-PIE *#*i*- and *#*u*-, respectively, cf. e. g. Lehmann 1955: 32, 86–7; Lindeman 1987: 42–3; Beekes 1969: 128–9; 1988: 59–105 and – albeit somewhat hesitantly

1 This article constitutes a slightly modified version of the third article of my Ph. D. thesis “Archaisms and Innovations” (Hansen 2014: 122–70).

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– Cowgill 1965: 146–7. Quite recently, Clackson (2007: 57) uncritically adopts the very same notion.

Given this vast, yet by no means exhaustive list of scholars arguing for the development of PIE *#*Hi-* > Non-Anatolian-Post-PIE *#*i-* and of PIE *#*Hu* > Non-Anatolian-Post-PIE *#*u-*, any mentioning of the idea that these two soundlaws would apply also for Germanic, i. e. that PIE *#*Hi-* > PG *#*i-* and that PIE *#*Hu* > PG *#*u-*, would seem almost superfluous. A much-cited example of the development of at least PIE *#h_2u > PG *#*u-* is that of PG **ubila-* 'evil, bad' with a related form in Hitt. *huwappa-* 'evil, ill, bad' derived from *huwapp-* ∼ *hupp-* 'be hostile towards, do evil against; throw (down), hurl' (cf. e. g. Watkins 1969: 30). By following the etymological proposal of Watkins, Ringe (1988: 433) even tentatively judges the universal Germanic outcome of PIE *#*Hu-* to be PG *#*u-*, cf. table 1.

Table 1. Ringe's (1988: 433) survey of laryngeal developments in initial position in the Western Indo-European languages

PIE	Greek	Latin	O[sco-]U[mbr.]	P[roto-]C[eltic]	P[roto-]G[erm.]
*$\underset{\circ}{n}$-	*a-*	**eN-* (> *iN-*)	*aN-*	**aN-*	**uN-*
*x$\underset{\circ}{n}$-	*aN-*	*aN-*	*aN-*	**aN-*	**uN-*
*$x^w\underset{\circ}{n}$-	*oN-*	**oN-* (> *uN-*)	?	**aN-*	?
*x$\underset{\circ}{r}$-	*ar-*	**or-* (> *ur-*)	?	**ar-*	?
**xu-*	*au-*	*au-*?	?	?	**u-*?

Indeed, Watkins' etymological proposal does seem to suggest a development of PIE *#*Hu-* > PG *#*u-* as indicated in the table, but one seemingly safe example constitutes a comparatively meagre body of evidence; hence, probably, Ringe's application of a question mark in the table.

As such, it still remains to be seen if the *communis opinio* can be upheld or if the inclusion of additional data will call for a new interpretation. By focusing particularly on the Germanic outcomes of PIE *#*Hi-* and *#*Hu-*, this article aims at removing the insecurity exemplified by the question mark in Ringe's table.

2 The development of PIE *#*Hi-* and *#*Hu-* revisited

Though generally accepted, the notion of PIE *#*Hi-* and *#*Hu-* > Non-Anatolian-Post-PIE *#*i-* and *#*u* does not gain support from everybody. Some scholars ar-

gue that, in some branches, notably Greek and Italic, PIE *#*Hi*- and *#*Hu*- alternates with what some scholars choose to notate *#*əi̯*- and *#*əu̯*-, cf. e. g. table 1 for Ringe's assumption of the development in Greek. The first to consider this development was Pedersen (VGK: 1, 179):

> Präidg. *g* im Wortanlaut vor einem *w* oder *j* + einem unsilbischen Laut kann silbisch werden oder unsilbisch bleiben. Lat. *augeō* 'vermehre' ir. *uagim* 'nähe' S. 54 : skr. *ugrá-* 'gewaltig' (idg. *u-* aus präidg. *gu*). Lat. *ae-quus* 'gleich' : *i-tem* 'ebenfalls' (zum Pronominalstamm **ei-*, **ai-*, **i-* vgl. § 107).

Hammerich (1948: 32) expresses similar ideas concerning the alternation between PIE *#*Hu*- and *#*əu̯*-:

> [...] whereas *H* in *Hu* was preserved as consonantal in 'Anatolian', primitively in Aryan and Armenian, too, *Hu* generally became *Hu̯* in Greek, Italo-Celtic, Balto-Slavonic and – perhaps – Albanian. Naturally, the *au* of several IE languages may sometimes be IE *au* and sometimes IE *Hu̯*. But where the western languages have *au-* in forms corresponding to forms with *u-* in the eastern languages, it is probable that we have western *Hu̯-* derived from IE *Hu-* preserved as *ḫu-* in Hittite, as *u-* in the other eastern languages.[2]

Heavily inspired by *Lex Rix*[3] and slightly modified by Hyllested & Cohen (2007: 13), Peters (1980: 5–125) was the one to finally uncover the situation in Greek, i. e. to uncover if PIE *#*Hi*- > Gr. #i̯- or #*V*i̯- and similarly if PIE *#*Hu* > Gr. #u̯- or #*V*u̯-. Peters (1980: 72) concludes that the seven forms αὐγή 'sunlight', αὐδή 'human voice, speech', αὔξω 'make large, increase; strengthen', αὐχέω 'boast', ἦρι/ἠέριος etc. 'early', ἰαύω etc. 'sleep, pass the night' and εὖνις 'reft of, bereaved of' may all have developed from PIE *#*Hu*- even though non-phonological explanations, however unlikely, cannot be excluded. Against these seven examples, one single example, viz. Gr. ὑφαίνω 'weave', seems to indicate a development of PIE *#*Hu*- > Gr. #u̯-, but by formulating the rule that Pre-Gr. *#*Vw*- > #*u*- / _*C*[+lab], as a consequence of which Gr. ὑφαίνω should no longer be regarded as a counterexample of the general development of PIE *#*Hu* > Gr. #*V*u̯-, Hyllested & Cohen (2007: 13) render unnecessary any of Peters' (1980: 114–25) attempts to explain why PIE *h_2ub^h-n̥-i̯ō* would appear as Gr. ὑφαίνω rather than as †αὐφαίνω.

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2 With his citation of Friðþjófr Þórsteinsson's Lausavísa no. 30, where ***Ey**þjófr* (ON *ey-* < PG **au-* with *i*-mutation) and ***út**sker* should be seen as alliterating, Hammerich (1948: 33) even claims that Germanic, too, may have vocalised PIE **H* in initial position immediately preceding **u*, cf. also his reconstruction of Goth. **austra-* (*Ostro-*) < PIE **Hu̯sro-* < **Husro-* or of Goth. *aukan* 'increases, grows' < PIE **Hu̯g-* (Hammerich 1948: 31).

3 PIE *#*Hr̥-* > Gr. #*VR*-, cf. e. g. PIE *$h_2r̥g$-ró-* > Gr. ἀργός 'shining, bright' (dissimilated from *ἀργρός) and PIE *$h_3n̥b^h$-l̥-o-* > Gr. ὀμφαλός 'navel' (cf. Rix 1970: 84–102 and 84–5, 94–5 in particular).

As for the development of PIE *#*Hi*-, Peters (1980: 113) claims that the comparison of the six forms where Gr. #*V̓*- might be a result of PIE *#*Hi*- but where non-phonological explanations might be equally attractive to the seven forms where Gr. #*i̓*- is seen as the result of PIE *#*Hi*- even though non-phonological explanations, however unlikely, cannot be excluded clearly points in the direction of PIE *#*Hi*- > Gr. #*i̓*- being the regular development. Contrarily, Joseph (1975: 322–3, 326–7) and Normier (1980: 259, 260–1, 269) hold the rule of PIE *#*HU*- > Gr. #*VU̯*- to be valid for both glides. As for Joseph's claim, however, it is important to note that actual data from Greek plays a significantly minor role in his article and that his conclusions are based on theoretical and systemic considerations implying that the change PIE *#*HU*- > #*VU̯*- is triggered by influence between various formal classes in the morphology rather than by internal phonological pressures (cf. Joseph 1975: 327),[4] and Normier only lists a handful of examples in three footnotes without discussing the problem in detail, cf. also the criticism advanced by Beekes (1988: 71).

According to Peters (1980: 113–4), the dissimilar developments of PIE *#*Hi*- and *#*Hu*- in Greek are reminiscent of the situation found with the appearance of prothetic vowels, triggered by laryngeals, in front of glides: The sequence of PIE *#*Hu̯*- does develop a prothetic vowel in Greek just as we would expect, cf. e. g. PIE *h_2*u̯es-s*- > Gr. ἄεσα 'spent (the night)'; PIE *#*Hi̯*-, on the other hand, does not.

With the sole exception of Latin, for which language Forssman (2010: 291) in his review of Peters 1980 tentatively suggests that PIE *#*ə$_2$u*- > Lat. #*au*- based on the example of Lat. *aurōra* 'dawn' (against which Schrijver 1991: 74–5), there would seem to be no other Indo-European languages in which PIE *#*Hu*- > *#*VU̯*-. Neither are there any examples of PIE *#*Hi*- > *#*Vi̯*-, not even in Greek if we choose to follow Peters (1980: 113) rather than Joseph (1975: 322–3, 326–7) or Normier (1980: 259, 260–1, 269). That Greek seems to take up a special position among the Indo-European languages as regards the development of at least PIE *#*Hu*- is far from surprising in that Greek is one of only three branches to display prothetic vowels developed from laryngeals in initial position followed by a non-syllabic sound. As indicated above, yet contrary to what Hammerich (1948: 31) supposes, it would seem the initial vowel of Gr. #*V̓*- should rather be seen as a prothetic vowel than as the manifestation of a vocalised laryngeal.

4 Equally or maybe even more important is the fact, mentioned by Joseph (1975: 323) himself, that the small amount of data included in the article stems from an early draft of Peters 1980, possibly from a time prior to Peters' completion of his data analysis.

3 Possible outcomes in Germanic

Turning now our attention towards Germanic, i. e. the branch for which Ringe (1988: 433) found it necessary to apply a question mark in his table illustrating the development of PIE *#*Hu*- in a range of Western Indo-European languages, we first need to set up a range of criteria in order for us to determine which Germanic phonemes or combinations of phonemes in initial position could theoretically reflect PIE *#*Hi*- and *#*Hu*-.

Based on the knowledge from other branches, it feels safe to assume that PG *#*i*- and *#*u*- are possible outcomes, cf. e. g. Av. *uxšiieitī* 'grows' (< PIE *h_2*uk-s-i̯é-*). The special development of PIE *#*Hu*- > Gr. #Vu̯- suggested by, among others, Pedersen, Hammerich and Peters, cf. above, should also be considered for Germanic. In Greek, according to Peters (1980: 7), the timbre of the vowel is determined by the quality of the laryngeal, hence PIE *#*h_1*u*- > Gr. #eu̯-, PIE *#*h_2*u*- > Gr. #au̯- and PIE *#*h_3*u*- > Gr. #ou̯-. If Germanic behaves in a way exactly parallel to Greek, the expected outcomes could be PIE *#*h_1*u*- > PG *#*eu*-, PIE *#*h_2*u*- > PG *#*au*- and PIE *#*h_3*u*- > PG *#*au*- or generally just PIE *#*Hu*- > PG *#*au*- with the vowels representing prothetic vowels even if Germanic, unlike Greek, is not normally regarded as a language that develops prothetic vowels.

If, however, we start reflecting about the nature of prothetic vowels, we might be given a rationale for any appearance of prothetic vowels in Germanic. In my view, prothetic vowels must have arisen as a consequence of sandhi developments. For the sequence of PIE *#*Hi*- and *#*Hu*-, four possible sandhi environments may occur, viz. PIE *-*V*#*Hi/uV*- (> *-*V̄i̯/u̯V*-), *-*V*#*Hi/uC*- (> *-*Vi/uC*-), *-*C*#*Hi/uV*- (> *-*C*H̥*i̯/u̯V*) and *-*C*#*Hi/uC*- (> *-*C*H*i/uC*-). In the former two environments, we would expect the laryngeal to colour and, in the first example also lengthen, the preceding vowel after which it would disappear in non-Anatolian-Post-PIE. The latter two environments are of greater interest to us. In the first of these, the laryngeal would develop into a true schwa which, however, has been preserved in this position as a so-called prothetic vowel only in Greek, Armenian and Phrygian, cf. above. If we consider for the last sandhi environment that the sequence PIE *CHi/u would develop a supporting vowel in order to ease the pronunciation in a way parallel to Sievers' Law for the cluster PIE *Ci̯/u̯V > *Ci̯i̯/uu̯V, i. e. in this case PIE *CHi/u > *C*H̥*Hi/u, we have an explanation for any development of PIE *#*Hi*- > PG *#*Vi*- and PIE *#*Hu*- > PG *#*Vu*- as also for the identical development in Greek.

For the sake of systematic completion, we should also examine, though, whether either PIE *#*h_1*i*- > PG *#*ei*- (> *#*ī*-), PIE *#*h_2*i*- > PG *#*ai*- and PIE *#*h_3*i*- > PG *#*ai*-, cf. again the triple representation of PIE *$h_{1/2/3}$ in Greek, or generally just

PIE *#*Hi*- > PG *#*ai*- are possible developments. Consequently, in order to include all theoretically possible outcomes of PIE *#*Hi*- and *#*Hu*- in Germanic, we need to examine all Germanic lexemes with the initial phonological combinations of PG *#*i*-, *#*ai*-, *#*ī*-, *#*u*-, *#*au*- and *#*eu*-.[5]

In the following Proto-Germanic lexemes, it is theoretically possible that PG *#*i*-, *#*ai*-, *#*ī*-, *#*u*-, *#*au*- and *#*eu*- reflect a PIE initial laryngeal followed either by a full- or *o*-grade vowel and a glide or by a syllabic glide, i. e. the structures PIE *$He_{\underset{\frown}{i}}C$-, *$Ho_{\underset{\frown}{i}}C$-, *$HiC$-, *$He_{\underset{\frown}{u}}C$-, *$Ho_{\underset{\frown}{u}}C$- and *$HuC$-.[6]

3.1 Possibility of PIE *#h_1i-

(1) PG **aima*- ‘smoke, steam; smell’; see (14).

(2) PG **aina*- ‘one, alone, any’ > Goth. *ains*, ON *einn*, OSw. *ēn*, *æn*, ODa. *een*, OE *ān*, OFris. *ān*, *ēn*, OS *ēn*, OHG *ein* etc. Also PG **ainahan*- ‘single’ > Goth. *ainaha*, ON *einga* (indecl.), OE *ānga*, *ænga*, *ēnga*; PG **ainaka*- ‘only, special’ > ON *einkum* (dat.pl.); PG **ainakjōn*- ‘widow’ > ON *ekkja*, OSw. *ænkia*, ODa. *ænkiæ*; and PG **ainak(a)la*- ‘standing alone’ > Goth. *ainakls*. Extra-Germanic comparanda abound, e. g. Gr. οἴνη ‘one (on dice)’, Lat. *ūnus* ‘one’, OIr. *óen*, *óin*, Lith. *víenas*, OPr. *ains* etc.; all from PIE *$o_{\underset{\frown}{i}}no$- ‘one, alone’; with different suffixation cf. e. g. Skt. *éka*- ‘one’, Mitanni-Indic *aika*-, Av. *aēva*-, OPers. *aiva*- ‘one, alone’ and Gr. οἶος ‘alone, lonely’. Often regarded as a derivative from the pronominal stem PIE *$(h_1)i$- ∼ *$(h_1)e$- ∼ *$(h_1)e_{\underset{\frown}{i}}$-, i. e. PIE *$h_1o_{\underset{\frown}{i}}no$-, cf. e. g. IEW: 286; Bammesberger 1990: 227,

5 Not all lexemes with these combinations may be regarded as reflecting PIE *#*Hi*- or *#*Hu*-. Alternative sources for PG *#*ai*-, *#*ī*-, *#*au*- and *#*eu* are full- and *o*-grade forms of roots with the structure *$HEU_{\underset{\frown}{C}}C$-. PG *#*i*- and *#*u*- may also reflect the zero grade of PIE *$\#i_{\underset{\frown}{V}}$- and *$\#u_{\underset{\frown}{V}}$- (e. g. PG **utra*- ‘otter’ < PIE **ud*-, zero grade of PIE *$u_{\underset{\frown}{e}}d$- ‘wet’); PG *#*i*- and *#*u*- even have a third possible source, viz. as a raised variant of PG/PIE *#*e*- preceding a nasal plus another consonant (e. g. PG **in* ‘in’ < PIE *h_1en-) and as the supporting vowel in the sequence PG *#*uR*- developed from PIE *#*(H)r̥* (e. g. PG **un*- ‘un-’ < PIE *$n̥$-), respectively. In addition to these sources, we must add analogical reshapings, onomatopoeias and lexical borrowings (e. g. PG **aiþīn*-, **aiþōn*- ‘mother’ < PIE/Pre-PG **ait*-, i. e. probably a nursery word). For a more elaborate list of material with the relevant onsets reflecting other sources than initial laryngeal followed by PIE **(V)i* or **(V)u*, I refer to Hansen 2014: 158–60.

6 Due to limitations of space, references to the etymological handbooks have generally been omitted. Where no further references are given, I base my etymological considerations on Bammesberger 1990; Bjorvand & Lindeman 2000; Boutkan & Siebinga 2005; Casaretto 2004; Griepentrog 1995; Holthausen 1974; IEW; Kluge & Seebold 2002; Kroonen 2013; Lehmann 1986; EWAhd; Nielsen 2000; NIL; Orel 2003; Philippa et al. 2003–2009; Schaffner 2001; Sehrt 1966; **devries1974**.

but competing etymological proposals exist, cf. e. g. Kroonen (2013: 11) who proposes affiliation of PG **aina*- with the root PIE **h*$_2$*eı̯*- found in **h*$_2$*oı̯-u*- 'eternity, lifetime'.

(3) PG **ainia*- 'juniper' > ON *einir*, LG *ēn(e)ke*. If an extra-Germanic comparandum is represented in Hitt. *eyan*- 'a certain evergreen tree, yew(?)', a reconstruction along the lines of PIE **h*$_1$*óı̯-n-* ∼ **h*$_1$*éı̯-n-*, i. e. an acrostatic neuter *n*-stem, might not be far-fetched, cf. Kroonen 2013: 12. Lat. *iūni(-perus)* 'juniper', which is traditionally compared to PG **ainia*- (< PIE **h*$_1$*oı̯-n-ı̯o-*), would thus need to continue PIE **h*$_1$*oi-n-i-* with an enigmatic, initial Lat. *i*-, and the comparandum of Lat. *iūniperus* 'juniper' and Lat. *iuncus* 'rush', MIr. *áin* 'bulrush, juncus effusus' must be abandoned. Lat. *iuncus* < PIE **ı̯oı̯n-ko*- may, however, be the folk etymological source for the initial *i*- of Lat. *iūniperus*. Alternatively, LG *ēn(e)ke* and other West Germanic forms may have been folk etymologically influenced by PG **aina*- 'one', in which case the traditional etymology of ON *einir*, LG *ēn(e)ke* etc. < PG **jainia*- may be seen as valid in spite of its exclusion of Hitt. *eyan*- as a comparandum.

(4) PG **aisō(ja)na*- 'rush' > ON *eisa* 'rush, dash'. Also e. g. PG **aiskrō(ja)na*- 'roar, rage' > ON *eiskra* if this should not rather be reconstructed as PG **ai(d)skrō(ja)na*- and compared to PG **aida*- 'pyre', for which see (14), but the existence of Icel. *ískra* 'be furious from excitement or pain' (< PG **īskrō(ja)na*-), which cannot continue a form with initial PIE **h*$_2$, clearly points in the direction of PG **aiskrō(ja)na*- 'roar, rage' belonging here, since the root of PG **aisō(ja)na*- 'rush' is often seen reconstructed as PIE **h*$_1$*eish*$_1$- 'move rapidly', cf. the extra-Germanic comparanda of, e. g., Skt. *íṣyati* 'sets in motion, sends', Skt. *iṣáyati* 'refreshes, becomes strengthened', *iṣirá*- 'strong, lively' (< PIE **h*$_1$*isə*$_1$*-ró-*), *eṣá*- 'quick', Av. *aēšma*- 'rage, fury', Gr. οἶστρος 'rage', ἱερός 'strong, lively, manifesting divine power' (< PIE **h*$_1$*isə*$_1$*-ró-*), Lat. *īra* 'anger, rage' (< PIE **h*$_1$*eı̯ish*$_1$*-eh*$_2$-). The actual Germanic form must be regarded as a denominal verb derived from PIE **h*$_1$*óı̯ish*$_1$*-o*- 'rage, movement' vel sim., i. e. a formation parallel to, say, Gr. τόμος 'slice, cutting' and λόγος 'computation, reckoning; explanation, argument; narrative, speech', or maybe rather PIE **h*$_1$*ísh*$_1$*-o*- if we choose to accept Rasmussen's (1989: 172) claim that the PIE **-o*- appearing in the verbal nouns of the *toga*- or τομή-type, from which the almost synonymic τόμος-type is ultimately derived, is always dropped when adjacent to, i. a., a laryngeal, cf. also the semantically related *fuga*-type as well as the causative-iterative Skt. *iṣáyati* 'refreshes, becomes strengthened' (< PIE **h*$_1$*ish*$_1$*-éı̯e-*) where identical conditions prevail regarding the distribution of *o*- and zero grade.

(5) PG **aiþa-* 'oath' > Goth. *aiþs*, ON *eiðr*, OSw. *ēþer*, ODa. *ēth*, OE *āth*, OFris. *ēth*, *ēd*, OS *ēth* and OHG *eid* etc. Also e. g. PG **aid(i)a-* 'isthmus' > ON *eið*, *eiði*, OSw. *ēþ*. Outside Germanic cf. OIr. *oeth* 'oath', whence the Germanic lexeme may have been borrowed or vice versa, cf. also Marstrander (1911: 205), Kluge & Seebold (2002: 230), and Casaretto (also 2004: 425) who, however, remains sceptical towards the idea of a lexical borrowing in either direction. Together with PG **aiþa-*, the Celtic lexeme points at PIE **Hói̯-to-*. As for the timbre of the laryngeal, all three options are available: If suggesting PIE $*h_1$, we would invoke affiliation of this derivative to the root PIE **$h_1$ei̯-* 'go' based on the term ON *eiðgangr* 'oath-walk'. A reconstruction with PIE $*h_1$ also finds support in the existence of a form – also related to the meaning 'oath' – from Post-PIE **ei-to-* that can only reflect PIE **$h_1$ei̯-to-*, viz. Umbr. *eitipes* (< *eitom epens* 'they took an oath'); further cf. also Gr. οἶτος 'fate' and OPhryg. *oito-*. In support of PIE $*h_2$ and a root PIE **$h_2$ei̯-* 'important speech', older literature lists Gr. αἴνημι, αἰνέω 'praise', cf. e. g. IEW: 11, but this equation is rejected by the majority of more recent etymological dictionaries, cf. e. g. Bjorvand & Lindeman 2000: 174–5. The last of the options at hand, viz. PIE $*h_3$ in a root PIE **$h_3$ei̯-* 'trust' with cognates in Hitt. *hai-* 'believe, trust, be convinced', has been suggested by Puhvel (HED: Ḫ, 9–10), but as stated by Kloekhorst (2008: 267), most attestations of this verb point at a stem Hitt. *hā-* (< PIE **$h_{2/3}$eH-*) rather than †*hai-*. As such, PIE **$h_1$ói̯-to-* would seem the most attractive candidate for PG **aiþa-*. Regardless of the timbre of the laryngeal, however, root zero grade does not seem to be a possible option, cf. OIr. *oeth*. Furthermore, contrary to the verbal adjectives of the type PIE **mr̥̊-tó-* 'dead', substantival *to*-formations, which formally resemble vr̥ddhi-formations of the verbal adjectives, are normally stressed on the root vowel, cf. e. g. Brugmann 1906: 27, 408–9.

(6) PG **aiþma-* 'son-in-law' > OE *āthum* 'son-in-law, brother-in-law', OFris. *āthum*, *āthom*, *āthem* 'son-in-law, father-in-law', OHG *eidum*, *eidam* 'son-in-law'. Uncertain etymology, but three proposals are worthy of consideration. Firstly, if PG **aiþma-* is to be understood as 'son/father-in-oath', comparison to PG **aiþa-* 'oath', for which see (5), is straightforward. Secondly, it can be compared to Av. *aēta-* 'proper share; punishment', Gr. αἶσα, ἴσση 'part, share, destiny', Osc. *aiteis* 'part' (gen.sg.), which are all derivatives of the root PIE **$h_2$ei̯-* 'give, contribute', cf. further Gr. αἴνυμαι 'take', i. e. 'give to your self'. This makes sense from the semantic point of view that PG **aiþma-* is 'he who has a share in the inheritance of the daughter'. Thirdly, it may be analysed as a derivative of the nursery word PG **aiþīn-*, **aiþōn-* 'mother'; however, it is questionable, in my view, if a

term for a mother whose acquaintance is not made until adult life could have developed from a nursery word for mother. In all, the pedigree of this lexeme must be regarded as too uncertain in order for it to serve as a basis for any assumptions regarding the root ablaut grade and the timbre of a possible initial laryngeal.

(7) PG **aiwa-*, **aiwō-*, **aiwi-* 'law'; see (27).

(8) PG **i-* 'he, she, it' > Goth. *is*; *ita* 'he; that', ON *es*, *er* 'who', OFris. *-er* 'he', OS *it* 'that', OHG *ir*, *er*; *iz*, *ez* 'he; it' etc. With initial PG **#ī-* e. g. PG **ī-* > Goth. *ei* 'that', ON *í* (first member of temporal denotations such as *í gær* 'yesterday', *í dag* 'today' etc.), OE *ī(-lca)* 'same' (< PG **ī-līkan-*). From PIE **(h$_1$)i-* ∼ **(h$_1$)e-* ∼ **(h$_1$)e$\underset{\wedge}{\text{i}}$-*, cf. also Skt. *ayám*, *idám*, *a-* etc. 'he etc.', Av. *ayəm*, Gr. ἵν 'him', Lat. *is*, *ea*, *id* 'he etc.'; as for the varying representations of the root in the same paradigm also within Germanic, cf. e. g. Goth. *eis* (m.pl.) 'they' (< PIE **(h$_1$)e$\underset{\wedge}{\text{i}}$-es*). The assumption of an initial laryngeal in this pronominal root is only structurally motivated, cf. e. g. Benveniste 1935: 148–9. It can be stated with certainty, though, that if a laryngeal is present initially, it must be PIE **h$_1$*, cf. again e. g. Goth. *eis* (< PIE **h$_1$e$\underset{\wedge}{\text{i}}$-es*) and Lat. *ea* 'she' (< PIE **h$_1$e$\underset{\wedge}{\text{i}}$-eh$_2$*); any other laryngeal would have resulted in colouring of the root full-grade vowel.

(9) PG **idi-* 'work' > Burg. **iþs* (in personal names such as *Idbertus*, *Idwinus*), ON *ið* 'profession, job'. Also PG **ida-* 'constant moving, quivering' > ON *ið* and PG **idō(ja)na-* 'move around restlessly' > Icel. *iðа*. Outside Germanic, the denominal verb is found also in Gr. ἰτάω 'go here and there', Lat. *itō* 'go', MIr. *ethaid* 'goes'. ON *ið* 'profession, job' has a variant, viz. ON *íð*, which, together with the extra-Germanic comparanda, points at PG **idi-* etc. continuing a PIE *ti*-stem **h$_1$i-tí-* to PIE **h$_1$e$\underset{\wedge}{\text{i}}$-* 'go', cf. also Skt. *íti-*, *itís* 'going, walking', or even more correctly PIE **h$_1$é$\underset{\wedge}{\text{i}}$-ti-*/**h$_1$i-té$\underset{\wedge}{\text{i}}$-*, cf. Kroonen 2013: 269. Any connection of this group of words to the root PIE **h$_2$e$\underset{\wedge}{\text{i}}$d^h-* 'burn', i. e. PIE **h$_2$id^h-i-* as alternatively suggested by, e. g., de Vries (1962: 282–3) would seem futile in the light of ON *íð* which can probably only continue PIE **(h$_1$)ei-* or **(H)iH-*.

(10) PG **iliþ-*, *iljō-* 'footsole' > ON *il*, OE *ill*, *ile* 'footsole, hard skin', OFris. *ili*, *ile* 'footsole', MLG *ēle*, *ēlde*, *ēlt* 'callus' etc. Some scholars have supposed that PG **ilan-* 'fishing net, weight, anchor etc.' > ON *íli*, *ili*, Norw. (dial.) *ile* is also related to this root, cf. e. g. Kroonen 2013: 269 with lit., contra which de Vries (1962: 284–5). Also PG **ilkan-* 'footsole' > ON *ilki* which, however, has been explained by Hyllested (2008) as a lexical borrowing from Saami. No satisfactory etymology. Attempts have been made at con-

necting PG **iliþ-*, **iljō-* with the root PIE **$h_1$ei̯-* 'go' as well as with the formally dissimilar Gr. ἴλια 'female body-parts' and Lat. *īlia* 'belly', which are both without etymology (< PIE **īli̯eh_2-*?), cf. e. g. de Vaan 2008: 198.

(11) PG **īliana-* 'rush, hurry' > OS *īlian* 'strive; hurry', OHG *īl(l)an*, *īlen* etc. Also PG **īlō-* 'hurry, haste' > OHG *īla*. Often connected to the root PIE **$h_1$ei̯-* 'go', i. e. as PIE **$h_1$ei̯-(e)lo- vel sim.* (cf. IEW: 296), or maybe as an *l*-derivative of an intensive to the root, i. e. PIE **h_1e(i̯)-h_1i-li̯e-*, cf. Kroonen 2013: 169, but as rightly pointed out by Kluge & Seebold (2002: 232), the original meaning of this verb, i. e. 'strive', does not fit well with the semantics of **$h_1$ei̯-* 'go'. Kluge & Seebold therefore speculate if a zero grade PIE **ih_2-* of the root PIE **i̯eh_2-* reflected in Skt. *yā́ti* 'pursues, revenges; pleads, begs' and Gr. ζῆλος 'eagerness' would not be a better candidate, especially in the light of the fact that a nearly identical duality of meaning, viz. 'rush, hurry' ∼ 'pursue' on the one hand and 'plead, beg' ∼ 'strive' on the other, seems to be present in Skt. *yā́ti*; this etymological proposal is rejected by Bjorvand & Lindeman (2000: 430–1) on unspecified formal grounds.

(12) PG **īsa-* 'ice' > Goth. *iiz* (name of the i-rune), ON *íss* 'ice', OE *īs*, OFris. *īs*, OS *īs*, OHG *īs* etc. Often compared with Av. *isu-* 'cold, icy, frosty', *aēxa-* 'cold', but Av. *isu-* can only be derived from PIE **iḱu-* (or maybe **is-sḱu-*?); a PIE **isu-* would result in Av. †*išu-*, cf. e. g. Hoffmann & Forssman 1996: 102–4. Though semantically attractive, any attempt to unite Av. *isu-* (< PIE **Hiḱ-* or maybe **His-sḱ-*) with PG **īsa-*, which must continue a PIE **HiH(-)s-o-*, **$h_1$ei̯(-)s-o- vel sim.* would at first hand seem futile. Judging from the prevailing neuter gender in Germanic, however, I cannot help wondering if PG **īsa-* could not, in fact, continue a thematised *s*-stem PIE **$h_1$éi̯-s-o-* or maybe even **$h_1$éi̯-es-o-* with the phonological development of PIE **-ei̯e-* > PG **-ī-* also recognised in, e. g., PIE **tréi̯es* 'three' > PG **þrīz* and PIE **u̯éi̯es* 'we' > PG **wīz*.[7] Since PIE **$h_1$éi̯-es-o-* would probably yield PG †*īza-* rather than **īsa-*, a reconstruction along the lines of PG **$h_1$éi̯-s-o-* is to be preferred. Av. *isu-* would thus not continue the *s*-stem but rather be derived with an otherwise unknown *-(s)ḱu*-suffix directly to the root PIE **$h_1$ei̯-* in the zero grade, i. e. < PIE **h_1i-(s)ḱ-u-*. Such an analysis is, however, obstructed by Av. *aēxa-* whose Av. *-x-* can only be interpreted as PIIr. **-k^h-* (< PIE **-$k^{(w)}h_{1/2}$-* or **-$h_{1/2}k^{(w)}$-*). Consequently, given the nonexistence

7 Thematisation of *s*-stems is a trivial process in the Germanic languages, especially in Gothic and in North Germanic, cf. e. g. Krahe 1967: 42–3; Thöny 2013: 82–4. In West Germanic, however, *s*-stems have been at least peripherically preserved, cf. e. g. OE *lemb* 'lamb' (nom./acc.pl. *lombur*) and OHG *lamb* (nom./acc.pl. *lembir* < **lembiru* < PG **lambizō*).

of a nominal suffix PIE *-*kHo*-, the only possible etymological analysis of Av. *aēxa*- would include a root final laryngeal, i. e. PIE *$h_{(1)}e\underset{\wedge}{i}H$- *vel sim.* < PIE *$h_{(1)}e\underset{\wedge}{i}H$-*ko*-/*$h_{(1)}o\underset{\wedge}{i}H$-*ko*- (for the development of PIE *-$h_{1/2}$-*k*- > *-k^h-, cf. Olsen 1994: 274–5), and thus exclude Av. *isu*-, which cannot continue a form with a root final laryngeal, from the list of cognates unless we choose to follow de Vaan's (2003: 246–50) suggestion that Av. *ī* may be shortened to *i* in some cases among which, however, de Vaan (2003: 250) does not include that of Av. *isu*-. The addition of a root final laryngeal offers no problems for the analysis of PG **īsa*-; thus PG **īsa*- < PIE *$h_1e\underset{\wedge}{i}H$-*s*-*o*-, **HiH*-*s*-*o*- *vel sim.* but not PIE *$h_1e\underset{\wedge}{i}H$-*es*-*o*-, which would probably result in PG †*ej*-*jes/za*- > †*ijjis/za*-.

(13) PG **īwa*- 'yew' > ON *ýr*, OE *īw*, *ēow*, OHG *īwa* (< PG **īwō*-). Also e. g. PG **īha*-/**īga*- > OE *īh*, *ēoh*, OS *īchas* (pl.), OHG *īga*, *īgo* (< PG **īgō(n)*-). It is tempting to unite these two lexemes as PG **$īh^wa$*- ∼ **$īg^wa$*-, cf. e. g. Orel 2003: 203–4; Holthausen 1974: 189, but Kroonen's (2013: 271) etymological proposal of PG **īwa*- < PIE *$h_1e\underset{\wedge}{i}H\underset{\wedge}{u}$*-*o*- or *$h_1iH\underset{\wedge}{u}$*-*o*-, which finds support in extra-Germanic comparanda such as Lith. *ievà* 'bird-cherry', Latv. *iẽva*, Ru. *íva* 'willow' (< PIE *h_1iH-$\underset{\wedge}{u}$*o*-) and further Gr. ὄη, οἴη, ὄα 'elderberry tree, mountain ash', Lat. *ūva* 'branch of grapes; raisins' (< PIE *$h_1o\underset{\wedge}{i}H$-$\underset{\wedge}{u}eh_2$*-) and OIr. *eó* 'stem, shaft, yew-tree' (< PIE *$h_1\underset{\wedge}{i}eH$-$\underset{\wedge}{u}$*o*-?), would render any such attempt futile unless the root is reconstructed as PIE *$h_1e\underset{\wedge}{i}H$*- to which either of the suffixes PIE *-$\underset{\wedge}{u}$*o*- or PIE *-*ko*-/*-$\acute{k}$*o*- may be added. Consequently, it seems reasonable to assume that PIE *#h_1iH*- > PG *#*ī*-.

3.2 Possibility of PIE *#h_2i-

(14) PG **aida*- 'pyre' > Crim.Goth. *(sched-)iit* 'light' (?), OE *ād* '(bon)fire, pyre, funeral pile', OS *ēd* 'firebrand', OHG *eit* 'fire, oven'. Also e. g. PG **aidiana*- 'burn (tr.), harden with fire' > OHG *eiten*; PG **ai(d)la*- 'flame' > RN *aila* (cf. Grønvik 1996: 27), OE *āl* 'flame'; PG **ai(d)liana*- 'burn (tr.), ignite' > OE *ælan*; PG **ai(d)lida*- 'fire' > ON *eldr*, OSw. *elder*, ODa. *eld*, OE *æled* 'fire; fire blight', OS *ēld*; PG **ai(d)sōn*- 'forge, fireplace' > ON *eisa* 'embers', MLG *ēse* 'hearth, forge, fireplace'; PG **aistō*- 'kiln' > OE *āst* 'oven' etc.; PG **ai(d)ma*-[8] 'smoke, steam; smell' > ON *eimr* 'reek, vapor', OSw. *ember*, OE

8 ON *ím* 'dust, dirt', Far. *ím* 'soot', which fit semantically well with this family of words, are judged by Bjorvand & Lindeman (2000: 432) to be secondary. Kroonen (2013: 11), however, prefers to reconstruct a second root *$h_1e\underset{\wedge}{i}$*- on the basis of the comparandum of ON *eimr* and *ím*.

ām ‘branding iron’; PG **aima-uzjōn-* ‘embers’ > ON *eimyrja*, OE *ǣmyrie*, OHG *eimuria* ‘pyre, hot ash’; and maybe PG **ai(d)skrō(ja)na-* ‘roar, rage’ > ON *eiskra* if this should not rather be compared to PG **aisō(ja)na-* ‘rush’, for which see (4). Extra-Germanic cognates include Skt. *inddhé* ‘ignite’, *édha-* ‘fuel’, Av. *aēsma-* ‘firewood’, Gr. αἴθω ‘light up, kindle’, αἶθος ‘fire, embers’, ἰθαρός ‘clear, bright, shining’, Lat. *aestās* ‘hot season, summer’, *aedēs* ‘temple; room’, OIr. *áed* ‘heat, fire’, Lith. *íesmė* ‘firewood’ etc.; all derived from the root PIE **$h_2$ei̯d^h-* ‘burn’. If also PG **idis-*/**edis-* ‘lady’ is to be affiliated with this root, it would seem obvious that PG **idis-* < PIE **h_2id^h-* in which case forms such as PG **aida-*, **ai(d)la-*, **ai(d)ma-* etc. can hardly represent the zero grade PIE **h_2id^h-* but only the full grade PIE **$h_2$ei̯d^h-* or the *o*-grade PIE **$h_2$oi̯d^h-*. As discussed under (33), however, PG **idis-*/**edis-* probably has a different source. This, in turn, implies that PG **aida-* and some of its derivatives may hark back to PIE **$h_2$íd^h-o-*, which Rasmussen’s (1989: 172) claim of loss of **o* would actually suggest for this phonotactic environment, though cf. Skt. *édha-* above which doubtlessly continues PIE **$h_2$ói̯d^h-o-* and thus would form a perfect cognate of PG **aida-*.

(15) PG **aigana-* ‘own, possess, have’ > Goth. **aigan*, ON *eiga*, OSw. *ēgha*, ODa. *ēghæ*, OE *āgan*, OFris. *aga*, *hāga*, OS *ēgan*, OHG *eigan* etc. Also e. g. PG **aigena-* ∼ **aigana-* ‘own’ (originally ptc. of PG **aigana-*) > ON *eiginn*, OE *āgen*, OFris. *ein*, *eyn*, *egen*, OS *ēgan*, OHG *eigan*; PG **aihti-* ‘belongings, possessions, property’ > Goth. *aihts*, ON *ætt*, *átt* ‘family, race’, OE *æht* ‘property power’, OHG *ēht*; PG **aigōn-* ‘ownership, property’ > ON *eiga*, OE *āge* ‘property’; and PG **aigni-* ‘land property’ > ON *eign*. Extra-Germanic comparanda [illegible] do-Iranian and Tocharian, cf. e. g. Skt. *íśe* ‘has at one’s disposal’ (< PIE **h_2i-h_2ḱ-oi̯*), Av. *isē*, Toch. AB *aik-* ‘know, recognise’ (< ‘have as one’s own, be master of’). The timbre of the laryngeal is determined by Toch. AB *aik-*, cf. Adams (1999: 101–2) who notes that the consistent orthography in Tocharian of <aik>- (i. e. no occurrences of <eik>-), points at a phonological sequence /āik-/ (< PIE **$h_2$ei̯ḱ-*) rather than /eik-/ (< PIE **$h_1$oi̯ḱ-* or **$h_3$ei̯ḱ-*). In the light of the reduplicated perfects in Indo-Iranian and the preterite-presentic character of the Germanic verb, it would seem obvious to reconstruct the present forms PG **aih* as PIE **h_2e-$h_2$ói̯ḱ-h$_1$e* and **aigum* as PIE **h_2e-h_2iḱ-mé*, in which case this verb offers no case for a development PIE **h_2i-* > PG **ai-*. When focus is directed at the *ti*-stem PG **aihti-*, however, a development of PIE **h_2iḱ-ti-* > PG **aihti-* cannot be excluded even though root full grade is equally possible, cf. e. g. Brugmann 1906: 429–38; particularly Bammesberger 1990: 144.

(16) PG **aigena*-, **aiginþ*-? ‘shoot, barb’ > ON *eigin* ‘new sprout of corn’, NNorw *eigind* ‘grain germ, barb’ etc. Also e. g. PG **aigla*- ‘shoot’ > Sw. (dial.) *egel*, *äjel* ‘seed, sprout’. Both formations are derived from PIE **$h_2$eiḱ*- ‘barb’, i. e. seemingly PIE **$h_2$eiḱ-ént*- and **$h_2$eiḱ-(t)ló*-, respectively; derivations resembling the latter are found in, e. g., Gr. αἶκλοι (pl.) ‘corners of an arrow’, OPr. *ayculo* ‘needle’ and Ru. *iglá*; further cf. Gr. αἰχμή ‘point of a spear, spear’, Lith. *iẽšmas*, *jiẽšmas* ‘spit, broach’ < PIE **$h_2$eiḱ-smo/eh$_2$*-. In the light of the suffixal accent in PIE **$h_2$eiḱ-ént*- and **$h_2$eiḱ-(t)ló*- (as revealed by the voiced Verner’s variant in Germanic), root zero grade would not be unexpected, cf. also Ru. *iglá* < PIE **h_2iḱ-tleh$_2$*-. On the contrary, seeing that PG **aiginþ*-, if properly reconstructed as such, is to be analysed as a participle of an athematic verb, root zero grade is the standard, cf. e. g. PIE **h_1s-ént*- ‘being’, and PG **aigla*- is to be analysed as a concretised abstract noun in which case root zero grade and suffixal accent is actually to be expected.

(17) PG **aik*- ‘oak’ > ON *eik*, OE *āc*; as an *ō*- or *i*-stem in OFris. *ēk*, OS *ēk* (may also be a root noun); as an *i*-stem in OHG *ei(c)h* (may also be a root noun); and as a younger *ō*- or *iō*-stem in OHG *eihhe*, *eihha*. Also e. g. PG **aikīna*- ‘oaken’ > ON *eikinn*, OE *æcen*, *ācen*, OFris. *ēzen*, *ētzen*, OHG *eihhīn*. Often affiliated with the root PIE **$h_2$eiǵ*- ‘shine’, cf. Gr. αἰγι- (e. g. in αἰγίλωψ ‘kind of oak’), Gr. αἴγειρος ‘poplar’, Lat. *aesculus* ‘durmast oak, winter oak’ *vel sim.* (< **aigskolos*) etc.; further maybe ORu. *jazvъ* ‘badger’, Ru. *jazь* ‘carp’, OIr. *áesc* ‘concha, clasendix’. If, as supposed by, e. g., Griepentrog (1995: 24–32), PG **aik*- was originally a root noun rather than a vocalic stem, we would a priori expect it to have shown alteration between full or *o*-grade (PIE **$h_2$eiǵ*-/**$h_2$oiǵ*-) at the Proto-Indo-European stage in the strong case forms and zero grade (PIE **h_2iǵ*-) in the weak forms. However, with only a few peripheral exceptions whose validity may all be debated (cf. Hansen 2014: 39–43), Germanic root nouns appear not to display ablaut. Rather, originally ablauting root nouns in Proto-Indo-European eventually come to appear in a form in Germanic where three criteria are fulfilled, viz. (1) that the root must contain at least one consonant in the syllable onset, (2) that a vocalic element must be displayed in the root, and (3) that no more than one consonant is allowed in the root syllable coda. If, however, the root contains an original PIE **a*, that vowel will always be present in the root regardless of its phonotactic structure. According to these criteria, PIE **$h_2$eiǵ*-/**$h_2$oiǵ*- ∼ **h_2iǵ*- would be generalised in the form PIE **h_2iǵ*- within Germanic. Given the validity of this assumption, it would seem that PIE **h_2iǵ*- > PG **aik*-. Alternatively, of course, the presence of an original PIE

**a* in this root cannot be excluded, i. e. PIE **aḭǵ-*; neither can the possibility of PG **aik-* being a lexical borrowing, cf. esp. Kroonen 2013: 9–10.

(18) PG **aikana-* 'make one's own; assign, allot' > Goth. *(af-)aikan* 'deny, abjure', OHG *(in-)eihhan* 'claim'. Also e. g. PG **aihtrō(ja)na-* 'beg, pray' > Goth. *aihtron*. Kroonen (2013: 10) analyses this verb as PG **aikk-* < **aig-n-* < PIE **Heḭk-n-* by means of Kluge's Law and further regards it as derived from (15) PG **aigana-* 'own, possess'.

(19) PG **aikiana-* 'annoy, pester' > Norw. *eikja*. Also e. g. PG **aikala-* 'excited (by fear)' > OE *ācol*, *ācul* and PG **aikena-* ∼ **aikana-* 'wild, furious' > ON *eikinn*. The verb PG **aikiana-* should be interpreted as a causative, i. e. < PIE **h_2oḭ̂g-éḭe-*, cf. Skt. *ejayati* 'shakes', derived from the verb PIE **h_2éḭg-e-* 'move, stir, flutter' > Skt. *éjati*; further cf. Gr. αἰγίς 'rushing storm, hurricane', Lith. *áikštis* 'passion, glow', OCS *igra* 'game, fun'. Even if an original *o*-grade is seemingly secured for PG **aikiana-* (< PIE **h_2oḭg-éḭe-*), this need not be the case for PG **aikena-* ∼ **aikana-*: If it is, truly, a participle of an unattested strong verb PG **aikana-*, we would expect it to show the zero grade, i. e. PG **aikena-* ∼ **aikana-* < PIE **$h_2$ig-enó-* ∼ **$h_2$ig-onó-*, unless PG **aikana-* belongs to the class of non-ablauting reduplicated verbs, cf. the pattern of Goth. *aukan* 'increase' (inf.), *aí-auk* 'increased' (pret.1.sg.), *aí-aukum* 'increased' (pret.1.pl.), *aukans* 'increased' (ptc.) (Hill 2009: 187–96; Krahe 1967: 105–6; Krause 1968: 235–6). As for this non-ablauting reduplicated type in general, though, we could wonder what underlies the form of the participle: The developments of PIE **h_2éḭg-e-* > PG **aikana-*, PIE **(h_2)e-h_2óḭg-h_2e* > PG **e-aik* and PIE **(h_2)e-$h_2$ig-mé* > PG **e-aikum* seem quite straightforward, but the expected form of the participle should be PIE **$h_2$ig-enó-* ∼ **$h_2$ig-onó-* in any case. Neither should it be reduplicated PIE **(h_2)e-$h_2$ig-enó-* ∼ **(h_2)e-$h_2$ig-onó-*; nor PIE **h_2eḭg-enó-* ∼ **h_2eḭg-onó-* with a root full-grade vowel. Unless analogical leveling has taken place, which is indeed possible, it would therefore seem that PIE **$h_2$ig-enó-* ∼ **$h_2$ig-onó-* > PG **aikena-* ∼ **aikana-*.

(20) PG **aikwernan-* 'squirrel' > OE *ācweorna*, *ācwern*, OHG *eihhurno*, *eihhorno*. With initial PG **#ī-* in e. g. PG **īkwernan-* > ON *íkorni*. Kroonen (2013: 10–11) manages to unite these two forms in an ablauting paradigm PG **aikwernan-* ∼ **īkurnan-* < PIE **h_2eḭ-h_2u̯er-no-* ∼ **h_2i-h_2u̯r̥-no-* with parallel or similar formations in, e. g., Pers. *varvarrah* 'squirrel' (< PIE **h_2u̯er-h_2u̯er-o-*), Lat. *vīverra* 'ferret' (< PIE **h_2u̯i-h_2u̯er-neh$_2$-*), OIr. *íaru* 'squirrel' (< PIE **h_2i-h_2u̯er-*?), W *gwywer* (< PIE **h_2u̯i-h_2u̯er-*), Lith. *voverẽ*, *vóverė* (< PIE **h_2u̯e-h_2u̯er-ḭeh$_2$-*) etc. As such, there is no need for the etymological proposal frequently advanced that the **aik-* of PG **aikwernan-* is related to

the root PIE *$h_2e\underline{i}g$- 'move, stir etc.' seen in PG **aikiana*- 'annoy, pester', i. e. 'squirrel' < 'swift, little animal' *vel sim.* The mere existence of PG **īkwernan*- also speaks against such an etymology: Its root vowel simply cannot be united with any root containing PIE *h_2 unless, of course, we choose to reconstruct a vṛddhi-formation PIE *$h_2\bar{e}\underline{i}g$- > *$\bar{e}ik$- > **eik*- (by subsequent application of Osthoff's Law) > PG **īk*- with non-colouring of the vowel (cf. Eichner 1973: 72).

(21) PG **aina*- 'one, alone, any'; see (2).

(22) PG **airi* 'early' > Goth. *air*, ON *ár*. Also e. g. PG **airiz* 'before, earlier' > Goth. *airis*, ON *ær*, OE *ǣr* 'previously; before', OFris. *ēr*, OS *ēr*, OHG *ēr* and maybe ON *áðr* (if to be analysed as **āðir* **ārir* by dissimilation and not as **airþera*-); further maybe PG **aira*-, **airu*- 'messenger' > Goth. *airus*, ON *árr* 'messenger, servant', OE *ār*, OS *ēr*; and PG **airinō(ja)na*- 'be a messenger, negotiate' > Goth. *airinon*. PG **airi* 'early' is to be reconstructed as a locative PIE *$h_2e\underline{i}$-*er-i* of a heteroclitic stem PIE *$h_2e\underline{i}$-*r/n*- 'day' with descendants in Av. *aiiarə* 'day' (gen.sg. *aiiąn*) and Gr. ἦρι 'in the morning'.

(23) PG **aiskō*- 'demand, investigation' > OFris. *āske* 'claim', OHG *eisca* 'question, demand'. Also e. g. PG **aiskiōn*- 'question, search, investigation' > OE *ǣsce*; PG **aiskō(ja)na*- 'demand, inquire, ask; investigate, examine' > OE *āscian*, *ācsian* 'ask, inquire', OFris. *āskia* 'demand, claim', OS *ēscon* 'promote, further', OHG *eiskōn* 'search, look for'; PG **aiskungō*- 'demand' > OE *āscung*, OHG *eiskunga*; and, though semantically weak, maybe PG **aiskaþla*- 'heart' > ON *eiskald*. For extra-Germanic comparanda, cf. e. g. Skt. *éṣati* 'seeks', *iccháti* 'longs for', *icchā*- 'wish, demand', Av. *isaiti* 'longs for', Arm. *haycʿem* 'beg', *aycʿ* 'visit, inspection', Gr. ἵμερος 'longing', Lat. *quaerō* 'ask' (< **ko-a\underline{i}s-e*-), OIr. *escaid* 'seeks', Lith. *íeškau* 'seek', OCS *iskati* 'search, seek', *iska* 'demand', Ukr. *s'káty* 'search, seek' etc.; all from the root PIE *$h_2e\underline{i}s$- 'search, seek'. A *sḱe*-present seems to be widely distributed among the Indo-European branches, albeit with two different root ablaut grades, viz. PIE *h_2is-*sḱe*- > Skt. *iccháti*, Av. *isaiti*, OIr. *escaid*, OCS *iskati*, Ukr. *s'káty*[9] and PIE *$h_2e\underline{i}s$-*sḱ-e*- > Arm. *haycʿem*, Lith. *íeškau*. Whether PG **aiskana*-[10] continues the expected *sḱe*-present form PIE *h_2is-*sḱe*- or the

9 In the light of Ukr. *s'káty*, we must assume that PSl. **iskati* < **jьskati* < PIE *h_2is-*sḱ-e*-, cf. e. g. LIV²: 260; for the opposite view that PSl. **iskati* < **jīskati* in spite of loss of the initial vowel in Ukrainian, cf. Derksen 2003: 99–100, 103.

10 No descendants from this verb are attested, though, but it must have existed since it serves as the basis for the abstract noun PG **aiskō*-.

aberrant form PIE *h_2*eiṣ-sḱ-e-*, whose *h_2*eiṛ-* may have been introduced by means of influence from the perfect PIE *h_2*i/e-h$_2$óiṛs-e* (> Skt. *iyeṣa*), cf. Bjorvand & Lindeman 2000: 193, is virtually impossible to decide.

(24) PG **aita-* 'abscess, ulcer' > OHG *eiz* 'abscess, boil'. Also e. g. PG **aistōn-* 'testicle' > ON *eista*; PG **aitila-* 'swollen' > ON *Eitill* (name of a sea king), EFris. *eitel* 'furious', OHG *eiz(z)ala* 'gallnut'; and PG **aitra-* 'poison, pus' > ON *eitr* 'venom, poison', OE *ātor*, *ǣter* 'poison', OS *ēttar* 'poison, virus', OHG *eitar*, *eittar* 'poison, pus'. Normally, PG **aita-* is reconstructed as a verbal noun PIE *h_2*oiṛd-o-* derived from the root PIE *h_2*eiṛd-* 'swell', cf. also the extra-Germanic comparanda of, e. g., Arm. *aitnowm* 'swell', Gr. οἰδέω, οἰδάω 'swell', οἶδος 'swelling, tumor', Lat. *aemidus* 'swollen, protuberant' (< PIE *h_2*eiṛd-(s)m-*), Lith. *ìnkstas* 'testicle, kidney' (with nasal from *ísčios* (pl.) 'womb, entrails, interior') and OCS *isto* 'testicle' (pl. 'kidneys'). In the light of Rasmussen's (1989: 172) claim that the PIE **-o-* appearing in the verbal nouns of the *toga*-type is always dropped when adjacent to, i. a., a laryngeal, PIE *h_2*íd-o-* might be considered a valid reconstruction, as well, even though we find Greek examples from PIE *h_2*oiṛd-*. Based on the obvious comparison of PG **aistōn-* and Lith. *ìnkstas*, OCS *isto* (probably < PIE *h_2*id-sth$_2$-o-*, cf. Kroonen 2013: 14), a zero grade may be considered here, too.

(25) PG **aiþa-* 'oath'; see (2).

(26) PG **aiþma-* 'son-in-law'; see (6).

(27) PG **aiwa-*, **aiwō-*, **aiwi-* 'age, eternity' > Goth *aiws*, OFris. *ēwe*, OHG *ēwa* 'eternity'. Also e. g. PG **aiwīn-* 'eternity' > ON *ævi*, OHG *ēwī*; and PG **aiwan-* > OHG *ēwo*. Extra-Germanic cognates abound, cf. e. g. Skt. *ā́yu-* 'life, lifetime, vital power' (gen.sg. *yoḥ* 'health!'), *āyú-* 'living, vigorous, vital', Av. *āiiu-* 'life, lifetime, time' (gen.sg. *yaoš*), Gr. αἰών '(life)time, long time, eternity', αἰέν 'always' (< PIE *n*-stem loc.sg. *h_2*eiṛ-u̯-én* 'in eternity'), αἰές, αἰεί (< PIE *s*-stem loc.sg. *h_2*eiṛ-u̯-és-(i)* 'in eternity'), Lat. *aevus*, *aevum* 'period of time'. The Germanic as well as Latin forms most likely continue PIE *h_2*eiṛ-u̯-o-*, i. e. a thematised variant of the weak stem of the original, acrostatic neuter *u*-stem PIE *h_2*oiṛ-u-* ~ *h_2*éiṛ-u-*, cf. e. g. Schindler 1975a: 7; NIL: 279, which was later replaced by the more regular paradigm PIE *h_2*oiṛ-u-* ~ *h_2*iṛ-éu-*, cf. e. g. the Indo-Iranian forms. There is no compelling reason for assuming that PG **aiwa-*, **aiwō-*, **aiwi-* 'age, eternity' continues a zero-grade form PIE *h_2*i-u̯-o-* since descendants of such a form are not attested in any other Indo-European branches.

(28) PG **aiwa*-, **aiwō*-, **aiwi*- ‘law’ > OE *æ*, *æw* ‘law, religion, marriage’, OFris. *ā*-, *ēwa*, *ēwe*, *ē* ‘law’, OS *ēo*, *ēu*, OHG *ēwa*, *ēa*, *ēo* ‘law, right, will, contract’. Either to be reconstructed as PIE **h*$_1$*oi̯*-*u̯*-*o*- derived from the root PIE **h*$_1$*ei̯*- ‘go’, cf. Skt. *éva*- ‘course’ for an exact cognate, or to be seen as identical to PG **aiwa*-, **aiwō*-, **aiwi*- ‘age, eternity’, for which see (27). In the latter case, which is regarded the more likely alternative by most scholars, a both formal and semantic connection can be established to Lat. *iūs* ‘law’ (gen.sg. *iūris*, i. e. an *s*-stem) < PIE **h*$_2$*i̯éu̯*-*os* ∼ **h*$_2$*i̯éu̯*-*es*- which is probably in itself derived from the secondary weak stem of PIE **h*$_2$*ói̯*-*u*- ∼ **h*$_2$*i̯*-*éu̯*- ‘age, eternity’ (cf. NIL: 279), the semantic development of PG **aiwa*- etc. being one of ‘pertaining to eternity’ > ‘eternally valid’ > ‘law, contract’.

(29) PG **aiwiana*- ‘despise’ > OE *æwan*. Also e. g. PG **aiwiska*- ‘shameful’ > OE *æwisc* ‘shameless, dishonoured’, MHG *eisch* ‘horrible’; PG **aiwiskia*- ‘shame, disgrace’ > Goth. *aiwiski*; PG **aiwiskō*- ‘dishonour, disgrace, offence’ > OE *æwisc*; and PG **aiwiskō(ja)na*- ‘make ashamed, treat shamefully’ > Goth. *aiwiskon*. The etymology is uncertain, but it possibly is to be compared to the root PIE **h*$_2$*ei̯g*^{wh}- ‘shame’, cf. Skt. *an-ehás*- ‘flawless’ and maybe Gr. αἶσχος ‘shame’. We would expect the denominal verb PG **aiwiana*- to continue a PIE form with root zero grade, i. e. **h*$_2$*i̯g*^{wh}-*i̯é*-, but the vocalism of the *s*-stem PIE **h*$_2$*ei̯g*^{wh}-*os* ∼ **h*$_2$*ei̯g*^{wh}-*es*- attested in Indo-Iranian and Greek may have influenced on the verb for which reason it is virtually impossible to decide whether PG **aiwiana*- and its derivatives continue a root full or zero grade.

(30) PG **aiza*- ‘copper, ore, brass’ > Goth. *aiz* ‘ore’, ON *eir* ‘brass, copper’, OE *ār*, *ær* ‘ore, brass, copper’, OS *ēr* ‘ore’, OHG *ēr*. From PIE **h*$_2$*ei̯*-*s*-*ó*- or **h*$_2$*ei̯*-*es*-*ó*-, i. e. a thematicisation of the neuter *s*-stem PIE **h*$_2$*ei̯*-*os* ∼ **h*$_2$*ei̯*-*es*- ‘ore’ represented in, e. g., Skt. *áyas*- ‘metal, copper’, Av. *aiiah*-, Lat. *aes* ‘ore’ (gen.sg. *aeris*).

(31) PG **aizō*- ‘peace, clemency; respect, benevolence’ > ON *eir* ‘peace, clemency, mercy’, OE *ār* ‘honour, dignity; kindness, mercy’, OFris. *ēre* ‘honour, tribute’, OS *ēra*, OHG *ēra*. Also e. g. the denominal verbs of PG **aiziana*-, **aizō(ja)na*- ‘forgive; honour’ > ON *eira* ‘spare, forgive’, OE *ārian* ‘respect’, OFris. *aria*, OHG *ēren*, *ērōn* ‘honour, adore’ and PG **aistē(ja)na*- ‘respect’ > Goth. *aistan* (< PIE **h*$_2$*ei̯s*-*d*(*h*$_3$)-*eh*$_1$-(*i̯e*-), i. e. literally ‘be in state of giving respect’. PG **aizō*- is normally reconstructed as PIE **h*$_2$*oi̯s*-*éh*$_2$- to the root PIE **h*$_2$*ei̯s*- ‘respect’. For extra-Germanic comparanda, cf. e. g. Marruc. *aisos* ‘god’ (dat.pl.), Umbr. *esono*- ‘divine, sacred’ and maybe Gr. αἴδομαι ‘respect’ (< PIE **h*$_2$*éi̯s*-*d*(*h*$_3$)-*e*-?). However, in the light of Rasmussen’s (1989: 172) claim that the PIE **o*- appearing in the verbal nouns of the

toga-type is always dropped when adjacent to, i. a., a laryngeal, PIE *$h_2$is-*ó*- might be considered an option, as well.

(32) PG **idi*- 'work'; see (9).

(33) PG **idis*-/**edis*- 'lady' > OE *ides* 'female, lady', OS *idis, ides* 'wife', OHG *itis* '(divine) woman' and maybe, if we choose to follow Grimm (1865: 4–5) and with him Kroonen (2012: 248–50), ON *dís* 'woman, girl; fairy, nymph; goddess' (seemingly < PG **dīs-i*-). No further derivations; no immediate extra-Germanic cognates. Further attempts at connecting this noun to material from other Indo-European branches are semantically unsatisfactory and, if ON *dís* is included in the list of cognates, formally improbable if not even impossible, cf. e. g. Bammesberger (2007: 83–5) who compares PG **idis*-/**edis*- with Skt. *édhas*- 'firewood' and Gr. αἶθος 'fire, burning heat', i. e. PG **idis*- < PIE *h_2id^h-*es*- vel sim., or Eichner & Nedoma's (2000: 32–3) proposal of PG **edis*- < PIE *h_1ed^h-*es*- to a root PIE *h_1ed^h- also found in OHG *etar* 'pale in a fence'. Kroonen (2012: 248–50; 2013: 114–5) therefore sensibly suggests that PG **idis*-/**edis*- is a lexical borrowing of unknown origin, cf. also the quite un-Indo-European "ablaut pattern" of PG **idis*- ∼ **dīs-(i-)*.

(34) PG **īdala*- 'void, idle, futile'; see (72).

3.3 Possibility of PIE *#h_3i-

(35) PG **airō*- 'oar' > ON *ár*, *ǫ́r*, OE *ār*. Etymology uncertain, but probably comparable to Hitt. *hiššа*- 'drawbar', Skt. *īṣā́*- 'pole of a wagon, shaft', Gr. οἴαξ 'tiller, handle of rudder, helm', Lith. *íena* 'rod' etc., i. e. PG **airō*- < PIE *$h_3oi̯H$-r-eh_2*- or *h_3iH-r-eh_2*-. If Kroonen (2013: 13) is right in his speculations that the Germanic and Baltic forms might reflect an old heteroclite PIE *$h_3oi̯H$-$r̥$ ∼ *$h_3éi̯H$-n-, the former option, i. e. PG **airō*- < PIE *$h_3oi̯H$-r-eh_2*-, seems most likely at first hand. However, as the example of PIE **ud*-r-*ó*- > Skt. *udrá*- 'a kind of aquatic animal' derived from the heteroclitic noun PIE *$u̯ód$-$r̥$ ∼ *$u̯éd$-n- 'water' demonstrates, root zero grade is far from unexpected in this derivational type.

(36) PG **aiþa*- 'oath'. See (6).

3.4 Possibility of PIE *#*Hi*- (i. e. undeterminable timbre of the laryngeal)

(37) PG **aibra*- 'harsh' > OE *āfor* 'vehement, dire, hateful', OHG *eipar*, *eibar*, *eivar* 'harsh, rough'. Etymology unknown. If etymologically connected to PG **ībra*- 'zeal, eagerness' > MHG *īfer* and further to Lith. *aibrùmas* 'saliva, liquid from the mouth' (< 'bitter, acrid taste'?) as assumed by a range of scholars but rejected by probably equally many, cf. e. g. Heidermanns (1993: 96), a reconstruction with initial PIE *h_1 seems preferable; thus probably PIE *$h_1 e\underset{\cdot}{i}b^h$-*ró*- > PG **ībra*- and PIE *$h_1 o\underset{\cdot}{i}b^h$-*ró*- > PG **aibra*- and Lith. *aibr*-. Whether either of the Proto-Germanic formations could continue PIE *$h_1 ib^h$-*ró*-, is difficult to decide; suffice it here to mention that root zero grade is expected with adjectives in PIE **-ro*-. Albeit preferable, an etymological analasyis dictating initial PIE *h_1 is not the only option. Given the limited prevalence of the root and derivative in question, virtually any initial laryngeal is possible. That observation especially holds if PG **ībra*- is not to be compared to PG **aibra*-, if PG **ībra*- is to be analysed as a vṛddhi formation, i. e. < PIE **Hēib*^{h}-*ro*-, or if the root also contains a final laryngeal, i. e. PG **ībra*- < PIE **HiHb*^{h}-*ro*- and PG **aibra*- < PIE **Ho$\underset{\cdot}{i}$Hb*^{h}-*ró*- *vel sim.*

(38) PG **īsa*- 'ice'; see (12).

3.5 Possibility of PIE *#*h_1u*-

(39) PG **auda*- 'riches, wealth; fate, destiny'; see (66).

(40) PG **auja*- 'luck, fortune, wealth' > Goth. *awi-(liuþ)* 'thanks', RN *auja* 'good fortune, wellness', ON *ey* 'luck, fortune'. Also e. g. PG **awidi*-, **awida*-, **auþa*-, **auþu-?* 'easy, comfortable' > OE *īeðe*, OS *ōthi*, OHG *ōdi* and PG **awidō*, **auþō* 'easily' > ON *auð*-, OE *ēaðe*, OS *ōðo*, OHG *ōdo*. Extra-Germanic comparanda are, e. g., Hitt. *iya(u)watta* 'recover', Skt. *ávati* 'helps, supports', *ā́vīt* 'has helped, has supported' (aor.), *avitár*- 'patron, benefactor', Lat. *iuuō* 'support, help', OIr. *(con)-oí* 'protect'; all derived from a root PIE *$h_1 e\underset{\cdot}{u}H$- 'help, support'. According to LIV^2: 243–4, Hitt. *iya(u)watta* secures the timbre of the initial laryngeal as PIE *h_1; the existence of the root final laryngeal is secured by the Indic seṭ-forms. In Germanic, a PIE *$h_1 uH$-$\underset{\cdot}{i}o$- would probably result in PG †*ūja*- rather than PG **auja*- which, consequently, must represent PIE *$h_1 o\underset{\cdot}{u}$-$\underset{\cdot}{i}o$- < *$h_1 o\underset{\cdot}{u}H$-$\underset{\cdot}{i}o$-. Based on the inclusion of Lat. *aveō* 'am well; am eager', *avidus* 'desirous'

etc. as descendants of this root, an alternative etymology (cf. e. g. Kroonen 2013: 43) suggests that the root be reconstructed PIE *$h_2e\underset{\smile}{u}$- 'enjoy, consume' in which case, however, Hitt. *iya(u)watta* can no longer belong here and PG **auja*- can reflect PIE *$h_2o\underset{\smile}{u}$-$\underset{\frown}{i}o$- as well as PIE *$h_2e\underset{\smile}{u}$-$\underset{\frown}{i}o$-. Given the validity of the assumption that PIE *h_2u- > PG **au*-, a zero grade, i. e. PIE *h_2u-$\underset{\frown}{i}o$, could work as well.[11]

(41) PG **aula(n)*- 'fool, (tall) lanky fellow' > ON *auli*, NNorw. *aul*, *aule* 'angelica silvestris'. For extra-Germanic cognates cf. Hitt. *auli*- 'tube-shaped organ in the neck, throat(?), windpipe(?)', Gr. αὐλός 'hollow tube, pipe, flute', Lith. *aũlas* 'leg of a boot; pipe of a mill', *aulỹs* 'beehive', *avilỹs*, OPr. *aulis* 'shinbone' etc.; all derived from PIE *$h_2e\underset{\smile}{u}$- with an *-*l*-suffix. If, as commonly assumed, ON *(hvann-)jóli* 'stalk (of angelica silvestris)' and NNorw. *jól* 'angelica silvestris' should be affiliated here, too, they must either be seen as the result of late, secondary ablaut or be reconstructed as PG **eula(n)*- < **ēula(n)*- < PIE *$h_2\breve{e}\underset{\smile}{u}lo(n)$-, i. e. a vṛddhi derivative to PIE *$h_2e\underset{\smile}{u}$-*ló*-; for the non-colouring of long vowels by laryngeal cf. Eichner 1973: 72. A probably more obvious way of solving the problem of connecting PG **eula(n)*- to a root with an initial PIE *h_2 is offered by Kimball (1994: 13–4). She states that "[t]hese words cannot be derived from *$h_2ēul$- and *$h_2ĕul$-, since the laryngeal is not preserved in Hittite." If, then, we could reconstruct a root PIE *h_1eu-, the *o*-grade could be represented in PIE *$h_1o\underset{\smile}{u}$-*lo/i*- etc. > Hitt. *auli*-, Lith. *aulỹs*, PG **aula(n)*- etc. and the full grade in PIE *$h_1e\underset{\smile}{u}$-*lo*- > PG **eula(n)*-.[12] The vocalisms of Gr. αὐλός 'hollow tube, pipe, flute' would then be interpreted as analogically influenced by the semantically similar form Gr. καυλός 'shaft, stalk (of a plant), quill (of a feather)', cf. also Güntert 1914: 154. A zero-grade formation related to PG **aula(n)*- and **eula(n)*- might be attested within Germanic, as well, viz. in PG **(haima-)ul(j)ōn*- 'sorrel' > Icel. *heimula*, *heimylja*, Norw. *høymole*, *heimole*, Swi. *heimele* 'Good-King-Henry, chenopodium bonus-henricus', which must consequently reflect a PIE *h_2u-*l*-$\underset{\frown}{i}eh_2$- or probably rather *h_1u-*l*-$\underset{\frown}{i}eh_2$-; cf. further Kolb 1957: 76 and with him Kroonen 2013: 42.

(42) PG **auma*- 'poor, miserable'; see (67).

11 De Vries (1962: 18) and Lehmann (1986: 52) wish to separate PG **auja*- from PG **awidi*-, **awida*-, **auþa*-, **auþu*- 'easy, comfortable' etc. only to connect the latter with PG **auþia*- 'remote, empty, desert, desolate, waste; destroyed' etc.

12 Admittedly, *n*-stems displaying root ablaut are far from common in Germanic. It is therefore quite feasible that the ablaut displayed in the Germanic examples is secondary.

(43) PG **eudra*-, **ūdra*- ‘udder’ > ON *júgr*, *júr*, OE *ūder*, OFris. *ūder*, *iāder*, OHG *ūtar*, *ūtaro*, *ūtir* etc. For extra-Germanic cognates cf. Skt. *ūdhar* ∼ *ūdhan*- (< PIE *h_1uHd^h-r/n-), Gr. οὖθαρ ∼ οὔθατ- (< PIE *h_1o̯uHd^h-r/n̥t-), Lat. *ūber* ‘breast; udder’ (< PIE *h_1e/o̯uHd^h-r-); the zero grade of the root PIE *h_1e̯uHd^h- may also be what underlies Lith. *ūdrúoti* ‘get milk; be pregnant’, Ru. *údit’* ‘ripen (of grain); swell up with liquid’. The even inner-Germanic alternation between PG **eud*- and **ūd*- heavily points in the direction of PG **eud*- continuing the full grade PIE *h_1e̯uHd^h- and PG **ūd*- continuing the zero grade PIE *h_1uHd^h-.

(44) PG **eup* ‘up, upwards’ > Goth. *iup*. According to Johansson (1891: 230–1), another phonotactically relevant derivative of this root may be PG **eufniōn*- ‘crowd’ > Goth. *iumjo* which is normally regarded as having no certain etymology. PG **eup* ‘up, upwards’ is to be regarded as an ablaut variant with full grade (< PIE *h_1e̯up-) of PG **upp*. The alternation of PG **eup* and **upp* can only point at PIE *h_1 being the initial laryngeal, i. e. PIE *h_1e̯up- ∼ PIE *$h_1$up-. The gemination of PG **upp* – and originally maybe of PG **eup*, too, if PG **eup*- < **eupp*- – may be caused by the PG suffix **-n*- associated with the system of directional adverbs; in this case by the allative PG **-n(a)* < PIE **-n-a*/**-n-o*, cf. Kroonen (2010: 371–3; 2013: 120–1). Alternatively, however, the allatives PG **eup* and **upp* may both be regarded as secondarily backformed from the locative PG **uppai* ‘up, upon, above’, cf. Kroonen (2010: 374–6; 2013: 121), even if it remains unclear to the present author what could have been the basis of the analogical backformation of PG **eup* with full-grade vocalism from PG **uppai* with zero-grade vocalism.

(45) PG **eusizan*- ‘better’ > Goth. *iusiza*. Also e. g. PG **eusilō*- ‘ease’ > Goth. *iusila*. Often connected to PIE *h_1(u̯)es-u- ‘good’, cf. Skt. *su*- ‘well-’, Gr. εὐ-. In the case of PG **eusizan*-, a schwebe-ablauting full grade PIE *$h_1$éu̯s-is-(on-)* is probably the most straightforward reconstruction since root, stressed full grade is expected in comparatives, cf. e. g. Brugmann 1906: 392–3, 547–62, esp. 557–8, as also revealed by the general application of the unvoiced Verner variant in comparatives, cf. e. g. Goth. *juhiza* ‘younger’ < PG **junhizan*- to Goth. *juggs* ‘young’ < PG **junga*-. Still, the PIE form of which PG **junhizan*- is a descendant may have been stressed on the root vowel, but the root appears in the zero grade (PIE *$h_2$iú-h_3nH-k-is-(on-)*) rather than in the full grade. Consequently, it does not seem impossible for PG **eusizan*- to also continue a zero grade, i. e. PIE *$h_1$ús-is-(on-)* rather than *$h_1$éu̯s-is-(on-)*.

(46) PG **uba* ‘under; above’ > Goth. *uf* ‘under’, ON *of* ‘over; about’, OHG *ob(a)* ‘above, on, over’. Also e. g. PG **upp* ‘up, upwards’ > ON *upp*, OE *up*, OFris.

up, *op*, OS *up*, OHG *ūf*;[13] PG **ubanē* 'from above' > ON *ofan*, OE *ufan*, *ufane*, OFris. *ova*, *uva*, OS *ofan*, *ofana*, OHG *obana*; PG **ufuman-* 'highest, upmost' > Goth. *aúhuma* 'higher'; PG **uber-* 'over' > Goth. *ufar*, ON *yfir*, OE *ofer*, OFris. *over*, *ūr*, OS *obar*, OHG *ubar*, *ubari*, *ubir*, *ubiri*; PG **uftō* 'often' > Goth. *ufta*, ON *oft*, OE *oft*, OS *ofto*, OHG *ofto*; and PG **ubez-(wō-)* 'sth. tall; eaves' > Goth. *ubizwa* 'portico', ON *ups*, *ux* 'eaves', OE *æfes*, *yfes* 'eaves, brim, brink', OFris. *ōse* 'gutters', OHG *obasa*, *obisa* 'portico, entrance hall, gallery'; further maybe also PG **ubila-* 'evil, bad' > Goth. *ubils*, OE *yvel*, OFris. *evel*, OS *ubil*, OHG *ubil*; PG **ŭba-* 'ill-natured, malicious' > RN *ubaR*, ON *úfr* 'unfriendly; bear, wolf'. Heidermanns (1993: 638) and Kroonen (2013: 557) regard the semantic connection between 'under; above' and 'evil, bad' as one travelling via 'immense' > 'exceeding the boundaries, overstepping a boundary', i. e. 'too much; wrong, bad'. Personally, though, I believe that the semantic starting point is not 'above' but rather 'under', in which case the semantic link between PG **uba* and **ubila-* resembles that between G *nieder* 'down' and *niedrig* 'mean'. Reconstructed as PIE **h*$_1$*upó* 'under', cf. also Skt. *úpa* 'towards, together, with, under', Av. *upā* 'towards, with, on, in', Gr. ὕπο, ὑπό 'under, by', Lat. *s-ub* 'under', OIr. *fo* 'under' etc. and further maybe connected to Hitt. *upzi* 'rises (of the sun)'. The reconstruction with PIE **h*$_1$ is secured partly by Goth. *iup* 'up, upwards', partly by Hitt. *upzi* without initial Hitt. *h*. If, however, Watkins (1969: 30) and Ringe (1988: 433) are right in their assumption that PG **ubila-* 'evil, bad' is rather related to Hitt. *huwappa-* 'evil, ill, bad', which is derived from *huwapp-* ∼ *hupp-* 'be hostile towards, do evil against; throw (down), hurl', a reconstruction with PIE **h*$_2$ would seem more appropriate. What Watkins fails to acknowledge, though, is that the original meaning of Hitt. *huwappa-* was not 'be hostile towards, do evil against' but rather 'overthrow' (cf. Kloekhorst 2008: 369–71), for which reason Kroonen (2013: 557) chooses to reject the proposed connection between Hitt. *huwappa-* and PG **ubila-* and for which reason the reconstruction PG **uba*, **ubila-* etc. < PIE **h*$_1$*upó* (with initial PIE **h*$_1$) can he upheld. If we want to maintain the etymological connection between the Germanic and the Hittite forms, we can also offer an alternative reconstruction, viz. that this group of words is actually to be reconstructed with PIE **h*$_3$. In that case, the PIE **h*$_3$*u̯op-* reflected in Hitt. *huwapp-* would develop regularly into PIE **h*$_2$*u̯op-* (cf. Cohen & Hyllested 2012: 57–8), from which the newly

13 For the immediate etymology of this directional adverb see (44).

developed PIE *h_2 could be generalised into the zero-grade stem of Hitt. *hupp*-.

(47) PG **unhta*- 'accustomed' > Goth. *(bi-)uhts*. Also e. g. PG **unhtia*- 'custom' > Goth. *(bi-)uhti*. For extra-Germanic cognates cf. e. g. OIr. *(do-)ucai* 'understand', Lith. *jùnkti* 'get used to' (< PIE **h_1u-n-k-)* and OPr. *jaukint* 'exercise' (< PIE **h_1e̯uk-n̥h$_2$*-); all ultimately derived from PIE **h_1e̯uk*- 'get used to, learn', cf. further Skt. *-ucyati* 'is used to, takes pleasure in' and Arm. *owsaw* 'learned'. PG **unhta*- would thus need to be reconstructed PIE **h_1ú-n-k-to*-.

(48) PG **usliō*- 'embers, glowing ashes' > OE *ysle*, *ysel* 'spark, ash, ember', OHG *usil(-far)* 'ash-coloured'. Also e. g. PG **uslan*- 'conflagration; embers' > ON *usli*; PG **usjōn*- ~ **(aima-)uzjōn*- 'embers' > ON *ysja* 'fire', *eimyrja* 'embers', OE *ǣmyrie*, OHG *eimuria* 'pyre, hot ash'; and maybe PG **ustr(j)a*- 'very active' > OHG *ustar* 'greedy'. For possible extra-Germanic cognates cf. Skt. *óṣati* 'burns', *uṣṭá*- 'burnt', Gr. εὔω 'singe', Lat. *ūrō* 'burn', *ustus* 'burnt'; all derived from PIE **h_1e̯us*-. The Germanic forms undoubtedly continue the zero grade of the root, i. e. PIE **$h_1$us*-.

3.6 Possibility of PIE *#h$_2$u-

(49) PG **au*- 'away' > ON *au*-. Often reconstructed as PIE **au*- (< PIE **h_2e̯u*-?) 'away' also found in Skt. *áva* 'down, (down) from', Av. *ava*-, Lat. *au*- 'away (from)', Lith. *au*-, OCS *u*- etc. (cf. de Vries 1962: 17–8).[14] The *a*-vocalism of Greek clearly points at the timbre of the laryngeal being PIE *h_2, i. e. PIE **h_2e̯u* or **h_2u*. Peters (1980: 11) regards the option of PIE **h_2u* highly unlikely in that the reflexes of this adverb in all branches contain a full vowel. Pokorny (IEW: 55) advocates for an alternative etymological connection of ON *au*-, viz. to PIE **apu* which should then be, in itself, a variant of PIE **$h_2$epó*, **$h_2$po* 'of, from, away', cf. e. g. Hitt. *appā* 'behind, afterwards; back, again, further', Skt. *ápa* 'away, off', Gr. ἄπο, ἀπό 'far away, away from', Lat. *ab* 'from, off', PG **aba* '(away) from, off' (> Goth. *af*, ON *af*, OE *æf*, *of*, OFris. *of*, *af*, *ef*, OS *af*, OHG *aba*, *ab*-), OCS *po*- 'after, on, by, at' etc.

(50) PG **auda*- 'riches, wealth; fate, destiny'; see (66).

(51) PG **auja*- 'luck, fortune, wealth'; see (40).

14 Hitt. *ū*- 'hither', C/HLuw. *aw*- and Gr. αὖ- 'again; towards' should, for semantic reasons, probably be left out of consideration here even though they are included in the row of cognates in many etymological handbooks, e. g. Kloekhorst 2008: 909 and de Vries 1962: 17–8.

(52) PG **aukana-* 'increase, augment' > Goth. *aukan*, ON *auka*, OFris. *āka*. Also e. g. PG **aukan-* 'increase, addition' > ON *auki*, OE *ēaca*, OFris. *āka*; PG **aukō(ja)na-* 'increase, augment' > OE *ēacian*, OHG *ouchōn*; and PG **aukiana-* > OSw. *økia*, OS *ōkian*. Being a strong verb, PG **aukana-* is expected to continue a PIE thematic present with root full grade, viz. PIE **$h_2$éu̯g-e-*, which is actually attested also outside Germanic in Lith. *áugti* 'grow'; further cf. Tokh. *auk-* 'grow, increase', Skt. *ójas-* 'strength' (< PIE **$h_2$eu̯g-es-*), *ugrá-* 'strong, powerful, mighty' (< PIE **$h_2$ug-ró-*), Lat. *augeō* 'grow, increase' (< PIE **$h_2$ou̯g-éi̯e-*) and the extended root PIE **h_2u̯eg-s-* > **h_2u̯ek-s-* in, e. g., Skt. *ukṣáti* 'grows', Gr. αὔξω 'grow', ἀέξω 'increase' and PG **wahs(j)ana-* 'grow' (> Goth. *wahsjan*, ON *vaxa*, *vexa*, OE *weahsan*, OFris. *waxa*, *wexa*, OS *wahsan*, OHG *wahsan*) with further derivatives, cf. Schindler 1970 [1972]: 152. One circumstance deserves mentioning, though, viz. that PG **aukana-* is not only a strong verb but a strong, reduplicated verb. Consequently, we should consider how to properly reconstruct the participle PG **aukena-* ∼ **aukana-* 'increased, augmented': as PIE **$h_2$eu̯g-enó-* ∼ **$h_2$eu̯g-onó-* or as **$h_2$ug-enó-* ∼ **$h_2$ug-onó-*.

(53) PG **auk(e)* 'also; and' > Goth. *auk* 'but, also, furthermore', ON *auk*, *ok* 'also, and' OSw. *och*, *ok*, OE *ēac* 'also, however', OFris. *āk* 'also', OS *ōk*, OHG *ouh*. Often seen as identical with Gr. αὖ-γε 'again' from the particle PIE **$h_2$eu̯-* or **h_2u-*; for reflexes of PIE **h_2(e)u-* cf. further Skt. *u*, *utá* 'and, also, but', Tokh. A *-ok* 'again', B *-ok*, *-auk*? (< PIE **$h_2$eu-ǵe*, cf. also Adams 1999: 109) and maybe Lat. *autem*, *aut* 'but'. Seebold (1970: 84) alternatively regards PG **auk(e)* as an imperative of PG **aukana-* 'increase, augment' with a semantic development 'increase!' > 'add (to that)!' > 'furthermore; also'.

(54) PG **aula(n)-* 'fool, (tall) lanky fellow'; see (41).

(55) PG **auma-* 'poor, miserable'; see (67).

(56) PG **aura-* 'moisture, water' > ON *aurr*, OE *ēar* 'wave, sea'. Probably identical to PG **aura-* '(moist) earth, soil' > Goth. *aura(-hjons)** 'monuments, tombs', ON *aurr* 'clay, moist earth, soil', *eyrr* 'shoal, tongue of land made up of sand and stone' (< PG **auriō-*), OE *ēar*, *ēor* 'earth (of a grave)'. Outside Germanic, PG **aura-* is undoubtedly related to Gr. ἄναυρος 'without water' (< PIE **ń̥-$h_2$eu̯ro-* or maybe PIE **ń̥-$h_2$uro-*, cf. Peters 1980: 55), οὖρον 'urine', Lat. *ūrīna*. Any speculation whether Gr. *-αυρος* and PG **aura-* continue a root zero-grade form PIE **h_2u-ro-* or a morphologically unexpected full grade PIE **$h_2$eu̯-ro-* is rendered superfluous by the existence of PG **ūra-* 'soil(?)' (> ON *úr* 'moist, drizzling rain; metal slag, soil containing iron'), of the probably related PG **ūru-* 'aurochs' (> ON *úrr*, *ýrr* 'female auerochs' [PG

*ūriō-], OE *ūr* 'a kind of ox, bison', OHG *ūro* 'aurochs' [< PG **ūran*-])[15] and of the possibly related OIr. *ūr*, *ūir* 'earth, clay' (though cf. Kroonen 2013: 561) which should all be reconstructed as PIE **h*$_2$*uH-r*- with a root final laryngeal. Peters (1980: 55) mentions that at least Gr. -αυρος could still continue a zero grade of the root in either of two ways: Either we could assume loss of laryngeal due to the appearance of Gr. -αυρος as a second member of a compound, or we could propose a Germanic (and Latin) sound change stating that PIE **u* > PG/Lat. *ū* / #_ *rV* in which case no laryngeal would be needed in order to explain the long initial vowel of PG **ūra*- etc.

(57) PG **ausana*- 'scoop, pour' > ON *ausa* 'sprinkle, pour', MHG *ōsen* 'scoop out, make empty', *œsen* (< PG **ausiana*-). Also e. g. PG **ausōn*- 'bowl; ladle' > ON *ausa* 'ladle', OE *ease* 'bowl'. For possible extra-Germanic cognates cf. Pal. *hussinta* 'pour' (3.pl.mid.), Gr. (ἐξ-)αύω 'pour out' and Lat. *hauriō* 'draw, scoop up'; both from PIE **h*$_2$*us-i̯é-*, the latter with analogical full grade and secondary *h*, though, cf. LIV²: 275. That the infinitive stem PG **ausana*- continues PIE **h*$_2$*éu̯s-e*- is of only little debate, but with PG **ausana*- being a strong, reduplicated verb, we could wonder, though, how to properly reconstruct the participle PG **auzena*- ∼ **auzana*- 'scooped, poured': as PIE **h*$_2$*eu̯s-enó*- ∼ **h*$_2$*eu̯s-onó*- or as **h*$_2$*us-enó*- ∼ **h*$_2$*us-onó*- (in both cases with generalisation of the unvoiced Verner's variant). We could also consider if PG **ausiana*-, being as it is a continuation of a PIE *i̯e*-present, could not be formally identical to Gr. (ἐξ-)αύω and Lat. *hauriō* < PIE **h*$_2$*us-i̯é-* even though a late, secondary formation of a PG **ausiana*- on the basis of PG **ausana*- is indeed both possible and highly likely.

(58) PG **austera*- 'east' > ON *austr*, *aust*-, OE *ēast*, OFris. *āster*, OS *ōstar*, *āst*, OHG *ōstar*, *ōst* etc. Also e. g. PG **austrōn*- 'Easter' > OE *ēastre* 'spring goddess' (pl. 'Easter'), OHG *ōstara* 'Easter'. In related forms from other Indo-European branches, we find both PIE **aus*- (< **h*$_2$*eus*-) and PIE **us*- (< PIE **h*$_2$*us*-), cf. e. g. Skt. *uṣas*- 'dawn', *usrā́*-, Av. *ušah*-, Gr. ἕως, ἠώς, ἀώς, αὔως, Lat. *aurōra*, *auster* 'south wind; south', Lith. *aušrà* 'dawn', OCS *za ustra* 'τὸ πρωΐ' etc. Though criticised by Forssman (2010: 291), the notion of reconstructing a morphologically expected root full grade PIE **h*$_2$*éu̯s-os* ∼

15 Gąsiorowski (2012: 120) suggests an alternative etymology for PG **ūru*- 'aurochs', viz. that it continues PIE **h*$_2$*us-ru*- with a regular development of PG **-Vzr*- > **-V̄r*-. The aurochs would then have to be regarded as 'the red one', but as Gąsiorowski mentions himself, the European male aurochs was black unlike the Skt. *usrá*- 'bull' and *usrā́*- '(red) cow' which are assumed by Gąsiorowski to be cognates of PG **ūru*-.

$h_2$éu̯s-es- for Gr. ἔως etc. and Lat. *aurōra*, cf. e. g. Peters 1980: 31–2 and Schrijver 1991: 74–5, and an aberrant weak zero-grade form PIE *$h_2$us-s-* in order to explain Skt. *uṣas-* and Av. *ušah-* seems to have gained general support in the scholarly community. As for the formation with the contrastive or comparative suffix PIE *-*tero-*, it is impossible to tell if a root full or zero grade is morphologically expected since such formations can be formed secondarily to virtually any base as exemplarily illustrated by the reconstructions of the remaining cardinal points in Germanic: PG **sunþera-* 'south' < PIE **sh$_2$ún-tero-* (zero grade, cf. also Kroonen 2013: 492), PG **nurþera-* 'north' < PIE **h$_1$nr̥-tero-* (zero grade, cf. also Kroonen 2013: 393), but PG **westera-* 'west' (no certain etymology; maybe < PIE **u̯ek$^{\text{w}}$sp-tero-*(?), cf. Kroonen 2013: 582–3, but undoubtedly root full grade); cf. further Brugmann 1906: 323–30, esp. 327 for the formation and nature of the suffix PIE *-*tero-*. PG **austrōn-*, however, has probably been formed with the suffix PIE *-*ro-* whose base normally appears in the zero grade, i. e. PIE **h$_2$us-ró-* (or, in this case, PIE **h$_2$us-reh$_2$-* + *-*n)*, but in the light of the morphologically nearly identical forms Lith. *aušrà* and OCS *za ustra*, the root full or *o*-grade PIE **h$_2$e/ou̯s-ró-* (or PIE **h$_2$e/ou̯s-reh$_2$-* + *-*n)* resembles a more probable alternative unless a development of PIE **h$_2$u-* > PBS **au-* can (also) be assumed.

(59) PG **auþia-* 'remote, empty, desert, desolate, waste; destroyed' > Goth. **auþ(ei)s* 'barren, desolate', ON *auðr* 'desert, empty', OE *íeðe* 'desert, forlorn', OHG *ōdi* 'desert, empty'. Also e. g. PG **auþiō-* 'desert' > ON *eyði*, OHG *ōdi*; and PG **auþiana-* 'destroy' > ON *eyða* 'waste, destroy', OE *īðan* 'lay waste, destroy', OHG *(fīr-)ōden* 'waste, desert'. Formally identical to Gr. αὔσιος 'empty, vain' and to be reconstructed as PIE **au-ti̯o-*, i. e. application of the deadverbial suffix PIE *-*ti̯o-* on the adverb/prefix PIE **au-* 'away', cf. (49) PG **au-* 'away'.

(60) PG **auzan-* (∼ **ausan-*?) 'ear' > Goth. *auso*, ON *eyra*, OE *ēare*, OFris. *āre*, OS *ōra*, OHG *ōra*. Normally reconstructed as PIE **h$_2$éu̯s-(s)-on-* ∼ **h$_2$eu̯s-(s)-ón-*, i. e. a bodypart-denoting *n*-stem derivative of the *s*-stem PIE **h$_2$éu̯s-es-* 'ear', cf. also Nussbaum 1986: 200–7, 210–2 though slightly differently Lühr 2000: 291 and Schaffner 2001: 581. For extra-Germanic cognates, cf. e. g., Av. *uš-* 'ear' (only du. *uši*), Gr. οὖς, ὦς, αὖς (gen.sg. οὔατος), Lat. *auris*, OIr. *áu*, *ó*, Lith. *ausìs*, OCS *uxo* etc. The *o*-vocalism of Gr. οὖς etc., if not developed directly from PIE **h$_2$óu̯s-es-*, could easily be explained as caused by influence from semantically related Gr. ὤψ 'eye' < PIE **ok$^{\text{w}}$-* < **h$_3$ek$^{\text{w}}$-*, though cf. also Szemerényi (1967: 65) and Peters (1980: 58–60), who alternatively reconstruct the root as PIE **h$_3$au̯s-* ∼

*h_3us- with Gr. οὐσ- as the regular continuant of PIE *h_3us-. Whether PG *$auzan$- continues PIE *$h_2e̯us$- or *h_2us- is difficult to decide: If PG *$auzan$- is derived from the PIE *s*-stem, i. e. PIE *$h_2e̯us$-*s*-*on*-, only root full grade is expected with the sole exception of the dual form PIE *h_2us-*s*-ih_1 found in, e. g., Av. *uši* '(pair of) ears', cf. e. g. Schindler 1975b: 259–60, 264. If, though less likely, it is derived as an *n*-stem directly from the root, quantitative ablaut would be expected in which case we would not be able to tell if the full-grade form or the zero-grade form had been generalised or if the ablaut is, effectively, still present, i. e. if PG *$ausan$- < PIE *$h_2éu̯s$-*on*- (or as a neuter rather PIE *$h_2éu̯s$-$n̥$) and PG *$auzan$- < PIE *h_2us-*én*-.

(61) PG *uba 'under; above'; see (46).

(62) PG *$ufna$- 'oven' > Goth. *aúhns*, ON *ofn*, OSw. *ughn*, *oghn*, *ofn*, *omn*, ODa. *ofn*, OE *ofen*, OFris. *oven*, OHG *ofan*, *ovan*. The velar consonants of Gothic and (Old) Swedish can be accounted for as regularly developed from PG *f (cf. e. g. Hyllested 2012: 11; Kroonen 2013: 557). Consequently, the frequently cited comparanda of Skt. *ukhá*-, *ukhấ*- 'cooking pot' and Lat. *aulla*, *aula*, *auxilla* must be rejected so as for the true comparanda only to include forms such as Hitt. *huppar* 'bowl'[16], Gr. ἰπνός, ἰπνός 'oven', Myc. *i-po-no*- 'dutch oven, i. e. earthenware bowl used for baking on a hearth' and OPr. *wumpnis* 'baking oven', all of which are derived from PIE *$h_2e̯up$-/*h_2up- with PG *$ufna$- thus representing PIE *$h_2úp$-*no*-. As pointed out by Kroonen (2013: 558), among others, even these cognates generally vary too much and display too many irregularities for them to have been regularly developed from one PIE root, for which reason the assumption is cleverly presented that the word for 'oven, kiln' etc. is a wanderwort that has entered the western Indo-European languages individually. If the cognates from Sanskrit and Latin, i. e. the forms with *-k^h- rather than with *-p-, are included, as well, the likelihood of a wanderwort origin of the word for 'oven, kiln, pot' strongly increases.

(63) PG *$uhsan$- 'ox' > Goth. *aúhsa*, ON *oxi*, *uxi* (backformed from pl. *yxn*), OE *oxa*, OFris. *oxa* (pl. *ixen*), OS *ohso*, OHG *ohso*. For seeming extra-Germanic cognates cf. Skt. *ukṣán*- 'young bull', Av. *uxšan*-, Toch. B *okso* 'draught ox', A *opsi* (nom.pl.), MIr. *oss* '(red) deer', W *ych* 'ox, castrated bull' (MW pl. *ychen*). No clear etymology. Normally regarded as derived from PIE *uk^w-*s*-*e*/*on*- to the root PIE *$u̯eg^w$- 'wet, moisten', thus seen as 'impregna-

16 Hitt. *happena*- 'baking kiln, fire-pit' is rather to be compared with Gr. ὀπτός 'baked' < PIE *h_3p-*tó*- (cf. Kloekhorst 2008: 298).

tor'; cf. further Skt. *ukṣáti* 'spatters, sprinkles, moistens', Gr. ὑγρός 'wet' and Lat. *uxor* 'wife' (i. e. 'the impregnated one'). Semantically, this etymology is not completely satisfactory: Zimmer (1981: 84–91) points out that PIE **uk^{w}se/on-* can hardly be 'a sprayer' or 'an impregnator' since the Indo-Iranian cognates refer to a calf that has not yet procreated and the Tocharian, Germanic and Celtic ones to a castrated bull, i. e. an ox. He further suggests very convincingly that PIE **ukse/on-* be regarded as a loanword adopted into Proto-Indo-European together with the very idea of bovine domestication. Kiehnle (1979: 118–9, 208–9), on whose analysis of the semantic details of the Indo-Iranian cognates Zimmer builds his claim, and Pronk (2008: 1) alternatively suggest that at least the Indo-Iranian cognates reflect PIE **$h_2$uks-én-* to the enlarged root PIE **h_2u̯eg-s-* 'increase, grow', but for semantic reasons again, the remaining cognates would maybe need to stand isolated seeing that the semantic connection between 'young bull', i. e. 'growing bull' (Indo-Iranian), and 'castrated bull, ox' (Tocharian, Celtic, Germanic) is far from straightforward.

3.7 Possibility of PIE *#h_3u-

(64) PG **auzan-* (∼ **ausan-*?) 'ear'; see (60).

(65) PG **uba* 'under; above'; see (46).

3.8 Possibility of PIE *#*Hu-* (i. e. undeterminable timbre of the laryngeal)

(66) PG **auda-* 'riches, wealth; fate, destiny' > Goth. *auda(-hafts)* 'fortunate', Burg. *aud(s)* 'wealth', ON *auðr* 'fate, destiny; wealth', OE *ēad* 'possession, riches, property; happiness', OS *ōd* 'id.', MHG *(klein-)ōt* 'jewel, gem'. Also e. g. PG **auda-* 'rich' > OE *ēad*; PG **audaga-*, **audiga-* 'rich; blessed' > Goth. *audags* 'blessed', ON *auðigr* 'rich', OE *ēadig* 'happy, rich', OS *ōdag*, OHG *ōtag*; and PG **audena-* ∼ *audana-* 'granted' > ON *auðinn* 'granted, ordained, given', OE *ēaden*, OS *ōdan*. Often compared with Lat. *ūber* 'rich, fertile' < PIE **Hou̯d^{h}-ro-(?)*. Kroonen (2013: 41) further adds Lith. *áusti* 'weave' and reconstructs PG **auda-* as PIE **Heu̯-d^{h}h$_1$-o-* whose initial laryngeal must be identified as PIE **h$_2$* if PIE **Heu̯-* 'weave', cf. Skt. *ūvur* 'wove, have woven' (perf.3.pl.) (< PIE **Hu-Hu̯-r̥*), is to be compared with the extended root PIE **h_2u̯eb^{h}-* 'weave' found in, e. g., Gr. ὑφαίνω 'weave' (< PIE **$h_2$ub^{h}-n̥-i̯e-*) (cf. Hyllested & Cohen 2007: 13). We might consider,

though, if the semantic connection between PG **auda*- 'riches, wealth; fate, destiny' on the one hand and PG **auja*- 'luck, fortune, wealth' and PG **awidi*- **awida*-, **auþa*-, **auþu*-(?) 'easy, comfortable' on the other is not close enough for them to be of common pedigree, i. e. for both to derive from either of the roots PIE **$h_1eu̯H$*- 'help, support' or PIE **$h_2eu̯$*- 'enjoy', and if reconstructed PIE **$h_1eu̯H$-tro*- > **$h_1eu̯t^hro$*-, even Lat. *ūber* 'rich, fertile' can easily be included; for the development PIE **-$h_{1/2}$-tro*- > **-t^hro*- > Pre-Lat. **-d^hro*- (cf. Olsen 1988: 7–12), and for the formation of derivatives in PIE **-tlo*-/**-tro*- either from agent nouns or, in sporadic cases, directly from heteroclitics (cf. Olsen 2010: 67). The root ablaut grades of the forms discussed here are difficult to establish due to the great amount of uncertainty regarding their pedigree. However, if PG **audena*- ∼ **audana*- 'granted' is to be interpreted as a participle of an otherwise unattested strong, reduplicated verb (cf. e. g. Orel 2003: 28; Kroonen 2013: 41), we could wonder how to properly reconstruct it: as PIE **Heu̯(H)-t/d^h-enó*-(?) ∼ **Heu̯(H)-t/d^h-onó*-(?) or as **Hu(H)-t/d^h-enó*-(?) ∼ **Hu(H)-t/d^h-onó*-(?).

(67) PG **auma*- 'poor, miserable' > ON *aumr*, OSw. *ömber* 'id' etc. Also e. g. PG **aumōn*- 'misery' > ON *auma*; and PG **aumkō(ja)na*- 'commiserate, feel pity for' > ON *aumka*. Except for the neat comparandum of Toch. B *aume* 'misery' (cf. Adams 1999: 132), this lexeme has no satisfactory etymology. Attempts have been made, though, to connect this adjective with Gr. εὖνις 'empty' (remodelled from *ῡνις < PIE **h_1uh_2-ni*-, cf. Peters 1980: 51–2) to the root PIE **$h_1eu̯eh_2$*- 'empty', cf. also Skt. *ūná*- 'lacking, missing', Lat. *vānus* 'hollow, devoid', PG **wana*- 'lacking, missing' (> Goth. *wans*, ON *vanr*, OE *wan*, OS *wan*, OHG *wan*). Others prefer a connection of PG **auma*- 'poor, miserable' to PIE **au*- (*$h_2eu̯$*-?) 'away' found in PG **auþia*- 'remote, empty, desert, desolate, waste; destroyed'. A third etymological proposal originally offered by Noreen (1923: 169) and most recently reintroduced by Kroonen (2013: 35) regards PG **auma*- 'poor, miserable' as dissimilated from PG **arma*- > Goth. *arms*, ON *armr*, OE *earm*, OFris. *erm*, OS *arm*, OHG *aram* etc., cf. the classical etymology suggested by Johansson (1891: 223–4) that PG **arma*- < **arbma*- < PIE **orb^h-mo*- < **orb^h-no*- 'orphan' < PIE **h_3orb^h*- also seen in Gr. ὀρφανός 'orphan; bereaved, bereft' and Lat. *orbus* 'bereaved, bereft'.[17] Given the very limited distribution of PG **auma*- 'poor,

17 Meillet (1898: 280) has proposed an alternative etymology for PG **arma*- 'poor, miserable', viz. that PG **arma*- < PIE **(h_1)or-mo*- 'weak' also seen in Arm. *ołorm* 'mercy', 'piteous' (dissimilated from **or-orm*) and in Hitt. *erman*-, *arman*- 'sickness, illness'.

miserable' within the Germanic realm, this etymological proposal with its inclusion of irregular dissimilation presents itself as quite attractive.

(68) PG **uhjō(ja)na-* 'sound' > Goth. *aúhjon*, Icel. *ýja* 'remind, drop a hint'. Possibly related to Latv. *aũka* 'gale', SCr. *uka* 'shouting'; both from PIE **Hou̯k-eh$_2$-*. Alternatively PG **uhjō(ja)na-* may be analysed as a zero-grade derivative of the verb PG **wahana-* 'remark' to the root PIE **u̯ek^{w}-* 'speak' or simply as onomatopoetic.

(69) PG **unþi-*, *unþiō-* 'wave' > ON *unnr*, *uðr*, OE *ȳþ*, OS *ūthia*, OHG *undea* 'flood, wave'. In my view, this lexeme may best be compared to Skt. *avatá-* 'well', *avaṭá-* 'pit; cavity'; thus PG **unþi-*, **unþiō-* < PIE **(H)ú-nt-i-* and Skt. *avatá-* < PIE **(H)eu̯-n̥t-ó-*(?). Kroonen alternatively suggests a reconstruction PIE **h$_2$n̥-ti(h$_2$)* in that he compares the Germanic forms to Hitt. *hāni* ~ *hananzi* 'draw (liquids)' and Gr. ἄντλος 'hold of a ship; bilge-water, flood'. Far less convincing is the etymological proposal mentioned by Pokorny (IEW: 80) and de Vries (1962: 635) that PG **unþi-*, *unþiō-* be a zero-grade formation of PIE **u̯et-* 'wet', in itself a parallel root to PIE **u̯ed-* 'water', cf. also Lat. *unda* 'wave'.

(70) PG **ūt* 'out' > Goth. *ūt*, OE *ūt*, OFris. *ūt*, OS *ūt*, OHG *ūz*. A variant of PG **ūt* appears as PG **uz* (< **ut-s + C*$^{[+voice]}$) > Goth. *us*, *ur-*, ON *ór*, *or-*, *ør-*, OE *or-*, OFris. *or-*, *ur-*, OS. *ur-*, *or-*, OHG *ur-*, *ar-*, *ir-*. For extra-Germanic comparanda cf. e. g. Skt. *úd-*, *út-* 'up, upwards', Gr. ὐ-, Lat. *ūs-(que)* 'continously, incessantly', Lith. *už-* 'up, upwards', OCS *vъz-*, *vъs-* etc.; all from PIE **(H)ud* 'up, upwards; out, outwards'. Lengthening of the vowel in PG **ūt* is probably caused by the monosyllabicity of the word.

4 Ordering of data and preliminary conclusion

The following tables 2–9 will summarise the assumed prehistory of every Proto-Germanic lexeme discussed in sections 3.1–3.8, i. e. the estimated likelihood and/or possibility of each of them to continue a PIE form with **#Hi-* or **#Hu-*.

Table 2. PG lexemes possibly reflecting PIE **#h$_1$i-*

Likely/possible	Uncertain	Unlikely/impossible
(4) PG **aisō(ja)na-* 'rush'	(1) PG **aima-* 'smoke, steam; smell'	(2) PG **aina-* 'one, alone, any'
(8) PG **i-* 'he, she, it'	(4) PG **aiskrō(ja)na-* 'roar, rage'	(2) PG **ainahan-* 'single'

Table 2. PG lexemes possibly reflecting PIE *#h_1i-

Likely/possible	Uncertain	Unlikely/impossible
(9) PG **idi*- 'work'	(4) PG **īskrō(ja)na*- 'be furious from excitement or pain'	(2) PG **ainaka*- 'only, special'
(9) PG **ida*- 'constant moving, quivering'	(6) PG **aiþma*- 'son-in-law'	(2) PG **ainakjōn*- 'widow'
(9) PG **idō(ja)na*- 'move around restlessly'	(10) PG **iliþ*-, *iljō*- 'footsole'	(2) PG **ainak(a)la*- 'standing alone'
(13) PG **īwa*- 'yew'	(10) PG **ilkan*- 'footsole'	(3) PG **ainia*- 'juniper'
	(12) PG **īsa*- 'ice'	(5) PG **aiþa*- 'oath'
		(5) PG **aid(i)a*- 'isthmus'
		(7) PG **aiwa*-, *aiwō*-, **aiwi*- 'law'
		(8) PG **ī*- e. g. in Goth. *ei* 'that', ON *í (gær)* 'yesterday', *í (dag)* 'today'
		(11) PG **īliana*-, 'rush, hurry'
		(11) PG **īlō*- 'hurry, haste'

Table 3. PG lexemes possibly reflecting PIE *#h_2i-

Likely/possible	Uncertain	Unlikely/impossible
(14) PG **aida*- 'pyre'	(14) PG **ai(d)ma*- 'smoke, steam; smell'	(15) PG **aigana*- 'own, possess, have'
(14) PG **aidiana*- 'burn (tr.), harden with fire'	(14) PG **aima-uzjōn*- 'embers'	(18) PG **aikana*- 'make one's own; assign, allot'
(14) PG **ai(d)la*- 'flame'	(14) PG **ai(d)skrō(ja)na*- 'roar, rage'	(19) PG **aikiana*- 'annoy, pester'
(14) PG **ai(d)liana*- 'burn (tr.), ignite'	(18) PG **aihtrō(ja)na*- 'beg, pray'	(20) PG **aikwernan*- 'squirrel'
(14) PG **ai(d)lida*- 'fire'	(22) PG **aira*-, **airu*- 'messenger'	(21) PG **aina*- 'one, alone, any'
(14) PG **ai(d)sōn*- 'forge, fireplace'	(22) PG **airinō(ja)na*- 'be a messenger, negotiate'	(21) PG **ainahan*- 'single'
(15) PG **aigena*- ~ **aigana*- 'own'	(23) PG **aiskaþla*- 'heart'	(21) PG **ainaka*- 'only, special'
(15) PG **aihti*- 'belongings, possessions, property'	(26) PG **aiþma*- 'son-in-law'	(21) PG **ainakjōn*- 'widow'

Table 3. PG lexemes possibly reflecting PIE *#h_2i-

Likely/possible	Uncertain	Unlikely/impossible
(15) PG **aigōn-* ‘ownership, property’		(21) PG **ainak(a)la-* ‘standing alone’
(15) PG **aigni-* ‘land property’		(22) PG **airi* ‘early’
(16) PG **aigena-*, **aiginþ-*? ‘shoot, barb’		(22) PG **airiz* ‘before, earlier’
(16) PG **aigla-* ‘shoot’		(25) PG **aiþa-* ‘oath’
(17) PG **aik-* ‘oak’		(25) PG **aid(i)a-* ‘isthmus’
(17) PG **aikīna-* ‘oaken’		(27) PG **aiwa-*, **aiwō-*, **aiwi-* ‘age, eternity’
(19) PG **aikala-* ‘excited (by fear)’		(27) PG **aiwīn-* ‘eternity’
(19) PG **aikena-* ∼ **aikana-* ‘wild, furious’		(27) PG **aiwan-* ‘eternity’
(20) PG **īkwernan-* ‘squirrel’		(28) PG **aiwa-*, **aiwō-*, **aiwi-* ‘law’
(23) PG **aiskō-* ‘demand, investigation’		(30) PG **aiza-* ‘copper, ore, brass’
(23) PG **aiskiōn-* ‘question, search, investigation’		(32) PG **idi-* ‘work’
(23) PG **aiskō(ja)na-* ‘demand, inquire, ask; investigate, examine’		(32) PG **ida-* ‘constant moving, quivering’
(23) PG **aiskungō-* ‘demand’		(32) PG **idō(ja)na-* ‘move around restlessly’
(24) PG **aita-* ‘abscess, ulcer’		(33) PG **idis-*/**edis-* ‘lady’
(24) PG **aistōn-* ‘testicle’		(34) PG **īdala-* ‘void, idle, futile’
(24) PG **aitila-* ‘swollen’		
(24) PG **aitra-* ‘poison, pus’		
(29) PG **aiwiana-* ‘despise’		
(29) PG **aiwiska-* ‘shameful’		
(29) PG **aiwiskia-* ‘shame, disgrace’		
(29) PG **aiwiskō-* ‘dishonour, disgrace, offence’		

Table 3. PG lexemes possibly reflecting PIE *#h_2i-

Likely/possible	Uncertain	Unlikely/impossible
(29) PG **aiwiskō(ja)na*- ‘make ashamed, treat shamefully’		
(31) PG **aizō*- ‘peace, clemency; respect, benevolence’		
(31) PG **aiziana*-, **aizō(ja)na*- ‘forgive; honour’		
(31) PG **aistē(ja)na*- ‘respect’		

Table 4. PG lexemes possibly reflecting PIE *#h_3i-

Likely/possible	Uncertain	Unlikely/impossible
35) PG **airō*- ‘oar’		(36) PG **aiþa*- ‘oath’
		(36) PG **aid(i)a*- ‘isthmus’

Table 5. PG lexemes possibly reflecting PIE *#*Hi*-, i. e. undeterminable timbre of the laryngeal

Likely/possible	Uncertain	Unlikely/impossible
(38) PG **īsa*- ‘ice’	(37) PG **aibra*- ‘harsh’	
	(37) PG **ībra*- ‘zeal, eagerness’	
	(38) PG **īsa*- ‘ice’	

Table 6. PG lexemes possibly reflecting PIE *#h_1u-

Likely/possible	Uncertain	Unlikely/impossible
(41) PG **(haima-)ul(j)ōn*- ‘sorrel’	(39) PG **auda*- ‘riches, wealth; fate, destiny’	(40) PG **auja*- ‘luck, fortune, wealth’
(43) PG **ūdra*- ‘udder’	(39) PG **auda*- ‘rich’	(40) PG **awidi*- **awida*-, **auþa*-, **auþu*-(?) ‘easy, comfortable’

Table 6. PG lexemes possibly reflecting PIE *#h_1u-

Likely/possible	Uncertain	Unlikely/impossible
(45) PG **eusizan-* ‘better’	(39) PG **audaga-*, **audiga-* ‘rich’	(40) PG **awidō*, **auþō* ‘easily’
(45) PG **eusilō-* ‘ease’	(39) PG **audena-* ∼ *audana-* ‘granted’	(41) PG **aula(n)-* ‘fool, (tall) lanky fellow’
(46) PG **uba* ‘under; above’	(44) PG **eufniōn-* ‘crowd’	(41) PG **eula(n)-* ‘(stalk of) angelica silvestris’
(46) PG **upp* ‘up, upwards’		(42) PG **auma-* ‘poor, miserable’
(46) PG **ubanē* ‘from above’		(43) PG **eudra-* ‘udder’
(46) PG **ufuman-* ‘highest, upmost’		(44) PG **eup* ‘up, upwards’
(46) PG **uber-* ‘over’		
(46) PG **uftō* ‘often’		
(46) PG **ubez-(wō-)* ‘sth. tall; eaves’		
(46) PG **ubila-* ‘evil, bad’		
(46) PG **ŭba-* ‘ill-natured, malicious’		
(47) PG **unhta-* ‘accustomed’		
(48) PG **usliō-* ‘embers, glowing ashes’		
(48) PG **usjōn-* ∼ **(aima-)uzjōn-* ‘embers’		
(48) PG **ustr(j)a-* ‘very active’		

Table 7. PG lexemes possibly reflecting PIE *#h_2u-

Likely/possible	Uncertain	Unlikely/impossible
(51) PG **auja-* ‘luck, fortune, wealth’	(49) PG **au-* ‘away’	(52) PG **aukan-* ‘increase, addition’
(51) PG **awidi-* **awida-*, **auþa-*, **auþu-(?)* ‘easy, comfortable’	(50) PG **auda-* ‘riches, wealth; fate, destiny’	(52) PG **aukana-* ‘increase, augment’
(51) PG **awidō*, **auþō* ‘easily’	(50) PG **auda-* ‘rich’	(52) PG **aukō(ja)na-* ‘increase, augment’

Table 7. PG lexemes possibly reflecting PIE *#h_2u-

Likely/possible	Uncertain	Unlikely/impossible
(52) PG **aukena-* ∼ **aukana-* ‘increased, augmented’	(50) PG **audaga-*, **audiga-* ‘rich’	(54) PG **aula(n)-* ‘fool, (tall) lanky fellow’
(53) PG **auk(e)* ‘also; and’	(50) PG **audena-* ∼ *audana-* ‘granted’	(54) PG **eula(n)-* ‘(stalk of) angelica silvestris’
(56) PG **ūra-* ‘soil(?)’	(59) PG **auþia-* ‘remote, empty, desert, desolate, waste; destroyed’	(54) PG **(haima-)ul(j)ōn-* ‘sorrel’
(56) PG **ūru-* ‘aurochs’	(59) PG **auþiō-* ‘desert’	(55) PG **auma-* ‘poor, miserable’
(57) PG **auzena-* ∼ **auzana-* ‘scooped, poured’	(59) PG **auþiana-* ‘destroy’	(56) PG **aura-* ‘moisture, water’
(58) PG **austera-* ‘east’		(56) PG **aura-* ‘(moist) earth, soil’
(58) PG **austrōn-* ‘Easter’		(57) PG **ausana-* ‘scoop, pour’
(60) PG **auzan-* ‘ear’		(57) PG **ausōn-* ‘bowl; ladle’
		(60) PG **ausan-*? ‘ear’
		(61) PG **uba* ‘under; above’
		(61) PG **upp* ‘up, upwards’
		(61) PG **ubanē* ‘from above’
		(61) PG **ufuman-* ‘highest, upmost’
		(61) PG **uber-* / *ove* ‘
		(61) PG **uftō* ‘often’
		(61) PG **ubez-(wō-)* ‘sth. tall; eaves’
		(61) PG **ubila-* ‘evil, bad’
		(61) PG **ŭba-* ‘ill-natured, malicious’
		(62) PG **ufna-* ‘oven’
		(63) PG **uhsan-* ‘ox’

Table 8. PG lexemes possibly reflecting PIE *#h_3u-

Likely/possible	Uncertain	Unlikely/impossible
	(65) PG **uba* ‘under; above’	(64) PG **auzan-* (∼ **ausan-*?) ‘ear’

Table 9. PG lexemes possibly reflecting PIE *#*Hu*-, i. e. undeterminable timbre of the laryngeal

Likely/possible	Uncertain	Unlikely/impossible
(66) PG **audena*- ~ *audana*- 'granted'	(66) PG **auda*- 'riches, wealth; fate, destiny' (66) PG **auda*- 'rich' (66) PG **audaga*-, **audiga*- 'rich' (68) PG **uhjō(ja)na*- 'sound' (69) PG **unþi*-, *unþiō*- 'wave' (70) PG **ūt* 'out' (70) PG **uz* 'out'	(67) PG **auma*- 'poor, miserable'

Based on tables 2–9 above, it seems safe to assume that:

1. PIE *#h_1i*- > PG *#*i*-. Both PG *#*ai*- and PG *#*i*- are listed in the table, but with PG *#*i*- as one of the two options, PG *#*i*- must be the expected outcome since it, unlike PG *#*ai*-, cannot be explained in any other way than by PIE #h_1i*-;
2. a development of PIE *#h_2i*- > PG *#*ai*- cannot be secured, but it can be stated with a great amount of certainty that no examples of PIE *#h_2i*-> PG *#*i*- can be found;
3. PIE *#h_3i*- may be represented in only one example in Germanic for which reason the statistical evidence does not allow for a statement as to the Germanic outcome;
4. PIE *#*Hi*- comes with too vague examples;
5. PIE *#h_1u*- > PG *#*u*-. Both PG *#*eu*- and PG *#*u*- are listed in the table, but with PG *#*u*- as one of the two options, PG *#*u*- must be the expected outcome since it, unlike PG *#*eu*-, cannot be explained in any other way than by PIE #h_1u*-;
6. a development of PIE *#h_2u*- > PG *#*au*- cannot be secured, but it can be stated with a great amount of certainty that no examples of PIE *#h_2u*-> PG *#*u*- can be found;
7. PIE *#h_3u*- may be represented in only one example in Germanic for which reason the statistical evidence does not allow for a statement as to the Germanic outcome;
8. PIE *#*Hu*- comes with too vague examples; and
9. PIE *#*HiH*- > PG *#*ī*- and PIE *#*HuH*- > PG *#*ū*- regardless of the timbre of the laryngeals as examplified by (13) PG **īwa*- 'yew', (20) PG **īkwernan*- 'squirrel', (12)/(38) PG **īsa*- 'ice' and (43) PG **ūdra*- 'udder', (56) PG **ūra*- 'soil(?)', (56) PG **ūru*- 'aurochs', respectively.

4.1 Further remarks on the development of PIE *#h_2i- and *#h_2u-

It might be worth attaching a comment or two on the proposed development of PIE *#h_2i- > PG *#*ai*- and of PG *#h_2u- > PG *#*au*-. As stated above, it is true that this development cannot be established with absolute certainty. Various analogical and other processes may simply have blurred the picture considerably. However, I personally find it remarkable that, out of 33 possible or likely examples of PIE *#h_2i-, 32 contain PG *#*ai*-, the remaining one containing PG *#*ī*- < PIE *h_2iH-. Not a single example contains PG *#*i*-. Correspondingly, 9 out of the 7 examples for which PIE *#h_2u- has been judged possible or likely contain PG *#*au*-, the remaining two containing PG *#*ū*- < PIE *h_2uH-. Again, we find no examples with a short monophthong, i. e. with PG *#*u*-.

The only forms that could have pointed at the alternative conclusion of PIE *#h_2i- > PG *#*i*- and PIE *#h_2u- > PG *#*u*- are (33) PG **idis*-/**edis*- 'lady', (61) PG **ubila*- 'evil, bad', (62) PG **ufna*- 'oven' and (63) PG **uhsan*- 'ox'. However, as mentioned in the discussion of the individual lexemes, three of them are better explained as loanwords or wanderworts, and the last one, viz. (61) PG **ubila*- 'evil, bad', most likely does not continue a form with initial PIE *h_2 but rather initial *h_1 if affiliated with (61) PG **uba* 'under; above'. Alternatively, if the connection to Hitt. *huwappa*- 'evil, ill, bad' is to be maintained, we might consider initial PIE *h_3 for this lexeme.

If we can thus conclude that the suggested sound changes of PIE *#h_2i- > PG *#*ai*- and PIE *#h_2u- > PG *#*au*- are indeed quite likely, a new question almost automatically arises, viz. why a parallel development cannot be posited for PIE *h_1 and *h_3. Honestly, we cannot estimate with certainty the development of PIE *#h_3i- and PIE *#h_3u-. Consequently, we cannot exclude the possibility of these sequences also yielding forms with initial diphthongs in Germanic. As for PIE *h_1, however, there is no doubt that the Germanic outcome was an initial monophthong, i. e. PG *#*i*- and *#*u*-. In my opinion, we may find the reason for this discrepancy between the developments of at least PIE *h_1 and *h_2 in the circumstance already mentioned (cf. section 3) that the forms with initial diphthong might have arisen in a specific sandhi environment, viz. the sequence PIE *-*C*#*Hi*/*uC*- > *-*CHi*/*uC*- where a supporting vowel could be developed in order to ease the pronunciation, i. e. PIE *-*C*$\underset{\circ}{H}$*Hi*/*uC*-. From that point of view, it is easy to understand why a PIE *h_2 with a pronunciation probably on the lines of [x] (cf. e. g. Rasmussen 1999: 77), would be considerably more prone to generating a supporting vowel, i. e. [Cəxi/u] *vel sim.*, than PIE *h_1 with a pronunciation probably on the lines of [h] which, when adjacent to a consonant, would probably just be eliminated or, at most, aspirate the preceding consonant, i. e. [C^{h}i/u] *vel sim.*

Though unparalleled by Greek where we find vocalic reflexes for all three laryngeals in this environment, Germanic still seems to have at least one fellow differentiator: If valid, Beekes' (1988: 81) description of the state of affairs in Anatolian, viz. that PIE *h_1*iC- and *h_1*uC- yield *iC-* and *uC-* whereas *$h_{2/3}$*iC- and *$h_{2/3}$*uC- yield *hiC-* and *huC-*, certainly indicates that also Anatolian applied different strategies for the development of PIE *h_1*i-/*h_1*u-* and *$h_{2(/3)}$*i-/*$h_{2(/3)}$*u-*.

4.2 Differentiating between 'likely' and 'possible'

No doubt can remain that, even though a development of PIE *#h_2*i-* > PG *#*ai-* and of PIE *h_2*u-* > PG *#*au-* is indeed morphologically possible for all of the lexemes listed in tables 3 and 7, it is more likely to have happened in some lexemes than in others.

Many cases of PG *#*ai-* and *#*au-* are easily explicable as resulting from analogical leveling. That is the case for, e. g., the past participles of preterite-presentic and reduplicated strong verbs in which zero grade, i. e. PIE *h_2*i-* and *h_2*u-*, is expected, but whose present stems may well have served as a source of leveling, the intention of the language users probably being to imitate the situation found with the Germanic class V and VI unreduplicated strong verbs in which the root ablaut grades of the present stems and of the past participle stems are synchronically identical

Also in the case of (60) PG **auzan-* (∼ PG **ausan-*?) 'ear', which should theoretically continue PIE *h_2*éus-* ∼ *h_2*us-´*, analogical leveling of the ablaut grade of the strong stem to that of the weak stem, rather than a phonological development of PIE *h_2*u-* > PG *#*au-*, may serve as an explanation for the appearance of **au-* even in the weak stem.

Analogy may have played a role even across lexeme boundaries. For instance, we expect zero grade in (29) PG **aiwiana-* 'despise' (PIE *h_2ig^{wh}*-i̯é-*), but the vocalism of the *s*-stem PIE *$h_2ei̯g^{wh}$*-os* ∼ *$h_2ei̯g^{wh}$*-es-* attested in Indo-Iranian and Greek may have influenced on the verb. Similarly, in the case of (15) PG **aihti-* 'belongings, possessions, property' we definitely expect root zero grade, cf. e. g. PIE **mn̥-ti-* 'thought', but the full grade of the preterite-presentic verb (15) PG *aigana-* 'own, possess, have' seems an apt candidate for analogical influence.

In some lexemes with initial PG *#*ai-* or *#*au-*, e. g. (14) PG **aida-* 'pyre', (24) PG **aita-* 'abscess, ulcer', (31) PG **aizō-* 'peace, clemency; respect, benevolence' and derivatives of these, reconstructions with PIE *#h_2*i-* and *#h_2*u-* have been judged possible mainly on the grounds that Rasmussen's (1989: 158–75) system of complementary distribution of *o-* and zero-grade, as determined by the phonotactic properties of the root, in the *toga*/*fuga*-types would indicate original zero grade.

It is important to note, however, that analogical leveling in favour of *o*-grade has happened to a very large extent in these types (cf. Rasmussen 1989: 156–8), and even more so in the τόμος-type than in the *toga*- or τομή-type, why this line of argumentation is generally unapt for solving our issue.

As we have seen, many of the examples may contain regular or analogically arisen full or *o*-grade, but I would be utterly surprised and find it statistically significant if not even a single of these examples would have descended from PIE *#h_2i- or *#h_2u- by means of regular sound change. That scenario indeed seems to be valid for (17) PG **aik*- 'oak', (16) **aigena*-, **aiginþ*-? 'shoot, barb', (16) PG **aigla*- 'shoot', (23) **aiskō*- 'demand, investigation' and (58) **austrōn*- 'Easter'. In the first example, no immediate source of analogy for the full- or *o*-grade vocalism comes to mind. Furthermore, if we are indeed dealing with an inherited root noun rather than a lexical borrowing, root zero grade is expected for phonotactic reasons (cf. e. g. Hansen 2014: 39–43). In the second and third examples, which are rather isolated formations, we would also expect root zero grade. Seeing that PG **aiginþ*-, if properly reconstructed as such, is to be analysed as a participle of an athematic verb, root zero grade is the default option, cf. e. g. PIE *h_1s-*ént*- 'being', and PG **aigla*- is to be analysed as a concretised abstract noun in which case root zero grade and suffixal accent is actually to be expected. The fourth example is clearly derived from a *sḱe*-present, i. e. a type normally found with root zero grade, cf. e. g. Skt. *icchá́ti* 'longs for' with the derivative *icchā*- 'wish, demand', seemingly cognate to the Germanic *ō*-stem noun, and the parallel formations of PIE **pr̥ḱ-sḱé*- 'ask, demand' and PIE **g$^{\text{w}}$m̥-sḱé*- 'come'. However, a wide array of cognates also suggest full- or *o*-grade formations, e. g. Arm. *haycʿem* 'beg', Lat. *quaerō* 'ask' (< **ko-aiṣ-e*-) and Lith. *íeškau* 'seek'. Also in the last example, i. e. (58) PG **austrōn*- 'Easter', parts of the comparative evidence, e. g. Skt. *usrā́*- 'dawn', suggest root zero grade as expected in formations with PIE *-*ro*-. Contrarily, at least the Balto-Slavic cognates indicate full or *o*-grade. Whether it is of importance here that at least some of the languages in which we find cognates of the latter two examples with unexpected full- (or *o*-)grade forms are those mentioned by Hammerich (1948: 32) as possible candidates for a rendering of PIE *#*Hu*- as *#*Ḫ̯u*-, should so far be regarded as either mere speculation or, at best, the object of future studies.

4.3 Excursus: PG **ubila*- 'evil, bad' and **ufna*- 'oven' – why not †**aubila*- and †**aufna*-?

One of the preliminary conclusions presented in the previous two paragraphs, viz. that PIE *#h_2u- did not develop into PG *#*u*- and cannot be said not to have developed into PG *#*au*-, relies on the premises that PG **ubila*- 'evil, bad', including

maybe also PG **uba* 'under; above', and PG **ufna-* 'oven' have not developed from a form with a word-initial **h*$_2$. Thus, I have suggested that PG **ubila-* 'evil, bad' and PG **uba* 'under; above' < PIE **h*$_1$*up-* and that PG **ufna-* 'oven' is, in fact, a wanderwort together with its pseudo-cognates of Hitt. *huppar* 'bowl', Gr. ἰπνός, ἰπνός 'oven', Myc. *i-po-no-* 'dutch oven, i. e. earthenware bowl used for baking on a hearth' and OPr. *wumpnis* 'baking oven'.

Not every scholar would accept these premises. PG **ubila-* 'evil, bad', including maybe PG **uba* 'under; above', is often seen reconstructed as PIE **h*$_2$*up-* and thus compared to Hitt. *huwappa-* 'evil, ill, bad' derived from *huwapp-* ∼ *hupp-* 'be hostile towards, do evil against; throw (down), hurl'. Similarly, PG **ufna-* 'oven' is often reconstructed with initial PIE **h*$_2$, i. e. PIE **h*$_2$*up-no-*, in the light of its obvious, semantic connection with Hitt. *huppar* 'bowl', and the formal difficulties concerning the comparison of these two forms to Gr. ἰπνός, ἰπνός, Myc. *i-po-no-* and OPr. *wumpnis* are, if not disregarded, then at least heavily downplayed. If, as indicated by the list of forms in table 7 above, PG **#au* is actually the regular result of PIE **#h*$_2$*u-*, we would have expected PIE **h*$_2$*upiló-* to yield PG †*aubila* 'evil, bad' rather than **ubila-* and PIE **h*$_2$*úpno-* to yield PG †*aufna-* 'oven' rather than **ufna-*. Consequently, the only possible solution for scholars not accepting the etymologies proposed by me would seem to be that of assuming a development of PIE **#h*$_2$*u-* > PG **#u-*, i. e. what has been presented here as the communis opinio, in spite of all the fitting candidates for PIE **#h*$_2$*u-* > PG **#au-*.

The regular sound change presented by Hyllested & Cohen (2007: 13) for Greek, viz. that there are "[...] no examples in Greek of *u*-diphthong + a labial reflecting either PIE full-grade **HewP-* or PIE zero grade **HuP-* in initial position (where P = any labial, i. e. any of /p, b, b^h, m/)", may actually serve as inspiration for a compromise between those advocating for PG **ubila-* < PIE **h*$_2$*upiló-* and PG **ufna-* < PIE **h*$_2$*úpno-* and those believing in the possibility of a default development of PIE **#h*$_2$*u-* > PG **#au-*.

Even a mere browse through the entire Proto-Germanic corpus will reveal that Proto-Germanic offers conditions comparable to those of Greek. In Proto-Germanic, it turns out, we find almost no examples of a *u*-diphthong followed by a labial consonant in initial position. In fact, no more than three counterexamples can be found.

1. PG **auma-* 'poor, miserable' with derivatives. Only attested in North Germanic and probably to be regarded as a spontaneous dissimilation from PG **arma-* < **arbma-*. See (67) for additional details.
2. PG **eufniōn-* 'crowd'. Probably derived from PG **eup* 'up, upwards', cf. below; alternatively seen as etymologically enigmatic. See (44) for additional details.

3. PG **eup* 'up, upwards'. Only attested in Gothic and possibly secondarily backformed from the locative PG **uppai* 'up, upon, above', cf. Kroonen (2010: 374–6; 2013: 121). See (44) for additional details.

Whereas PG **auma*- 'poor, miserable' can thus easily be dismissed, PG **eup* 'up, upwards' constitutes a considerably stronger counterexample. Despite Kroonen's (2010: 374–6; 2013: 121) attempt to explain it as secondary from PG **uppai* 'up, upon, above', I fail to see any phonological, morphological or other motivation for the introduction of full-grade vocalism and therefore must suspect that the full grade represented in PG **eup* is original and archaic, cf. also Kroonen's (2010: 374–6) own reference to the partly similar situation found in directional adverbs in Hittite where locative adverbs with root zero grade, e. g. Hitt. *parā* 'forwards' (< PIE **pr̥-ó*), are occasionally matched by allatives with root full grade, e. g. Hitt. *pēran* 'before' (< PIE **pér-m̥*).

With PG **eup* thus being, in fact, an example of a *u*-diphthong followed by a labial consonant, we cannot apply Hyllested & Cohen's (2007: 13) constraint for Greek on Proto-Germanic without any amendments unless PG **eup* is really secondary. For Proto-Germanic, the constraint would have to be limited to the *u*-diphthong with PG **a* as its vocalic element, i. e. PG **au* > PG **u* / #_$C_{[+lab]}$ represented by PG /f, p, b, m/. Consequently, it seems safe to assume that a PG **aubila* 'evil, bad' (< PIE **h₂upiló*-) and a PG **aufna*- 'oven' (< PIE **h₂úpno*-) would automatically yield PG **ubila*- and PG **ufna*-, respectively, i. e. the Proto-Germanic reconstructed forms underlying the forms actually attested in the ancient Germanic languages.

As a closing matter of curiosity, it also deserves mentioning that this or a similar constraint was reintroduced in English in connection with the Great Vowel Shift as exemplified by, e. g., OE *rūm* 'room' > ME *roum* > Eng. *room* /rūm/, not Eng. †/*rawm*/ as otherwise expected (cf. Hyllested & Cohen 2007: 13–4).

5 Conclusion

In this article, I have demonstrated that, contrary to common belief, we can neither state with certainty nor suggest tentatively that PIE *#*Hu*- > PG *#*u*-. Neither can we state nor suggest that PIE *#*Hi*- > PG *#*i*-. Based on the analyses presented in this article, it would rather seem that:

1. PIE *#*h₁i*- > PG *#*i*-. Both PG *#*ai*- and PG *#*i*- are listed in the table, but with PG *#*i*- as one of the two options, PG *#*i*- must be the expected outcome since it, unlike PG *#*ai*-, cannot be explained in any other way than by PIE #*h₁i*-;

2. a development of PIE *#h_2i- > PG *#*ai*- cannot be secured, but it can be stated with a great amount of certainty that no examples of PIE *#h_2i- > PG *#*i*- can be found;
3. PIE *#h_3i- may be represented in only one example in Germanic for which reason the statistical evidence does not allow for a statement as to the Germanic outcome;
4. PIE *#*Hi*- comes with too vague examples;
5. PIE *#h_1u- > PG *#*u*-. Both PG *#*eu*- and PG *#*u*- are listed in the table, but with PG *#*u*- as one of the two options, PG *#*u*- must be the expected outcome since it, unlike PG *#*eu*-, cannot be explained in any other way than by PIE #h_1u-;
6. a development of PIE *#h_2u- > PG *#*au*- cannot be secured, but it can be stated with a great amount of certainty that no examples of PIE *#h_2u-> PG *#*u*- can be found;
7. PIE *#h_3u- may be represented in only one example in Germanic for which reason the statistical evidence does not allow for a statement as to the Germanic outcome;
8. PIE *#*Hu*- comes with too vague examples; and
9. PIE *#*HiH*- > PG *#*ī*- and PIE *#*HuH*- > PG *#*ū*- regardless of the timbre of the laryngeals.

Basing my estimation on statistical evidence, I would even dare stating that it would be statistically significant if not even a single of the many examples of PG *#*ai*- and *#*au*- deemed possible or likely of continuing PIE *#h_2i- and *#h_2u- does not also continue PIE *#h_2i- and *#h_2u- in reality.

Furthermore, if we may draw partial parallels to Germanic from the developments seen in Greek and English, viz. that any example of PG *#*au*- followed by a labial consonant would result in PG *#*u*-, it would seem that the conclusions presented above hold good regardless of the pedigree of PG **ubila*- 'evil, bad', **uba* 'under; above' and **ufna*- 'oven'.

Abbreviations

EWAhd Albert L. Lloyd, Otto Springer & Rosemarie Lühr, eds. (1988–). *Etymologisches Wörterbuch des Althochdeutschen*. Göttingen & Zürich: Vandenhoeck & Ruprecht.

HED Jaan Puhvel (1984–). *Hittite Etymological Dictionary*. 9 vols. Berlin & New York: Mouton.

IEW Julius Pokorny (1989). *Indogermanisches etymologisches Wörterbuch*. 2nd ed. Vol. 1. Bern & Stuttgart: Franke.

LIV² Helmut Rix (2001). *Lexikon der indogermanischen Verben. Die Wurzeln und ihre Primärstammbildungen*. Unter Leitung von Helmut Rix bearbeitet von Martin J. Kümmel, Thomas Zehnder, Reiner Lipp, Brigitte Schirmer. 2nd ed. Wiesbaden: Reichert.

NIL Dagmar S. Wodtko, Britta Irslinger & Carolin Schneider (2008). *Nomina im indogermanischen Lexikon*. Heidelberg: Winter.

VGK Holger Pedersen (1909–1913). *Vergleichende Grammatik der keltischen Sprachen*. 2 vols. Göttingen: Vandenhoeck & Ruprecht.

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