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***Grūt grus*: THE INDO-EUROPEAN NAMES OF THE CRANE**

Abstract. The purpose of this article is to show that the variety and irregularity of the Indo-European ‘crane’ words is apparent rather than actual, and that their derivational history is in fact quite simple. In brief, they can be reduced to only a couple of related PIE lexemes, rather than a whole constellation of “dialectal” forms.

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[ETYMOLOGY]

The descent or derivation of a word from its original; the deduction of formations from the radical word; the analysis of compound words into primitives.

Samuel Johnson

0. Introduction

A large, gregarious, highly vocal and easily identifiable bird,¹ the common crane (*Grus grus*) has for millennia been familiar to people living close to its northern Eurasian breeding sites, its southern winter quarters, and along its routes of migration.² It is, indeed, one of the few bird species whose Proto-Indo-European names are reconstructible with any accuracy.³ However, the cognate set on which a reconstruction could be based looks disturbingly inconsistent. At

¹ Which does not rule out occasional confusion with other large waders, especially storks and herons.

² For a detailed description of the species, see Johnsgard (1983: 227-237).

³ The role of the crane in Indo-European mythology is discussed by Greppin (1976; 1997); see in particular the widespread ancient tale of warfare between cranes and the Pygmies (Gk. Πυγμαῖοι), famously mentioned by Homer (*Iliad* 3.6). Greppin’s suggestion of root-cognacy between Skt. *Garuḍa-* and Gk. γέρανος is formally implausible, but the symbolic and behavioural parallels he points out (including *Garuḍa*’s reputation as a snake-eater) are intriguing.

first glance, it allows one to recover only a root morpheme (**gerh₂-*)⁴ and the suffixes which accompany this root in several different IE branches (**-no-*, **-u-*, etc.). The exact shape of the words made up of those building blocks depends on their vocalism, which seems to vary from branch to branch, making exact comparison problematic. For example, while Greek *γέρανος* and Proto-Celtic **garano-* match each other quite satisfactorily, Proto-Germanic **krana-* is not directly reconcilable with either of them: despite having a compatible consonantal skeleton, it cannot be derived from their common ancestor (**gérh₂-no-*) via sound changes known to have operated between PIE and Proto-Germanic. Similarly, Proto-Slavic **žeravъ* ~ **žeravъ* perhaps contains the same sequence of morphemes as Latin *grūs* (plus a **-jo-* or **-i-* extension), but its vocalism does not seem to match the Latin form; moreover, the closely related Baltic words (Lith. *gėrvė*, etc.) show the accentual reflex of a laryngeal originally following the rhotic, but no long vowel as required by the Slavic cognate.⁵ One would have to assume an ad-hoc ablaut alternation like **gerh₂-ōu-i(o)-s* : **gerh₂-u-i-ah₂* : **gruh₂-s* to account for all these variants.⁶ This variability is sometimes blamed on the onomatopoeic character of the word (imitative of the crane's call) and its low-register ("popular") stylistic value. The purpose of this article is to show that the variety and irregularity of the IE 'crane' words is apparent rather than actual, and that their derivational history is in fact quite simple. In brief, they can be reduced to only a couple of related PIE lexemes, rather than a whole constellation of "dialectal" forms.

1. The root **gerh₂-*

The opinion that the 'crane' etymon is onomatopoeic is based on the observation that roots containing dorsal-rhotic combinations often seem to have a sound-symbolic value (cf. e.g. **ĝar-* 'tönen, rufen', **g^(w)erd^h-* 'hören, tönen', *?*g^(w)eRĝ^h-* 'klagen' in LIV₂), and that some of the best-known vocalisations of the common crane can reasonably be represented as /K(V)r(V)K/ (where K = any dorsal obstruent) in terms of human articulations producing a comparable acoustic effect. Of course this may well be coincidental, and the semantic value of **gerh₂-* could be independently confirmed only if we knew any other derivatives of this root. Unfortunately, there is no unambiguous attestation of such a

⁴ Often cited with an initial **ĝ*, which is plainly ruled out by the Balto-Slavic evidence; for an initial satem reflex in Iranian, see section 4 below. The identity of the laryngeal is securely established on the testimony of Greek.

⁵ Or even an overlong one, see section 5.

⁶ The possibly related Armenian 'crane' word, *krownk*, presents problems of its own, see section 8.

root apart from the ‘crane’ word.⁷ Thus, while from the strictly formal point of view, Ved. *gīh*, gen. *giráh* ‘hymn, song of praise’, *grñāti* ‘sings, proclaims, praises’ and Lith. *girti* ‘praise’ might all contain the root **gerh₂-*, it is more customary to derive them from **g^werH-* (**g^werh₁-?*) ‘praise, welcome’ mainly on the strength of the attractive comparison between the Indo-Iranian collocation **grHas d^haH-* ‘offer songs of praise’ (preserved in Vedic and Avestan) and Celtic **bardos* ‘poet, bard’, if from **g^wrH-d^hh₁-ó-* (Campanile 1980).⁸ On the other hand, considering that the Sanskrit word also means ‘voice’, Indic **grH-* may well reflect a homophonic merger of two originally distinct roots, **g^werH-* ‘praise’ and **gerh₂-* ‘cry, sing, call loudly’ (possibly with a nasal present: **grñáh₂-*/**grnh₂-*’).

Needless to say, there is more to the crane’s behaviour than its ability to produce noisy calls. The bird could have been named after any other characteristic trait, for example its spectacular dancing display. To be sure, we do not know any PIE roots with the specific primary meaning ‘dance’ (rather than, say, ‘twist’ or ‘jump’), and it is perhaps too much to expect that such a root should have survived only in the name of a bird species; but it should be noted that a similar objection applies to the interpretation of **gerh₂-* as ‘cry’ (*vel sim.*). Most of the PIE animal names are etymologically obscure anyway, and the reason why it makes sense to decompose the name of the crane into simpler parts is the existence of at least two *different* variants sharing the same morphological core which *looks like* a verb root even if it cannot be securely identified with one known from elsewhere. I shall tentatively accept the *communis opinio* that the shape of root is sound-imitative mainly because there are phonetically similar words for cranes (not necessarily the same species) in other language families, such as Proto-Dravidian **kor-Vnk-/nkk-* (Krishnamurti 2003: 13) and Proto-Uralic **karke*. These are probably independent echoic formations rather than inter-family loans, let alone distant (“Nostratic” or “Eurasian”) cognates (*pace* Bomhard–Kerns 1994: 445).

2. The **gérh₂-no-* word-family

Since the development **gérh₂-no-* > **gerāno-* > **gerano-* > **garano-* is phonologically regular in Celtic (assuming the correctness of Joseph’s assimilation rule⁹), there can be little doubt that Gk. *γέρπavος* and PCelt. **garano-* (or

⁷ Lat. *gruō*, *gruere* ‘cry like a crane’ is obviously denominative, and so does not reflect the primary verb.

⁸ Cf. Schrijver (1995: 143-144), Uhlich (2002: 414) for the discussion of the formal difficulties and how to overcome them.

⁹ **eRa* > **aRa* (Joseph 1982: 55; Schrijver 1995: 75-93).

**garanu-*, cf. Gallo-Lat. *trigaranus* ‘having three cranes’) > MWel. *garan*, OCorrn., Bret. *garan* reflect the same protoform. The most parsimonious reconstruction that captures both of them is **gérh₂-no-* (treated variably as feminine or masculine in both branches). A noun of such a shape could be derived in several different ways. However, if **gerh₂-* is in fact a verb root, we would expect the suffix to express some kind of active semantics (‘crier, singer’), like that of the active participle, rather than a typical deverbal adjective in *-*no-* or the thematic derivative of a deverbal neuter noun in *-*m̥-/*-men-*.¹⁰

One path worth exploring is the derivation of **gérh₂-no-* from a nasal stem (in *-*én-* or *-*on-*). Deverbal stems of this type (e.g. PGmc. **xan-an-* ‘cock’ < **kán-ō(n)* ‘singer’, PIE **tétk-ō(n)* ‘carpenter’) etc. function as agent nouns and may even be etymologically connectible with the *-*e/ont-* participles (Olsen 2004: 219-229). It is therefore possible to posit a hysterokinetic stem, **grh₂-én-*, or an amphikinetic one, **gérh₂-on-*. An adjective of appurtenance could be derived from either of them by adding the thematic vowel to the zero grade of the ablauting noun and infixing a full vowel (**e*) in the root; the substantivisation of this adjective (often signalled by the retraction of the accent from the thematic vowel) would have produced an effectively endocentric derivative (comparable with **deru-* ‘tree’ < **dóru-/dér-*; **deju-* ‘divinity’ < **díeu-/diu-*, etc.).¹¹ Supposing that the original meaning of **gerh₂-* was ‘to cry’, the derivational chain would then look as follows: **grh₂-én-* or **gérh₂-on-/grh₂-n-* ‘crier’ ⇒ **gerh₂-nó-* ‘characterising a crier, strong (of a voice)’ ⇒ **gérh₂-no-* ‘(bird with a powerful voice)’.¹² In fact, the nasal stem required by this scenario may be directly (albeit marginally and accidentally) attested in Greek, provided that Hesychius’ *γέρην* ‘female crane’ is authentic and old.¹³ Both ‘crier’ and (synecdochically) ‘strong voice’ would be plausible names to give to a bird notorious for its vocal performance. To be sure, one would expect the Greek reflex to be **γαρήν* (or **γέρον*), but the form cited by Hesychius may have been contaminated with the more familiar *γέρανος*.

¹⁰ For the possibility of *-*no-* < *-*mn-o-* after a laryngeal, cf. Melchert (2007/2008 [2010]), Nussbaum (2010: 271-272).

¹¹ The full vocalism of the root reflects a PIE (or in some cases post-PIE) *v̥ddhi* process, occurring also in more complex morphological structures, cf. **h₂jeuh₃n-ó-* ‘young’ (OCS *junъ*, Lith. *jáunas*) < **h₂jú-h₃on-*, in this case deriving one adjective from another with practically the same meaning (Rasmussen [1985] 1999: 177-178).

¹² Perhaps with a *u*-stem variant **gérh₂-nu-*, common in this type of noun, and possibly attested in Celtic and Germanic (**garanu-*, **kranu-ka-*), cf. Delamarre (2003: 175).

¹³ The accent marking of the surviving manuscript is particularly unreliable, so oxytone *γερήν* is also possible.

3. Gmc. *krana- etc.

While the Celtic cognates present no special difficulties, the Germanic ones are baffling. Beside the *a*-stem *krana- (OE *cran* ~ **cron*, MHG *kran*) there are weak nouns (**kran-an-*: OSax. *kranō*, OHG *chrano*) and forms with a velar suffix (perhaps diminutives that have lost their expressive semantics): **kran-u/ika-* (OE *cranoc*,¹⁴ OHG *chranuh*, MHG *krenich*, etc.). In North Germanic, the weak-noun variant occurs with an irregular substitution of **t* for the initial **k*: ON *trani* (m.), *trana* (f.). All these derivatives can be regarded as inner Germanic developments; the suffixes they involve are common in animal names.¹⁵ Even the occasional long-vowel variant **krōn-a-* (OSax. *krōn*, cf. Kroonen 2011: 307-308) can be derived from **kran-an-* as a Germanic pseudo-*v̥ddhi* parallel to **xan-an-/xōn-a-* (Ger. *Hahn* vs. *Huhn*).¹⁶ The real mystery is how **krana-* arose in the first place. It cannot directly reflect the *e*-grade visible in Greek and Celtic; nor can it contain a nil-grade **gʰh₂-no-*, which would have yielded PGmc. **kurna-* (cf. PIE **gʰh₂nom* ‘corn’ > Goth. *kaurn*, OE *corn*). Antiquarian reconstructions like **grāno-* > **krana-* cannot be reconciled with what is known today about the PIE phonological system. Interconsonantal laryngeals certainly do not show up medially as **a* in Germanic – they were simply lost in that position (as in the ‘corn’ word above). To sum up, PGmc. **krana-* cannot represent a regular development of **gérh₂-no-* by straight-line historical descent.

Let us therefore consider the possibility that the Germanic word is a loan, mediated by a language in which the **a* between **r* and **n* reflects a vocalised **h₂* (**ǵ₂*). One fairly obvious candidate is Celtic: Germanic has numerous loanwords of Celtic origin (including several that were borrowed before the operation of Grimm’s Law), and since the crane evidently played some interesting if poorly understood roles in Celtic religion and magic,¹⁷ its Germanic name is a

¹⁴ Also, in two instances, with rhotic metathesis: *cornuc*, *cornoch*.

¹⁵ OE **bula* ‘bull’ and *bulluc* ‘bullock’; *duce**, gen.sg. *ducan* ‘duck’; *rudduc* ‘robin’, and many others.

¹⁶ In my opinion, the lengthening in these words reflects the development of a secondary geminate *-*Vn-n-* in thematic derivatives of nasal stems formed to roots ending in **n*: *-*an-n-a-* > *-*āna-* > PGmc. *-*ōna-*. It should therefore be distinguished from the inherited *v̥ddhi* pattern seen in **syékuro-* ⇒ **syēkuro-* > PGmc. **swēyura-* (pace Darms 1978: 130-133). Of course such degemination with compensatory lengthening could only have taken place at a time when geminated nasals were not permissible in the language, so it must be older than the familiar Germanic assimilation *-*nw-* > *-*nn-*.

¹⁷ Suffice it to mention the celebrated Gaulish image of *Taruos Trigaranus* ‘bull with three cranes’ (cf. Greppin 1997) and the Irish ritual of *corrquinecht*, a form of “magical wounding” which involved adopting a crane-like posture while chanting satirical verse (Koch 2006: 484; Bernhardt-Hose 2009: 9-10).

possible *Kulturlehnwort* of the north European Iron Age. The loss of the original root vowel is still puzzling, but not inexplicable. Little as we know about word accentuation in early Celtic, there is some toponymic evidence of penult stress in Gaulish, especially in conservative or peripheral areas (Schrijver 1995: 19-21). Since a root seemingly containing two identical full-grade vowels would have appeared aberrant in terms of pre-Germanic morphological structure, the pretonic **a* of **garános* may have been re-interpreted as an intrusive (phonologically invisible) “copy vowel” and consequently ignored upon borrowing. Across languages, the syncope of an initial syllable occurs most readily if it results in the creation of an unmarked obstruent-sonorant (CR) onset. Numerous familiar examples can be quoted from later Germanic (Olc. *glikr* < **ga-līkaz* ‘similar’, ME *croune* ← Anglo-Norman *corūne* ‘crown’, Ger. *bleiben* < OHG *bi-līban* ‘remain’), from Vulgar Latin/Romance (*directu-* < *directu-* ‘straight, right’), and even from Modern English (*p’lice* < *police*). As a mirror image of this process, vowel intrusion is likely in the same type of onset (Hall 2006: 391); cf. the svarabhakti treatment of CR clusters in some early Runic inscriptions (e.g. *harabanaz* = *H^arab^anaz* for **Hrabnaz* on the Järsberg Rune-stone). It is therefore thinkable that an early Gaulish **garános* was borrowed into Pre-Germanic as **grános*, which then developed regularly into PGmc. **kranaz* (and further gave rise to suffixed derivatives).

4. Iranian **jarna-* (~ **-nu-ka-*)

In Iranian, a possible cognate of **gerh₂no-* occurs in Oss. (Iron) *zyrnæg* ~ *zærnyg* and Pash. *zāṇa-* < **zarna-* (Abaev 1989: 304). Abaev derives *zyrnæg* from *zærnyg* via vowel metathesis; the latter form presumably goes back to Plr. **jarnu-ka-*. The variability of the stem-forming suffix, apparently reflecting **-no-* ~ **-nu-*, is reminiscent of what we see in Celtic (and Germanic). The match would be satisfactory if it were not for the initial **j* in Iranian, pointing to PIE **ǵ*, whereas other satem branches agree in showing a reflex of PIE **g* in the ‘crane’ word-family. Abaev suggests root variation **ger-* ~ **ǵar-* already in PIE,¹⁸ but it seems more parsimonious to propose that Iranian inherited the ‘crane’ word as **jar(H)na-* (~ **-nu-ka-*) and replaced the initial **j* with **j* through contamination with the root **jar-* (Oss. *zæl-* ‘sound’, *zar-* ‘sing’), found in some common bird-names, e.g. in the Iranian terms for ‘swallow’ and ‘partridge’, discussed in Abaev’s entry for Oss. *zærvatykk* | *zærbatug* ‘swallow’ (p. 305).

¹⁸ The latter = LIV₂ **ǵar-* ‘tönen, rufen’.

5. BSl. “*ger(H)ōu- ~ *gerHu-”

It is far from clear how the prototype of the Balto-Slavic ‘crane’ word should be reconstructed. The extended stems found in Baltic (Lith. *gėrvė*, Lat. *dzērve*, OPr. *Gerwe*, as if from **gerHu-ijā*) and in the Slavic variant **žerav(l)jb* (as if from **ger(H)ōu-jo-*) look like secondary thematicisation in comparison with the simpler *i*-stem reflected in the Slavic variant **žeravb*. The curious difference between the vocalism of the Baltic and Slavic forms is hard to explain in terms of Indo-European ablaut, especially if the *i*-stem is original. However, we could be dealing with the scattered relicts of an amphikinetic *ou*-stem (Kortlandt 1985: 120; Kroonen 2001: 260, 307-308), transformed into a Balto-Slavic *i*-stem. To be sure, the very existence of *ou*-stems as a declensional type in PIE is uncertain; the alternation is isolated in Balto-Slavic and its shift to the *i*-stems can hardly be due to the usual reason – namely, the resegmentation of acc.sg. **-m* > PBSl. **-im* as **-i-m* – because the PIE acc.sg. would have been **-ōm* by Stang’s Law rather than **-oum*. The potential advantage of assuming a pattern like **gérh₂-ou-/grh₂-u-*’ is that the weak allomorph seems structurally close to Lat. *grūs*.¹⁹ On the other hand, the analysis of *grūs* as the reflex of a generalised weak-case stem **grh₂-u-* is problematic in itself: the required laryngeal metathesis **-h₂u-* > **-uh₂-* is not normally expected after a syllabic segment.

These difficulties are compounded by the bewildering variety of accentual variants within Slavic. Thus, we have SCr. *žěrāv*, which apparently reflects PSl. **žěrāv* (Stang’s type *c*), with a hard-to-explain non-acute vowel in the second syllable (an acute would have produced a short vowel in Serbo-Croatian); but we also have reflexes pointing to an old acute **žerāv* (type *a*) in the SCr. by-form *žerav*, Sln. *žerjav*; and there is a neoacute **žerāvjb* (type *b*) in Cz. *žeráv*,²⁰ Russ. *žurávl*, gen. *žuravlá* (Kapović 2006: 155-156 [§104]). SCr. *žěrāv* is one of Kortland’s (1985: 112-113; 1997: 26; 2004) showcase examples of a Balto-Slavic circumflex in what he takes to be an inherited lengthened grade. The length of the suffix vowel would have been generalised from the nom.sg. **gérh₂-ōu* (asigmatic in Kortland’s reconstruction) before the word was transformed into an *i*-stem. Jasanoff’s (2004) critique of Kortland’s views about accentual distinctions in Balto-Slavic casts doubt on this explanation. However, Jasanoff’s own view (according to which PIE long vowels as well as vowel-laryngeal sequences yield the Balto-Slavic acute in typical circumstances) fails to explain *žěrāv*, no matter if the vowel goes back to PIE **ō* or to **VH*: in either case we should expect an acute and, consequently, a short vowel in Serbo-Croatian. Jasanoff (2004: 176) proposes (without a detailed scenario) that the

¹⁹ The full grade of the root in Baltic would have to be analogical.

²⁰ In Czech, as opposed to Serbo-Croatian, the old circumflex yields a short vowel.

word has a secondary circumflex somehow acquired on the analogy of root nouns or of nom.sg. forms of sonorant stems like Lith. *akmuõ* ‘stone’.

Is it possible that the circumflex in question is regular? I believe it could be if it originated from vowel contraction. Let us suppose that the word is an old compound in which the final syllable of the first member eventually coalesced with the initial syllable of the second. PSI. **žeravb* would then have to go back to something like **gerh₂o-(H)Vui-*.²¹ The first component is clearly a thematic derivative of the root **gerh₂-*. For semantic reasons, it seems attractive to equate the second component with PIE **h₂áui-s/*h₂úéj-* ‘bird’.²² Such an identification was in fact proposed by Szemerényi (1967: 16), who however did not consider its full ramifications. The reconstruction can therefore be rewritten with more precision as **gerh₂o-h₂auj-* – an endocentric compound with an apophonically invariant first and a potentially ablauting second member: **gerh₂o-h₂auj-/*gerh₂o-h₂u(e)j-*. Assuming a split of the original PIE paradigm into a pair of Balto-Slavic variants based, respectively, on the allomorphs **gerh₂ó-h₂auj-* and **gerh₂ó-h₂uj-* (with the “missing” case-forms supplied analogically and a static accent on the thematic vowel imposed by the first member), we can account for both **žërāṽb* and **žerāṽb*. The former would reflect **gèrāuj-* < **gerHáHauj-*, a form affected by the regular retraction of the PIE ictus from a light medial syllable (by Saussure-Pedersen’s Law in early Proto-Balto-Slavic, see Jasanoff 2008: 349-350) and subsequently by the contraction of **-aHa-* into an overlong (circumflex) vowel. The variant **žerāṽb* is the expected outcome of the weak allomorph **geróuj-* < **gerHòHuj-*, with an acute vowel from laryngeal lengthening. Furthermore, any suffix-stressed derivative of the circumflexed form (e.g. thematicised **gerāuj-* + **-á-*) would have produced a late Common Slavic neoacute when the suffix lost its stressability (hence **žerāṽjb*). The Baltic reflexes could have arisen through the haplological reduction of the weak allomorph extended with a suffix (independently of the Slavic thematicisation, cf. Larsson 2002: 209-210): **gerh₂ó-h₂uj-* (+ **-ah₂*) > **gér(H)ujjaH* > Lith. *gėrvė* etc.²³

²¹ The variant **žbravjb* (> SCr. *ždrāl*) has a reduced vowel of Slavic origin, as in **vbčera* ‘yesterday’ vs. **večer̃b* ‘evening’.

²² A proterokinetic pattern is usually assumed for **h₂auj-* on comparative grounds (Lat. *avis*, Ved. *viḥ*, gen.sg. *veh*), *pace* Schindler (1969), although the evidence for it is indirect and the original alternations are not fully attested in any branch.

²³ The “composition vowel” is often absent from Baltic compounds anyway (cf. Larsson 2002: 212-213, where the accentual consequences of this deletion in determinative compounds are also discussed).

6. PIE **gerh₂ó-h₂au̯i-*

In stark contrast to the commonly occurring bahuvrīhis and verbal-governing compounds, determinative compounds of the *blackbird/ἀκρόπολις* type are so rare in the oldest Indo-European literary traditions that doubts have been raised as to their very occurrence in the protolanguage (Clackson 2002: 166). This rarity, however, may be due to preservation bias dependent on stylistic factors. Even if simple descriptive determinatives were avoided in poetic texts – as though their trivial semantics had offended the taste of the Indo-European “word-weavers” – they may have been common enough in more prosaic usage. Indeed, the type must be as old as anything in PIE if the obviously archaic suffix **-sor-*, as in **sue-sor-* ‘sister’ or **t(r)i-sr-es* ‘three (f.)’ is a once independent word meaning ‘woman, female’. Some of the reconstructible endocentric compounds are mere univerbations – loosely articulated juxtapositions of words, sometimes even retaining their inflectional endings. The showcase example is **dems-potis*, literally ‘house-GEN.SG. master’. It is easy to see why the underlying phrase should have undergone lexicalisation: the reason was its frequent use as a fixed term referring to an important social institution. Lat. *hospes* < **ghosti-pot(i)-* ‘host, guest-master’ illustrates the next step in the formation of descriptive determinatives, with the first member stripped of its inflections.

Although there were many bird species with dark plumage in mediaeval Britain, apparently only one, OE *ōsle* (*Turdus merula*), was so regularly characterised as “black” that the descriptive by-name *blacbrid* had become an established synonym by ca. 1350,²⁴ later taking over from *ousel* and gradually reducing the latter’s status to that of a rare poetic or specialist term. By the same token, it seems that among the numerous noisy birds of Eurasia only one was so prototypically clamorous that the *λεγκός*-type adjective **gerh₂ó-* ‘loud’ was conventionally applied to it by PIE-speakers.²⁵ The fixed phrase **gerh₂ós h₂au̯is* was lexicalised as **gerh₂ó-h₂(a)u̯i-*, synonymous with **gérh₂nos*.²⁶ The morphological structure of the compound eventually lost its transparency, leaving a post-PIE **geróu̯i-* as the starting-point for further developments in the branches that lost not only the laryngeals but also any contrast between plain vowel length and overlength resulting from contraction in hiatus.

²⁴ As witnessed by the *Nominale sive Verbale* glosses (see the entry for *blāc* in MED).

²⁵ *E*-grade thematic adjectives such as **leukó-* ‘shining’ and **leub^hó-* ‘dear’ refer to a quality connected with the action/state described by the verb from which they derive, hence the reconstructed approximate meaning of **gerh₂ó-*.

²⁶ For a neat parallel, cf. Abaev’s (1989: 305) etymology of the Ossetic ‘swallow’ word as **zær-fatyg-* < **zara-pāθuka-* (literally, ‘chirping-flier’).

7. Lat. *grūs*

The patterns of vowel reduction and syncope in Latin and Sabellic indicate that the whole Italic branch must have passed through a stage of word-initial stress. However, as in the case of Germanic, there is evidence of an older stage of Proto-Italic when at least some remnants of PIE accentual distinctions were retained. The most persuasive case for such a stage has been offered by Vine (2006), who shows that the operation of Thurneysen-Havet's Law ($*ou\acute{V} > *au\acute{V}$) was conditioned by the location of the PIE mobile accent rather than the penult/antepenult stress of Classical Latin. More recently, Vine [in press] has extended his demonstration to the vocalism of the Latin reflexes of the suffix of iterative-causative verbs in $*-e\grave{i}e/o-$ and o -stem denominatives in $*-e\grave{i}e/o-$ (yielding $*-i\grave{i}e/o-$ if the first vowel was unaccented). Vine also suggests that accentual mobility in early Italic may sometimes have resulted in initial-syllable syncope, and adduces several possible examples of such a process.

As noted above, the vowel of an unstressed initial syllable can be syncopeated most readily if its deletion produces a permissible obstruent-sonorant cluster. This may explain some problematic correspondences, e.g. Lat. *glōs*, gen. *glōris* 'husband's sister, sister-in-law' : PSl. $*z\grave{b}ly$, gen. $*z\grave{b}l\grave{b}ve$, Gk. $\gamma\acute{\alpha}\lambda\omega\varsigma$ (< $\gamma\acute{\alpha}\lambda\acute{o}\omega\varsigma^*$, Hom. pl. $\gamma\acute{\alpha}\lambda\acute{o}\omega$, thematicised in Greek for unclear reasons, see Meissner 2006: 130-132). If the oldest reconstructible form of the stem was something like $*\acute{g}lH\text{-}\acute{o}\grave{u}$ - (or possibly $*\acute{g}lH\text{-}\acute{o}s$ -), we would expect $*gal$ - rather than gl - in Latin, but if the initial syllable was unstressed in early Proto-Italic, the C_R environment was favourable for vowel syncope. Thus, *glōs* can be added to Vine's list of possible examples. Compare also PSl. $*\acute{z}el\grave{o}db$, Lith. *gilė*, Gk. $\beta\acute{\alpha}\lambda\alpha\nu\omicron\varsigma$, Arm. *kalin*, Lat. *glāns*, gen. *glandis* 'acorn'. Whatever the stem-forming suffixes, the root morpheme shared by the extra-Latin cognates is reconstructible as $*g^weh_2$ -, so depending on the vocalism of the protoform we should expect Lat. $*ve/o-$ or $*val$ -. The actual reflex indicates that a vowel was lost very early between $*g^w$ and $*l$ (resulting in the delabialisation of the stop before a liquid).

The 'crane' word is another possible case of initial-syllable vowel deletion. If the pre-Italic protoform was $*ger\acute{o}\grave{i}u$ -, syncope could have yielded $*gr\acute{o}\grave{i}u$ -, if not by fully regular sound change, then at least via a process known to operate frequently in similar environments. The question now is whether Lat. *grūs* can plausibly be derived from such a form.

The change $*\acute{o}\grave{i}u > *ou > \bar{u}$ (with the syncope of $*i$) has precedents in Latin, cf. $*pr\acute{o}\text{-}\acute{u}id > *pr\acute{o}ud > pr\acute{u}d$ - in *pr\acute{u}dēns* 'foreseeing'. The loss of $*i$ in a final syllable is likewise a familiar phenomenon. To be sure, it is fully regu-

lar only in the *i*-stem endings **-ri-s*, **-r-ti-s*, **-n-ti-s*.²⁷ Still, Lat. *grūs* (almost always feminine, like *avis*) has third-declension case-forms which could with equal ease represent relics of a *uH*-declension (cf. *sūs* ‘pig’), or those of an old *i*-stem. Nom.sg. *gruis* is in fact used by Phaedrus (1st c. CE, in the fable *Lupus et gruis*), though this is surely a secondary development, resulting from the formal ambiguity of words belonging to convergent declension patterns.²⁸ Actual or alleged *uH*-stems are practically indistinguishable from old *i*-stems in Classical Latin. Even potentially diagnostic forms cannot be trusted, as nouns easily vacillated between synchronically similar types. The archaic Latin reflex of a hypothetical Proto-Italic form such as dat./abl.pl. **g(e)rō̄ui-βos* ‘to/from cranes’ would have lost its **i* via regular syncope in a medial syllable (becoming **grouβos* > **grūβus*), only to acquire a new /i/ restored after those *i*-stems that had resisted medial syncope (*ovis* ‘sheep’, dat./abl.pl. *ovibus* ⇒ *gruibus*).²⁹ Cf. *sū̄βus* ~ *suibus* ‘to/from pigs’ in a paradigm which is specifically *not* that of an inherited *i*-stem.³⁰

The comparison of *novus* < **nouos* < **néuos* ‘new’ and *iūs* < **ious* < **jouos* < **jéuos* ‘law’ shows that words containing the same segmental sequence may diverge with respect to vowel syncope, presumably because of their different morphological structure and, consequently, different inflectional properties. It is likely that the trisyllabic case forms of the *es*-stem **jéuos* (**jéu-es*) were more susceptible to phonetic contraction than the invariably disyllabic forms of the *o*-stem **néuo-*, hence different analogical pressures exerted on the nominative singular. Throughout the history of Latin, from Proto-Italic to the post-Classical period, vowel reduction and deletion operated in a number of waves, targeting short vowels in different prosodic and segmental environments at different chronological stages, sometimes in a regular fashion, sometimes sporadically (Nishimura 2008). Syncope affected **i* more often than any other vowel, and the position after a liquid or semivowel was its frequent locus.³¹ I therefore posit the development of **grō̄uis* to **grouis* and eventually *grūs*, either directly or with the help of analogy. If such a scenario is plausible, Lat. *grūs* is not a special development of an old (*o*)*u*-stem with unusual vocalism and/or la-

²⁷ For example, *uter* ‘leather bag’ < **ud-ri-s*, *mors* ‘death’ < **m̄r-ti-s*, *mēns* ‘mind’ < **m̄r-ti-s*; but also e.g. in *dōs* ‘dowry’ < **doh₃-ti-s*.

²⁸ Note the prescription *grus non gruis* in the *Appendix Probi*, castigating what was doubtless a virally expansive pattern at the time (Palmer 1987: 161).

²⁹ The preferred environment for medial syncope in archaic Latin was the position after a heavy syllable, according to Mester (1994: 37-43).

³⁰ Of course, the widely generalised dat./abl.pl. of *i*-stems is also the source of Lat. *-ibus* in consonant-stems (*rēgibus*, *hominibus*, *operibus*, etc.).

³¹ Note *plūs* ‘more’ < OLat. *plous*, possibly from **plouis* < **pleuis-* < **pleh₁u-* + **-is-* (Weiss 2009).

ryngeal metathesis, but a straightforward cognate of the Balto-Slavic ‘crane’ word.

8. Arm. *krōwnk*

The hypothetical outcome of **gerōyi-* (or any of its predecessors) in Armenian is difficult to predict in detail, given our incomplete knowledge of phonological and morphological developments between PIE and Proto-Armenian. Applying the uncontroversial sound changes, however, one would expect a pre-Arm. stem like **kerūyi-* or rather **kerūyu-*, following Schindler’s suggestion that **yi* > **yu* (cf. the shift of PIE **h₂ayī-* to the Armenian *u*-declension). The pretonic **e* of the first syllable would have been retained. An intervocalic **y* normally yields Armenian /g/, but according to a proposal made by Rasmussen ([1984] 1999: 151-152; [1987] 1999: 227) this “hardening” occurred earlier in the environment after **u* than in other positions – in fact, before the Armenian Consonant Shift, so that the resulting stop eventually changed into /k/.³² If Rasmussen is right, we might expect PArm. **kerūki/u-* > **kerūk*. This is as far as the known “regular” changes can take us. The outcome is reasonably similar to the actual word for ‘crane’ in Armenian, but there are two problems with the latter: the unexpected nasal before the final stop and the attested *kr-* vs. predicted **ker-*.

Because of the general phonetic reduction of unstressed final syllables in Armenian, processes operating near the end of the word are notoriously hard to reconstruct. A seemingly unetymological /n/ appears in a number of Armenian nouns and in several cases may conceivably go back to the PIE acc.sg. ending **-m*, generalised in some paradigms at the time when the accusative singular was becoming syncretic with the nominative in Proto-Armenian.³³ The metathesis of final /-kn/ does occasionally happen in Armenian. For example, Class.Arm. *armowkn* ‘elbow’ has modern cognates which, in most dialects, reflect metathesised **armunk*.³⁴ Though in such cases the ultimate origin of the excrescent

³² In this way, Rasmussen accounts for the puzzling /k/ in words such as *mowkn* ‘mouse’ and *jowkn* ‘fish’.

³³ There is currently no consensus on what exactly happened to final nasals in different environments in the prehistory of Armenian, and the extra /n/ can be explained in various ways (for example, as a trace of a derivational suffix such as **-nt*). However, it is possible that PIE **-m/-n* was reflected as a nasal not only after consonants (as in *ewt’n* ‘7’ < **septm*) but also after high vowels (including those resulting from post-PIE sound changes, as in Arm. *jiwn* ‘snow’ < **zi(y)un* < PIE **ǵ^hiǵōm*), cf. Olsen (1999: 794).

³⁴ As an example of nasal anticipation and metathesis in a similar context, cf. Class.Arm. *krowkn* ~ *krownkn* ‘heel’, with modern dialectal forms derived from **krunk*.

nasal may be unclear, there are enough parallel examples to show that we are dealing with an inner Armenian innovation. Consequently, there are no unsurmountable obstacles to positing **krúk* as the hypothetical Proto-Armenian shape of the ‘crane’ word.

The initial cluster presents two difficulties. First, the rhotic here is a fortis trill (Arm. *r* = IPA [r]) rather than the normally expected tapped or approximant outcome of intervocalic **r* (that is, Arm. *r* = IPA [r ~ ɾ]). Secondly, the non-high vowel of **kerúk* could be expected to survive (only pretonic **i* and **u* were regularly lost). As for the trill, its usual sources in Armenian are the clusters **-rs-* and **-sr-* (with the sibilant subsequently lost) and **r* followed by **n* (with the nasal preserved in most positions). Neither of these possibilities seems available in the case of the ‘crane’ word. However, we have one other potential source: there is fairly solid evidence that the Armenian outcome of PIE intervocalic **-rh₂-* (specifically with **h₂* rather than just any laryngeal) is *-r-* (Olsen 1989: 16-20; 1999: 780). If so, not only is the *-r-* of *krownk* expected: it also furnishes additional proof that a vowel was lost between the consonants of the initial cluster (which we may independently infer from the observation that the onset did not change to **erk-*). Incidentally, the trilled reflex militates against reconstructions like **g(V)ruh₂-*, with laryngeal metathesis.

The last remaining obstacle to analysing Arm. *krownk* as a reflex of **gerh₂o-h₂ai-* is the missing vowel of the initial syllable. A zero grade **grh₂-* would not mend the reconstruction (it would yield **kar-* or perhaps **kař-* prevocally, but PArm. **a* is normally retained in this position). A lengthened grade might work formally (**gēr_h₂-/*gōr_h₂- > *kiř-/*kuř- > kř-*), but there is no independent extra-Armenian evidence for a PIE lengthened grade in the ‘crane’ word (*pace* Szemerényi 1967: 16). We are left with two possibilities. Either, as in Latin, the loss of pretonic **e* occurred sporadically in *CeR*-type sequences (contrary to *communis opinio*), or the **e* became PArm. **i* or **u* via irregular vowel assimilation (e.g. **e...u > *u...u*). The latter solution is problematic because Proto-Armenian high vowels were affected by a process of dissimilatory umlaut ([+high] > [-high]/__C[+high]) which operated between the syncope of final syllables and the loss of pretonic high vowels (Olsen 1999: 801-805). A hypothetical **kuřúk* would have become **korúk*, and the lowering of the vowel would have protected the initial syllable from syncope. Instead, I suggest that **kerúk(u)* became **kařúk* and then **křuk*. A similar development can be proposed for several other Armenian words that show an unmetathesised *CR*-onset (such as *glowx* ‘head’ and *srownk* ‘leg, shank’).³⁵ According to this scenario the

³⁵ Olsen (1999: 43-44) proposes that an original dorsal-liquid onset (which she reconstructs in these words) was broken up with a weak anaptyctic vowel which was subsequently syncopated (**KRu > *K_vRu- > *KRu-*. The only purpose of this vowel is to make a *deus ex machina* appearance just at the right time to block liquid metathe-

Armenian development was more or less as follows: **gerh₂o-h₂(a)ui-* > **gerrōui-* > **gerrūuu-* > **gerrūgu-* > **kerūku-* > **kərūk* > **krūk*.³⁶ The “epenthetic” nasal may have originated in the pre-Arm. acc.sg. **gerrūgum* > **kerūkun* > **kərūkn* > *krownk*.

The purpose of this section is to point out that Arm. *krownk* is a possible direct cognate of the ‘crane’ term found in Balto-Slavic and Latin. The relative insecurity of some aspects of reconstructible Proto-Armenian makes it impossible to clarify every detail, so the proposed derivation must be regarded as tentative. A large dose of scepticism is recommended in such cases, especially when the words we attempt to etymologise come dangerously close to being cross-linguistic onomatopoeias. For example, Modern English used to have the now-obsolete verb *crunk* (also *crunkle*), cf. OIc. *krunka* ‘croak’. It is defined in Samuel Johnson’s dictionary (Johnson 1785: *TO CRUNK – TO CRU`NKLE*) as ‘To cry like a crane’, and the Renaissance lexicographer Withals (1608, quoted by Nares 1859: 210) thus illustrates its use: ‘The crane *crunketh*, gruit grus’ (note the pervasive alliteration). While Eng. *crunk* can hardly be cognate with Arm. *krownk*, their striking resemblance is a cautionary reminder of the possibility that the Armenian word might be a mere onomatopoeic coinage of no great antiquity. Still, if *krownk* is of PIE age, there is no need to multiply reconstructions beyond necessity: the protoform reconstructed on the basis of Balto-Slavic evidence accounts for the Armenian data as well.

9. Conclusion

As has been shown, the attested Indo-European names of the crane can be traced down to two protolanguage variants:

- (a) **gérh₂-no-*
- (b) **gerh₂ó-h₂aui-*

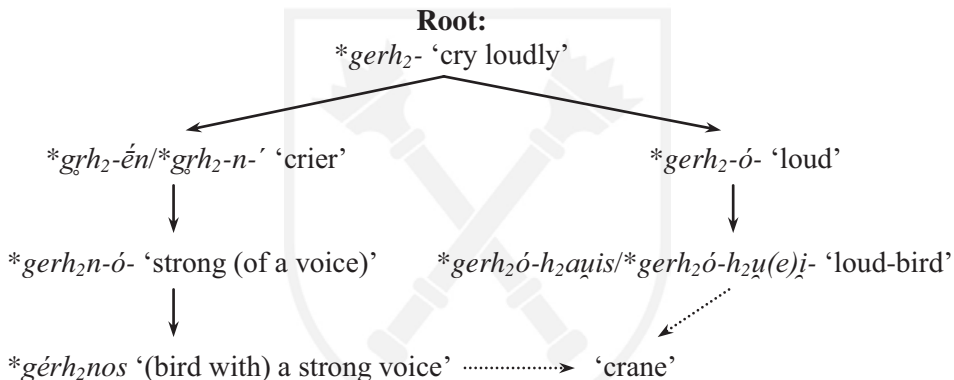
The two lexemes seem to have been fully synonymous: they referred to the same species of bird and apparently ignored any intraspecific differences (including biological sex). The existence of other synonymous by-forms (**gh₂-én-* and **gérh₂-nu-*) already in the protolanguage is possible and supported (though not conclusively), by some of the comparative evidence. The shorter variant

sis (**KR* > **eRK*). In my analysis, the second step (the syncope of a weak vowel) is the same as in Olsen’s but the *KR*-onset does not date back to PIE, so the zig-zag derivation is avoided. This facilitates external comparison with, say, Slavic **golva* ‘head’ and **žerav(j)b*.

³⁶ The weakening of pretonic **e* could have taken place earlier than suggested here. The complete loss of the vowel must postdate *CR*-metathesis, but other than that, the relative chronology of this reduction is not critically important for the proposed scenario.

**gérh₂-no-* is reflected not only in Greek and Celtic, but also in Iranian, where, as a result of semantic contamination, the reflex of **ǵ* replaced that of **g* (palatalised before a front vowel) at an early date. The Germanic term is related but best explained as a loan from Celtic. The compound variant has left reflexes in Balto-Slavic, Latin and Armenian. Such a geographical distribution cuts across identifiable language clades and areal clusters, so it probably results from the accidental retention of either the one or the other variant in the proto-branch languages. In a situation where two synonyms competed for the same meaning, with little room for semantic differentiation, the long-term survival of both in a single branch would have been unlikely. The evolution of the compound variant has produced some difficult comparanda because of the cross-linguistic tendency for compounds to undergo phonetic compression and morphological fusion. To complicate matters further, the second member was an ablauting stem (the PIE ‘bird’ word), highly prone to analogical levelling and reshaping.

Here is a summary of the proposed derivations within Proto-Indo-European (ignoring, for simplicity, some of the alternative possibilities discussed in the text):



I hope to have shown that in the case of the Indo-European ‘crane’ words we can go beyond a vague “root etymology” and reconstruct the exact form of the etyma in question, complete with their derivational history.

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References

- Abaev, Vasilij Ivanovič. 1989. *Istoriko-ëtimologičeskij slovar' osetinskogo jazyka*, vol. IV. Leningrad: Nauka.
- Bernhardt-Hose, Phillip A. 2009. "Warriors, words, and wood: oral and literary wisdom in the exploits of Irish mythological warriors". *Studia Celtica Fennica* 6: 5-19.
- Bomhard, Alan R. – John C. Kerns. 1994. *The Nostratic Microfamily: A Study in Distant Genetic Relationship*. Berlin – New York: Mouton de Gruyter.
- Campanile, Enrico. 1980. "Per l'etimologia di celt. *bardos". *Studi e Saggi Linguistici* 20: 183-187.
- Clackson. 2002. "Composition in Indo-European languages". *Transactions of the Philological Society* 100.2: 163-167.
- Darms, Georges. 1978. *Schwäher und Schwager, Hahn und Huhn. Die Vřddh-Ableitung im Germanischen*. München: Kitzinger.
- Delamarre, Xavier. 2003. *Dictionnaire de la langue gauloise* (2nd edition). Paris: Errance.
- Greppin, John A. C. 1976. "Skt. *Garuđa*, Gk. *γέρavoc*: The battle of the cranes". *Journal of Indo-European Studies* 4.3: 233-244.
- 1997. "Crane". In James P. Mallory – Douglas Q. Adams (eds.), *Encyclopedia of Indo-European Culture*, London – Chicago: Fitzroy Dearborn, 140-141.
- Hall, Nancy. 2006. "Cross-linguistic patterns of vowel intrusion". *Phonology* 23.3: 387-429.
- Jasanoff, Jay H. 2004. "Balto-Slavic accentuation: Telling news from noise". *Baltistica* 39.2: 171-177.
- 2008. "The accentual type *vėđō, *vedeti and the origin of mobility in the Balto-Slavic verb". *Baltistica* 43.3: 339-379.
- Johnsgard Paul A. 1983. *Cranes of the World*. Bloomington, IN: Indiana University Press. [Electronic edition: <http://digitalcommons.unl.edu/bioscicranes/>].
- Johnson, Samuel. 1785. *A Dictionary of the English Language* (6th edition), vol. I. London: J. F. and C. Rivington, L. Davis, T. Payne and Son, W. Owen, T. Longman [and 21 others].
- Joseph, Lionel S. 1982. "The treatment of *CRH and the origin of CaRa- in Celtic". *Ériu* 33: 31-58.
- Kapović, Mate. 2006. "Rekonstrukcija baltoslavenskih osobnih zamjenica s posebnim osvrtom na naglasak". Unpublished PhD dissertation, University of Zadar.
- Koch, John Thomas. 2006. *Celtic Culture: A Historical Encyclopedia*. Santa Barbara, CA: ABC-CLIO.

- Kortlandt, Frederik. 1985. "Long vowels in Balto-Slavic". *Baltistica* 21.2: 112-124.
- 1997. "PIE. lengthened grade in Balto-Slavic". In *Festschrift for Eric P. Hamp*, vol. II, 26-31.
- 2004. "Balto-Slavic accentuation: Some news travels slowly". *Baltistica* 39.1: 7-9.
- Krishnamurti, Bhadriraju. 2003. *The Dravidian Languages*. Cambridge: CUP.
- Kroonen, Guus. 2011. *The Proto-Germanic n-Stems: A Study in Diachronic Morphophonology*. Amsterdam – New York: Rodopi.
- Kurath, Hans – S. M. Kuhn *et al.* (eds.). 1952-2001. *Middle English Dictionary*. Ann Arbor: University of Michigan Press. [Electronic edition: <http://quod.lib.umich.edu/m/med/>].
- Larsson. 2002. "Nominal compounds in the Baltic languages". *Transactions of the Philological Society* 100.2: 203-231.
- LIV₂ = Rix 2001.
- MED = Kurath – Kuhn *et al.* 1952-2001.
- Meissner, Torsten. 2006. *S-Stem Nouns and Adjectives in Greek and Proto-Indo-European. A Diachronic Study in Word Formation*. Oxford: OUP.
- Melchert, H. Craig. 2007/2008 [2010]. "Neuter stems with suffix *-(e)n- in Anatolian and Proto-Indo-European". *Die Sprache* 47.2: 182-191.
- Mester, R. Armin. 1994. "The quantitative trochee in Latin". *Natural Language and Linguistic Theory* 12: 1-61.
- Nares, Robert. 1859. *A Glossary; or, Collection of Words, Phrases, Names, and Allusions to Customs, Proverbs, etc.* [A new enlarged edition by James O. Halliwell and Thomas Wright], vol. I. London: John Russell Smith.
- Nishimura, Kanehiro. 2008. *Vowel Reduction and Deletion in Latin: Effects of Stress*. Ann Arbor, MI: ProQuest LCC.
- Nussbaum, Alan J. 2010. "PIE -Cmn- and Greek *τῶνής* 'clear'". In Ronald Kim – Norbert Oettinger – Elisabeth Rieken – Michael Weiss (eds.), *Ex Anatolia Lux. Anatolian and Indo-European Studies in Honor of H. Craig Melchert on the Occasion of His Sixty-Fifth Birthday*, 269-277.
- Olsen, Birgit Anette. 1989. "Three notes on Armenian historical phonology". *Annual of Armenian Linguistics* 10: 5-25.
- 1999. *The Noun in Biblical Armenian – Origin and Word Formation*. Berlin – New York: Mouton de Gruyter.
- 2004. "The complex of nasal stems in Indo-European". In James Clackson – Birgit Anette Olsen (eds.), *Indo-European Word Formation*, Copenhagen: Museum Tusulanum Press, 215-248.
- Palmer, Leonard Robert. 1987. *The Latin Language*. London: Faber and Faber.
- Rasmussen, Jens Elmegård. 1984. "Miscellaneous morphological problems in Indo-European languages III". *APILKU. ArbejdsPapirer fra Institut for*

- Lingvistik Københavns Universitet* 4: 135-149. [Reprinted in Rasmussen 1999, 146-156].
- 1985. “On Hirt’s Law and laryngeal vocalization”. *APILKU. Arbejds-Papirer fra Institut for Lingvistik Københavns Universitet* 5: 179-213. [Reprinted in Rasmussen 1999, 170-198].
- 1987. “On the status of the aspirated tenues and the Indo-European phonation series”. *Acta Linguistica Hafniensia* 20: 81-109. [Reprinted in Rasmussen 1999, 216-243].
- 1999. *Selected Papers on Indo-European Linguistics: With a Section on Comparative Eskimo Linguistics*. Copenhagen: Museum Tusulanum Press.
- Rix, Helmut (ed.). 2001. *LIV: Lexikon der indogermanischen Verben. Die Wurzeln und ihre Primärstambildungen* (2nd edition). Wiesbaden: Reichert.
- Schindler, Jochem. 1969. “Die idg. Wörter für ‘Vogel’ und ‘Ei’”. *Die Sprache* 15: 144-167.
- Schrijver, Peter. 1995. *Studies in British Celtic Historical Phonology*. Amsterdam – Atlanta: Rodopi.
- Szemerényi, Oswald. 1967. “Slávanskaja étimologija na indoeuropejskom fone”. *Voprosy jazykoznanija* 1967/4: 3-25.
- Uhlich, Jürgen. 2002. “Verbal governing compounds (synthetics) in Early Irish and other Celtic languages”. *Transactions of the Philological Society* 100.3: 403-433.
- Vine, Brent. 2006. “On ‘Thurneysen-Havet’s Law’ in Latin and Italic”. *Historische Sprachforschung* 119: 211-249.
- [in press]. “PIE mobile accent in Italic: further evidence”. To appear in Birgit Anette Olsen – Jens Elmegård Rasmussen (eds.), *Proceedings of the Conference ‘The Sound of Indo-European’*, Copenhagen: Museum Tusulanum Press.
- Weiss, Michael. 2009. *Outline of the Historical and Comparative Grammar of Latin*. Ann Arbor, MI – New York: Beech Stave Press.