On the homonymy of ‘put’ and ‘suck’ in Proto-Indo-European

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Abstract

PIE $*d^heh_1-$ ‘to put, make’ and $*d^heh_1(i-)$ ‘to suck (mother’s milk)’ look like two separate verbal roots with a very different meaning, which happen to be homonymous. Yet recent investigations have shown that the morphological behaviour of both verbs is more similar than was previously thought. This article offers a re-evaluation of the evidence and explores the options to bridge the semantic gap between ‘put’ and ‘suck’.

Keywords

Proto-Indo-European – verbal system – syntax – put – suck – homonymy

1 Introduction

The communis opinio distinguishes two different PIE roots with an identical shape, viz. $*d^heh_1-$ ‘to put; to make’ and $*d^heh_1(i-)$ ‘to suck, suckle (mother’s milk)’, e.g., Pokorny 1959: 235–242 $dhē-$ vs. $dhē(i-)$, EWAia 1: 777, 783 $DH\bar{A}$ vs. $DHAY^l$, Mallory/Adams 1997: 472, 556 $*d^heh_1-$ vs. $*d^heh_1(i-)$, LIV² 136–139 $*d^heh_1-$ vs. $*d^heh_1(i-)$. According to Jasanoff (2003: 100), the two homophonous roots present “a completely different morphological profile”. From the existing literature it transpires that there are two main reasons to regard these verbs as two separate roots. Firstly, to many the meanings ‘put’ and ‘suck’ just seem to be too far removed from each other to warrant a common origin. Secondly, it is often understood that an i -suffix (more traditionally termed “root enlargement”) is mainly found in ‘to suck’ but hardly ever in ‘to put’. In the past, the frequent but poorly understood presence of radical or post-radical $*i$ has led

to the reconstruction of a so-called long diphthong **ēi* in the root for 'to suck'. This was regarded as a different phonetic/phonemic sequence than simple **/ē/* + **/i/*: the sequence **ēi* could sometimes—under unclear conditions—lose its **i*, as first argued by Schulze 1885, and subsequently adopted, among others, by Brugmann 1897: 203, and Hirt 1921: 66–69. The acceptance of the laryngeal theory in the course of the twentieth century rendered this view obsolete, so that most scholars now assume that 'to suck' consists of a root in the form **d^{he}h₁-* plus a present stem suffix **-i-* (Kuryłowicz 1935: 40f., Benveniste 1936: 167–169, Jasanoff 1979: 89, Mayrhofer 1986: 173–175), even if no agreement has been reached yet on all the details (Lindeman 1997: 118–121).

Of course, the existence of two homonymous roots is quite conceivable. Since Pre-PIE sound changes may have merged sounds which were distinct at an earlier stage, it would only be natural if we found some degree of homonymy in PIE. Other PIE roots which have an identical form but which are regarded as two different etymological entities, e.g., by LIV², are **med-* 'to measure' and 'to get satiated', **peuH-* 'to cleanse' and 'to rot', and **teh₂-* 'to steal' and 'to melt'.

Yet did 'put' and 'suck' really have a completely different morphological profile in PIE? Our handbooks admit that the roots coincide in two important formal aspects: they share a radical verb stem (root aorist **d^{he}h₁-* 'put' versus root present or aorist **d^{he}h₁-* 'suck') and reduplicated formations, viz. a reduplicated present for 'put' in all languages and a reduplicated present for 'suck' in Anatolian (Mallory/Adams 1997: 382). Recent investigations have furthermore proposed the reconstruction of an original *i*-present meaning 'to put' on the basis of evidence from several branches of Indo-European. It seems worthwhile, therefore, to reassess the evidence for both roots and to reconsider the semantic gap between them.

Beforehand we must settle a terminological matter, viz. the exact meaning of the terms used for 'suck'. Depending on the different agents and experiencers of the action, a three-way semantic distinction can be made between (1) 'to suck milk from a teat', with a new-born mammal as the agent (German *saugen*, Dutch *zuigen*, French *sucer*), (2) 'to nurse, suckle, make a young suck milk from a teat', with the mother or wet-nurse as the agent and the new-born as experiencer (German *säugen*, Dutch *zogen*, French *allaiter*), and (3) 'to lactate, have milk that can be sucked by a young', with the mother as experiencer (cf. Gamkrelidze/Ivanov 1995: 487, Martirosyan 2010: 231). Since the English glosses 'suck' and 'suckle' are used promiscuously for both meanings depending on the author, and since 'suckle' is ambiguous as to its valency (transitive or intransitive), I will define the terms in the following way, which has no other goal but to provide clarity within the context of this paper: 1=suck, 2=make suck, 3=lactate. Of course, the distinction is not always expressed in the lexicon of individual

languages. A fourth term that plays a linguistic role is (4) the milk-giving organ, the ‘udder’, ‘teat’ or ‘breast’, which can also be regarded as agentive. Finally, there is (5) the result of milking, basically ‘milk’.

Another preliminary clarification is in place regarding my position in the debate on the form and function of verbal *i*-stem derivatives and on the reconstruction of the PIE verbal system in general. I assume the existence in PIE of athematic *i*-presents with ablaut of the type **CC-éi-* in the singular and **CC-i̯-* in the plural. Some of the best known instances of roots with and without an *i*-suffix are **d^heh₁-* vs. **d^heh₁-i-* ‘to suck’ (as discussed in this paper), **kreh₁-* vs. **kreh₁-i-* ‘to sift’, **peh₂-* vs. **peh₂-i-* ‘to protect’, **peh₃-* vs. **peh₃-i-* ‘to drink’, and **seh₁-* vs. **seh₁-i-* ‘to let go’ (cf. Rasmussen 1989: 19–63). Following the work by Kloekhorst 2006 and Kloekhorst 2008, Lubotsky 2011, de Vaan 2011, and Kloekhorst & Lubotsky 2014, I furthermore acknowledge the existence of a verbal category with *o*/zero ablaut of the suffix **-i-*, sg. **CC-ói-*, pl. **CC-i̯-*. It represents an Early PIE intransitive verbal stem with *o*/zero-ablaut (which one may call a “perfect” or a “prestage of the canonical PIE perfect”) derived from an earlier athematic *i*-present (Kortlandt 2010: 43, 373–382). The stems in **CC-ói-*, **CC-i̯-* surface either as a present, as in the Hittite present type *dāi/tiānzi-* (Kloekhorst 2006, 2008), or as a perfect, as in Indo-Iranian (Lubotsky 2011). There is no agreement on which meanings the *i*-suffix may have conveyed in Pre-PIE or Early PIE, though chances are that it added an imperfective or progressive aspectual meaning to the meaning of the root. Kortlandt (2010: 378) argues that **(o)i-* “apparently contributed a sense of directionality”, and surmises that it may in origin be identical with the verbal root for ‘to go’.

On the syntactic level, I assume that Pre-PIE had an ergative case system, in which the agent of a transitive clause was marked differently from the agent of an intransitive clause, the latter sharing the marking of a patient (Vaillant 1936; Kortlandt 2010, *passim*; Willi 2018: 504–540). This assumption explains, among other things, why the PIE nominative equals the accusative in the neuter gender: these were inanimate nouns which did not normally occur as an agent. This theory entails that the PIE nominative continues the Pre-PIE endingless absolutive (the patient marker). The Pre-PIE genitive ending **-s* was the ergative marker for animates, which became the animate nominative marker **-s* in canonical PIE (Beekes 1985). The PIE instrumental ending **-t*, which is preserved in Anatolian and became “ablative” **-d* but also, by lenition before obstruents, “instrumental” **-h₁* (probably [ʔ]) elsewhere, served as the ergative of inanimate nouns (Kortlandt 2010: 40). The accusative marker **-m* probably goes back to an earlier allative affix of Indo-Uralic.

As to the verbal conjugation, I adopt the view that (what became) the athematic present and aorist featured in transitive verbs (Kortlandt 2010: 391),

corresponding to what became the Hittite *mi*-inflexion, whereas the thematic present and the perfect were used for intransitive verbs, corresponding to the subsequent Hittite *hi*-inflexion. At this early stage, the subject of athematic verbs indicated the transitive agent. In the thematic present and the perfect, the subject referred to the experiencer or the patient of the action, whereas the agent was expressed by means of the dative (if animate) or the instrumental (if inanimate), cf. Kortlandt 2010: 102, 399, Barðdal *et alii* 2014.

In the following sections I will summarise the evidence for the meanings 'put' resp. 'suck' in reflexes of **d^heh₁-* in the main branches of Indo-European, before reaching a conclusion in the final paragraph. As far as this survey concerns undisputed reconstructions for **d^heh₁-* 'to put', I will remain brief and the evidence will not be treated exhaustively.

2 Anatolian

a. 'put'. Hittite *tē-^{zi}* 'to speak, state' continues the PIE root aorist **d^héh₁-*, **d^hh₁-* (Kloekhorst 2008: 857–858), whereas the verb 3sg. *dāi* 'puts, places', 3pl. *tījanzi* 'they put' continues a PIE *i*-present **d^hh₁-ói-*, **d^hh₁-i-* (Kloekhorst 2006, 2008: 806–809). A reduplicated derivative of the latter is Hitt. *titta-i/titti-* 'to install, assign' (Kloekhorst 2008: 881–882, see also Melchert 2018). The transitive meaning of *dāi*, *tījanzi* can be explained with Kortlandt 2010: 374–381 from an original intransitive meaning with directionality of the *i*-suffix, hence 'there was putting (to him)', with replacement of the dative experiencer by the nominative subject 'he was putting', 'he put'. This also explains the use of reduplication to arrive at perfective *titta-*.

b. 'suck'. The noun Hitt. *tēta(n)-*, Luw. *tītan-* 'breast, teat' reflects **d^héh₁-i-to-* 'that which is sucked' according to Kloekhorst 2008: 875–877, whereas Cuneiform Luwian *titaïmma/i-* adj. 'suckling' and Lycian *tideime/i-* 'son, child' presuppose, in his view, a Proto-Luwian stem **tidojī-* from a derived present **d^heh₁i-to-je/o-*. Melchert (2018: 28) regards the adjectives as possessive denominals to the noun 'teat'. The use of *titta-/titti-* 'to install' in the context of nursing in the passage KBo 14,98 i

(16) [x - x - x - x - x - *h*]u²-un GÜB-la-an ti-e-ta-a(n)=š-še-et

(17) [x - x - x - x - x - x -]x DUMU.MUNUS ti-it-ti-iš-ke-ez-zi

[She ...-s] her left breast [and] installs her daughter [to it]

Text and translation as per KLOEKHORST 2008: 876; similarly MELCHERT 2018:

can be interpreted in two ways: either it retains a trace of the earlier use of **d^héh₁-(i-)* in the context of nursing, or it just happens to be a trivial instance of the use of ‘install’.

3 Tokharian

a. ‘put’. Tokharian *tās-* ‘to put’ (Hackstein 1995: 56–63, Malzahn 2010: 641–644, 650) continues a PIE *s*-present **d^heh₁-s-*, **d^hh₁-s-*, whereas ToA subj. *tā-*, ToB *tätt-ā* reflects a PIE reduplicated present.

b. ‘suck’. The stems **d^heh₁-* and **d^heh₁-i-* are not attested in Tokharian.

4 Indo-Iranian

a. ‘put’. We find an ablauting root aorist (Skt. *ádhāt*, *ádthur*, Av. *-dāt*), a reduplicated present with *e*-reduplication, PIr. **d^há-d^haH-*, **d^hád^hH-*, and an *s*-present PIr. **d^haH-s-*, as well as a (productive) reduplicated perfect.

The perfects Skt. *dīdhaya* 1sg., Avestan *ā-diḍaīia* ‘to consider, perceive’, with derived nouns such as Skt. *dhí-* f. ‘vision, poetry, praise’ and Av. *daēnā-* ‘view, creed’, are explained from an *i*-perfect **d^hh₁-ói-*, **d^hh₁-i-* to ‘put’ by Lubotsky (2011: 122) and explicitly regarded as cognate with Hittite *dāi*, *tijanzi* ‘put’.¹ He assumes secondary introduction of reduplication followed by metathesis of the zero-grade **d^hh₁-i-* to **d^hiH-* yielding the forms in *-ī-*. As stated by Lubotsky, the semantic change from ‘to put [a thought] into someone’ (e.g., by the gods) to ‘inspire, reveal’ is unproblematic, cf. German (*jemandem etwas*) *eingeben* ‘to inspire, induce (someone to do something)’. Hence, the 3sg. *i*-perfect **d^hh₁-ói-e* **X_[dat.]*, ‘there has been putting to X’, came to mean ‘it has occurred to X’, with active semantics ‘X has perceived’.

b. ‘suck’. The full grade **d^héh₁-* is found in the infinitive Skt. *dhātave* ‘to drink’ (RV) and in the root compound *payo-dhā-* ‘sucking milk’ (EWAia 1: 776, Scarlata 1999: 273), said of calves. The appurtenance of the perfect *dadhúr* RV 9.99.3 to ‘put’ (thus Kümmel 2000: 275) or ‘suck’ (Jamison/Brereton 2016: 1345) is disputed. Skt. *dháyati* ‘to suck’ (trans./intrans., cf. Lubotsky 1989: 95), with its causative *dhāpayati* ‘to make suck’, and Ossetic *dæjyn* ‘to suck’ (Cheung 2007:

1 An alternative connection of the IIr. words for ‘to see’ and ‘thought’ is with Greek *σημα* ‘sign’ (if from **d^hieh₂-mn*) and *θεῖα* ‘sight, aspect’ < **θῑḗā* (if from **d^heh₂-u-*), cf. Beekes 2010 11: 1323 and Forte 2015. They would then derive from an otherwise unknown PIE root **d^heh₂-*.

47) may represent the *e*/zero-ablauting *i*-present **d^hh₁-éi-* / **d^hh₁-i-*. The existence of an *i*-suffixed verb is also presupposed by the Skt. ptc. *dhītá-* 'sucked' (**d^hh₁-i-to-*) and by Skt. *dhenú-* 'milk cow', Av. *daēnu-* 'female animal, cow', from **d^hh₁-oi-nú-* or **d^hh₁-ei-nú-*. The latter may or may not be a derivative of the causative-factitive nasal present **d^hh₁-(o)i-n-* to which Skt. *dhinoti* (YV) 'feeds, satiates' could go back. The reconstruction of Skt. *dhārú-* (AV) 'sucking' as **d^heh₁-lu-* is regarded as questionable by EWAia 1: 789 but Mayrhofer does classify the adjective as a derivative of *DHAY¹*.

A reduplicated noun PIE **d^hé-d^hh₁-* 'sucked out, milked out', whence resultative 'milk' (Toporov 1975: 285; see Oettinger 2012 for deverbal reduplicated nouns in general), can be reconstructed for Skt. *dádhi-* n., obl. *dadhán-* 'curdled milk, whey' (EWAia 1: 692). Beekes 1987: 54–55 reconstructs nom.acc.sg. **d^hé-d^hh₁*, gen.sg. **d^he-d^hh₁-és*, with vocalisation of the laryngeal yielding *i*ir. nom.acc. **dádhi*, gen. **dadhás*. It has probable cognates in Old Prussian *dadan* 'milk' and Albanian *djathë* n. 'cheese', which may continue **dedom*.

5 Greek

a. 'put'. Ancient Greek continues the PIE root aorist in 3sg. (Boeotian) (αν)έθεε 'put', pl. ἔθεμεν 'to put', Myc. med. *-te-to*, with additional *-k-* in Mycenaean 3sg. *te-ke*, Gr. ἔθηκε. The origin of the root-final **-k* is still disputed, but the solution proposed by Kortlandt 2018, viz. a phonetic origin in monosyllabic forms of laryngeal-final roots, is the most likely option. The reduplicated present τίθημι has *i*-vocalism throughout. There is a productive *s*-formation in the futureθήσω 'I will put'.

b. 'suck'. The *s*-aor.θήσατο 'sucked', also 'made suck' may well be built on an earlier root aorist **d^heh₁-*, cf. Frisk I 674, Beekes 2010 1: 548. For the dual valency, compareθήσατο μαζόν 'he sucked the breast' (Il.), versus οὐδ' ἄρ' Ἀπόλλωνα χρυσάοραθήσατο μήτηρ 'Apollo of the golden sword was not breast-fed by his mother' (*Hymn to Apollo*, 123; transl. West 2003: 81). The present infinitiveθήσθαι 'to suck' was secondarily built to the aorist stemθη- or might reflect a *i*e/o-present **θήιεσθαι* (LIV² 139, Beekes 2010 1: 548).

The root **d^heh₁-* is furthermore found in Greek θηλή 'mother's breast, nipple', θήλως 'female', θηλώ 'wet-nurse' (Hsch.), all of which presuppose a nominal formation **d^heh₁-l-* 'making suck' or 'lactating'. Gr. τιθήνη 'nurse' (here combined with reduplication), γαλαθηνός 'sucking, young, tender' (lit. 'sucking milk') and the Hesychius gloss θήνιον 'milk' show a nasal suffix **d^heh₁-n-*.

An *i*-derivative of 'to suck' may be reflected in the noun θοίνη (Hes.), Dor. θοίνᾱ, Hell. θοῖνη 'meal, feast, dinner'. This noun has long been compared with

Skt. *dhénā*- ‘milk stream, nourishing stream’ (Schmidt 1975, Lubotsky 1995). De Lamberterie (apud Dieu 2016: 192) and Janda (2018) have recently insisted on this correspondence, arguing for an inherited h_2 -stem with o -grade of the root ‘to suck, nourish’. Possible reconstructions are PIE $*d^hoh_1-i-n-éh_2$ - (as proposed by De Lamberterie) or $*d^hh_1-ói-n-h_2$ -. Since the first option would imply an o -grade in the root which is otherwise only attested in the reduplicated but suffixless perfect, I prefer the second option, which directly connects with the i -perfect as seen above. The noun can then be interpreted as a collective to an earlier n -stem which was derived from the full grade $*d^hh_1-ói$ -. The existence of nominal derivatives to i -perfects has been demonstrated by Lubotsky 2011.

6 Phrygian

a. ‘put’. The PIE root aorist is continued in the preterite 3sg. Old Phrygian *edaes*, New Phrygian εδαεσ, which reflect the addition of the 3sg. ending *-es* to a sigmatic aorist $*d^hēh_1-s$;² furthermore in Old Phrygian 3sg. *daket*, New Phrygian (αδ)δακετ, which means either ‘inflicts’ (Ligorio/Lubotsky 2018: 1827–1828) or ‘has inflicted’ (Kortlandt 2018: 138), in the 3sg. future OPhr. *daψet* /dakset/, and in the 3pl. perfect NPhr. δακαρεν, all with /dak-/ from $*d^hēk$ -.

7 Armenian

a. ‘put’. The PIE root aorist is continued in Armenian, 3sg. *ed* ‘put’, middle *edaw* ‘was put’.

b. ‘suck’. *diem* ‘to suck, drink mother’s milk’ allows for several different reconstructions, among which are $*d^heh_1$ -, $*d^heh_1-i$ -, and $*d^hih_1$ - (Martirosyan 2010: 239). For the two Classical Armenian variants *dal* and *dayl* ‘colostrum, beestings’, Martirosyan 2010: 229–231 argues that only *dal* represents an inherited formation, with vocalisation of the laryngeal in a zero grade $*d^hh_1-l$ -.

2 The exact path which led to the addition of *-es* is disputed. Gorbachov (2005: 209) proposes that *-es* arose as a conflation of the endings of the thematic aorist and the *s*-aorist and then spread to other verbs, whereas Kortlandt (2018: 138) thinks that *-es* represents an enclitic subject pronoun $*es$.

8 Italic

a. 'put'. The reduplicated present is continued by Latin presents in *-dō*, *-dere* 'to put' (*abdō* 'conceal', *condō* 'establish', etc.), whereas a PIE reduplicated perfect is found in Latin and in the Sabellic languages (Oscan **prűffed** 'has erected'). Monosyllabic forms of the root aorist developed suffixal *-k-* (Kortlandt 2007, 2018) which spread to the remaining perfect forms of Italic (Latin *fēcī*, Venetic 3sg. preterite **vħagsto** 'made', Oscan 3sg. perfect *ανα:φακετ* 'has erected') and to the present (Latin *faciō*, O. **fakiiad**), cf. de Vaan 2008: 198.

b. 'suck'. Latin *fēcundus* 'fertile' shows the gerundival suffix *-undus* after a stem **fē-k-*. None of the hitherto proposed etymologies for gerundival *-cundus* which regard its /k/ as a reflex of a PIE lexical root are convincing (Weiss 2009: 444, fn. 75, Jasanoff 2010, Brachet 2016; the other gerundives in *-cundus* are *fācundus*, *iōcundus*, *īrācundus*, *rubicundus*, and *verēcundus*). In view of the probability that the *k*-affix arose in PIE roots in a final laryngeal (Kortlandt 2018), and since the root **fē-* is the only one that also shows suffixal *-k-* in Latin in other morphological categories (pf. *fēc-*, pres. *fak-*), it seems likely that **fēkondos* provided the starting point for *-cundus*, possibly together with *fācundus* from the root **b^heh₂-*. From these two forms, the suffix would then have spread to other gerundives meaning 'having the property of'.

Latin *fēmīna* 'woman' presupposes a middle participle **d^heh₁-mh₁n-h₂-* 'nursing, breastfeeding'. Risch (1984: 189–191) has shown that *fētus* 'fertile' originally meant 'having given birth', 'breeding' (of birds).

The root variant **fē-* 'suckle' is attested in several other nominal forms. Latin *fēlīx*, *-īcis* 'fruitful; fortunate' presupposes a stem **d^heh₁-l-* with a probable original meaning 'making suck', 'with young'. A thematic derivative **d^heh₁-lo-* 'sucking' is the likely basis for Latin *fēlāre* 'to suck (milk)' and *fellāre* 'to suck (sexually)'. Another derivative **fēlio-* is reflected in Umbrian acc.pl.m. *feliuf* 'sucking', said of piglets (de Vaan 2008: 208–217). The *l*-derivative also occurs after the root variant **fī-* in Latin *fīlius*,³ Faliscan *fileo* 'son', Venetic *filia* 'daughter', hence from Late PIE **d^hiHL-* with laryngeal metathesis from earlier **d^hh₁-i-l-* 'sucking'.

3 As one reviewer duly notes, it has been proposed by Meiser (1998: 69) that Latin *fīlius* might reflect **fēlios* if its *-ī-* was raised from **ē* before *i* in the next syllable. Such raising is shown by *subtilis* 'delicate' to *tēla* 'cloth' and *suspiciō* 'suspicion' from **subspēkiō*. Yet this raising was restricted to unstressed position, which would mean that **fēlios* became **fīlios* in unstressed position and then replaced the stressed variant. Furthermore, this would still leave the ⟨i⟩ of Faliscan *fileo* and Venetic *filia* to be explained. Weiss (2009: 143) assumes that *subtilis* may be explained by a development **-esli-* > **-ezli-* > *-īli-* in Latin.

9 Celtic

a. ‘put’. Old Irish *creitid*, MW *credu* ‘to believe’ < **kred-dī-* might contain the root aorist of ‘to put’. The preterite 3sg. Lepontic *tetu*, Gaulish *δεδε* ‘has erected’ could represent the reduplicated perfect with *o*-grade of the root, though Matasović (2009: 86), following earlier scholars, prefers to derive the forms from **deh₃-* ‘to give’.

b. ‘suck’. The presents OIr. *denaid* ‘sucks’, MW *dynu*, and Middle Breton *denaff* continue Proto-Celtic **dina-* which looks like an original nasal present **d^hi-n(é)h₁-* (thus LIV²) which would regularly have become **dini-* but was reformed within Celtic to **dina-* on the model of more frequently occurring nasal presents (Schumacher 2004: 273–275). It may go back to a PIE nasal formation together with Sanskrit *dhinoti* (see above), though it is also possible that we are looking at two independent nasal presents. The root form **dī-* with short vowel can be due to reanalysis of a form **d^hih₁-C-* that arose after laryngeal metathesis in earlier **d^hh₁-i-C-* (Matasović 2009: 99) or from vowel shortening in pretonic syllable before a resonant (Dybo’s Law, cf. Matasović 2009: 86). The Old Irish preterite *did* ‘sucked’ is explained from a PIE perfect **didoi*, **didī-* by Schumacher. This seems to be a novel formation too, as no corresponding form exists in other Indo-European languages.

Middle Irish *deil* (> *dela*) ‘teat, udder’ and *deil* ‘young sow, sow aged two years’ (*eDIL* s.v. 1 *dela* and 3 *deil*, *LEIA* D-42) may reflect an *ā*-stem **dilā-* which could go back to **dīlā-* < **d^hh₁i-léh₂-* (Matasović 2009: 99) or **d^heh₁-léh₂-* (Zair 2012: 135).

10 Germanic

a. ‘put’. The PIE root aorist **d^héh₁-* is preserved in the endings of the weak preterite, PGmc. 3sg. **dēþ*, 3pl. **dēdunþ* < 3pl. **dunþ* (Kortlandt 2011: 419). The reduplicated perfect, 3sg. **dedōa*, 3pl. **dedunþ* (OS *deda*, *dedun* ‘did’, OE 1du. *wit deodan* ‘we two did’), points to **d^he-d^hoh₁-*. The stem syllable **dō-* of the perfect singular may have provided the basis for the derivation of the West Germanic present **dō(j)an-* ‘to do’.

b. ‘suck’. The root formation **d^héh₁-* ‘to suck’ is continued by Proto-Germanic **dēan-*, whence OHG *tāan*, *tāen* ‘to make suck’ (Kroonen 2013: 92). The *l*-derivative PGm. **delō-* ‘teat’, reconstructible on the basis of Old English *delu* and OHG *tila* ‘teat, udder’, shows pretonic shortening of **ē* from PIE **d^heh₁-léh₂-* (Kroonen 2013: 93)

PIE **d^hh₁-i-*, which could be the zero grade of an *i*-present or an *i*-perfect, yielded PGm. **dīan-* ‘to suck’ as reflected by Old Swedish *dīa*, MHG *tīen* ‘to

suck' (Kroonen 2013: 95). Gothic *daddjan*, Old Swedish *dægga*, MoSwe. *dägga* 'to make suck' point to PGM. **dajjan-* 'to make suck' (Kroonen 2013: 87) from an *i*-perfect **d^hh₁-ói-*. Kroonen (2013: xxxviii–xl) reconstructs PIE **d^hh₁-oi-éie-* because of the OCS cognate *doiti*, and with reference to his conclusion that fortition of intervocalic **w* and **j* in Germanic was conditioned by pretonic position.

11 Balto-Slavic

a. 'put'. In Slavic, the root aorist of *děti* 'to do, say' was remade into an *s*-aorist, OCS 1sg. *-děxъ*, 2sg. *-dě*, 3sg. *-dě* (Ackermann 2014: 163–166). The reduplicated present **dide?-, *déd?-* led to a new Balto-Slavic present stem **ded-*, found for instance in Lith. *dėti*, 1sg. *dedù* 'to lay, put', OLith. *demi*, Latvian *dēt* 'to lay (an egg), breastfeed', OCS *děti* 'to do; say', 1sg. *deždq* (**ded-je/o-*) (Derksen 2015: 125, Smoczyński 2007: 104–106). An *l*-derivative is found in Slav. **dělo* 'thing', OPru. m. *dīla-* 'work' (Ench.), and in Lith. *dėlióti* 'to put down, put away'.

b. 'suck'. The Slavic present stem **dojiti* 'to give milk, to milk' (OCS *doiti* 'to suckle, nurse', Ru. *doit'* 'to milk', SCr. *dòjiti* 'to breast-feed, suckle') probably reflects **d^hh₁-oi-éie-*, that is, a causative built to PIE **d^hh₁-oi-*. The full grade **d^heh₁-* is suffixed in the nominal forms OCS *děti*, Russian *děti* 'children' (**d^heh₁-t-*), and OCS *děva*, SCr. *djéva* 'girl, maiden' (**d^heh₁-u-*).

In Baltic, Latvian *dēt*, 1sg. *dēju* 'to suck' shows a *je/o*-present to the root **d^heh₁-*, whence the noun *dējals* 'mother's milk'. The Latvian noun *dēls* 'son' could be projected back as PIE **d^heh₁-lo-* (Derksen 2015: 531), but a more recent origin as an inner-Baltic derivative to *dēt* is also conceivable. A similar agentive meaning 'sucking' surfaces in Lithuanian *dėlẽ*, Latvian *dēle* 'leech' from **d^heh₁-lieh₂-* (Smoczyński 2007: 99, Derksen 2015: 120–121). Lithuanian *pirmadėlỹs* 'first-born' (**-io-*) also presupposes **d^heh₁-l(o)-* 'sucking', whereas *pirmadėlẽ* 'domestic animal that has given birth for the first time' rather matches the meaning 'giving milk, mother'. Finally, Latvian *dīle* 'suckling calf' and the derived verb Latv. *dīlīt* 'to suckle' show the *l*-derivative from the *i*-root, **d^hh₁-i-l-* (Derksen 2015: 531).

An *n*-stem (cf. Skt. *dhenú-*, Av. *daēnu-*) is found in Lith. (Žem.) adj. nom.sg.f. *dieni* 'with young', variant *dienẽ*, and Latv. *atdiēne* 'a cow that calves already in its second year' (Derksen 2015: 12), which may be built on *d^hh₁-ei-n-* or **d^hh₁-oi-n-* 'who gives milk'. Note the formal and semantic similarity with Gr. θοίνη 'meal', Skt. *dhénā-* 'milk stream'.

12 **Summary**

The tables below compare and summarise the evidence for **d^heh_l-* meaning either ‘to put’ or ‘to suck’. Each table compares the direct and indirect evidence for one particular formation.

We find that the root aorist **d^héh_l-* and the *i*-perfect **d^hh_l-(o)i-* surface both as ‘to put’ and ‘to suck’ in Anatolian, Balto-Slavic, Italo-Celtic, Germanic, Greek, and Indo-Iranian. The *k*-extension is found for ‘to put’ in Greek and Phrygian, and both for ‘to put’ and ‘to suck’ in Latin. The *e*/zero *i*-present **d^hh_l-(é)i-* is specific to the meaning ‘to suck’. Reduplicated **d^héh-d^hh_l-* is found as a verb only in ‘to put’, but the nominal derivative **d^héh-d^hh_l-* presupposes ‘to suck’. The *l*-nominal is rare for the meaning ‘to put’ but common for ‘to suck’.

The *i*-perfect **d^hh_l-oi-*, **d^hh_l-i-* exists, on the one hand, as ‘to put’ in Hittite and as ‘to think’ in Indo-Iranian, and, on the other hand, as ‘to make suck, give to drink’ in Slavic and Germanic. If the latter two languages indeed contain the causative suffix **-e_lie-* (it cannot strictly be proven), then unsuffixed **d^hh_l-oi-* meant anticausative ‘to suck’ or ‘to give milk’. The nominal derivatives in **d^hh_l-oi-n-* mean ‘nourishing’, ‘giving milk’.

Altogether, then, the comparison yields two main results. Firstly, the earlier view that ‘to put’ and ‘to suck’ have very different morphological profiles must be dismissed. With the exception of the *l*-stems, which nearly only occur for ‘to suck’, all verbal formations can be found with both meanings. Secondly, within the type ‘to suck’, the semantic distinction between the subtypes ‘suck’, ‘make suck’ and ‘lactate’ cannot be meaningfully linked to the morphological make-up: especially in case of the root formation **d^héh_l-* and the *l*-stems derived from it, all main possibilities are represented.

TABLE 1 The root formation **d^heh_l-*

‘put’	‘suck’
Hit. <i>tē-^{zi}</i> ‘speaks’	Skt. <i>dhātave</i> ‘to drink’
Iir. aor. <i>*d^haH-</i>	Skt. <i>°dhā-</i> ‘sucking’
Gr. <i>θήκε</i>	Gr. <i>θήσατο</i> ‘sucked’, ‘made suck’
Arm.aor. <i>ed</i> ‘he put’	?Arm. <i>diem</i> ‘suck’
	Lat. <i>fēmina</i> , <i>fētus</i> , <i>fēcundus</i> ‘lactate’
	Gmc. <i>*dēan</i> ‘make suck’
	Slav. <i>děti</i> ‘children’, <i>děva</i> ‘girl’
	Latv. <i>dēt</i> ‘suck’

TABLE 2 Reduplicated **d^hé-d^hh₁-*, **d^hi-d^héh₁-*

‘put’	‘suck’
Skt. <i>dád<h>h</h>āti</i> , OAv. <i>dadāiti</i>	Skt. <i>dádhi-</i> ‘curdled milk, whey’
Gr. <i>τιθήμι</i>	OPru. <i>dadan</i> ‘milk’
Lat. <i>-dō</i> , <i>-dere</i> , O. <i>-ffed</i>	Alb. <i>djathë</i> ‘cheese’
Lith. <i>dėti</i>	Gr. <i>τιθήνῃ</i> ‘nurse’
OCS <i>děti</i>	
Toch. <i>tā-</i>	

TABLE 3 PIE **d^hh₁-éi-* or **d^hh₁-i-* (without explicit *o*-ablaut)

‘put’	‘suck’
	Hit. <i>tēta(n)-</i> , Luw. <i>tītan-</i> ‘breast, teat’ (* <i>d^héh₁-i-to-</i>)
	Skt. <i>dháyati</i> ‘suck’, Oss. <i>dæjyn</i>
	Skt. <i>dhītá-</i> ‘sucked’
	?Arm. <i>diem</i> ‘suck’
	Celtic * <i>dīna-</i> ‘suck’
	Gmc. * <i>dīan</i> ‘suck’

TABLE 4 **d^hh₁-ói-*, **d^hh₁-i-*

‘put’	‘suck’
Hit. <i>dāi</i> , <i>tījanzi</i> ‘put’	Gmc. * <i>dajjan</i> ‘make suck’
(> <i>titta-i/titti-</i> ‘install’)	Slav. * <i>dojiti</i> ‘give milk’ (‘make suck’)
Skt. <i>dīdhaya</i> , Av. <i>-diδaiia</i>	Skt. <i>dhénā-</i> ‘milk stream’, Gr. <i>θοίνῃ</i> ‘meal’ < * <i>d^hh₁-</i>
‘consider’	<i>ói-n-h₂-</i> (‘lactating’)
	Skt. <i>dhenú-</i> , Av. <i>daēnu-</i> ‘milch cow’, ?Lith. <i>dieni</i>
	‘with young’ < * <i>d^hh₁-ói-n-</i> (‘lactating’)

TABLE 5 nominals in **d^h(e)h_i-l-* or *d^hh_i-i-l-*

‘put’	‘suck’
Slav. <i>*dělo</i> ‘thing’	Skt. <i>dhārú-</i> ‘sucking’ Gr. <i>θηλή</i> ‘breast, teat’, <i>θηλυσ</i> ‘female’ Gr. <i>θηλώ</i> ‘wet-nurse’ Arm. <i>dal</i> ‘beestings’ Lat. <i>filius</i> ‘son’ Lat. <i>fēlāre</i> ‘suck’ Lat. <i>fēlīx</i> , Umb. <i>feliuf</i> ‘sucking’ Gmc. <i>*delō-</i> ‘teat’ Ir. <i>deil</i> ‘teat; sow’ Latv. <i>dēls</i> ‘son’ Lith. <i>dėlė</i> , Latvian <i>dēle</i> ‘leech’ Latv. <i>dīle</i> ‘calf’

13 Conclusion

Under the traditional assumption that there were two homonymous roots of the shape **d^héh_i-*, their homonymy probably reflects the merger of two different pre-PIE roots. Homonymy or polysemy is a normal linguistic phenomenon, and it would be unsurprising if Proto-Indo-European possessed a certain number of homonymous or polysemous roots and words. This was the explicit position taken, for instance, by Ernout/Meillet 1959: 223, but they based it on the argument that only ‘to suck’ would be accompanied by *i*-suffixes. As we know now, *i*-suffixes also feature with ‘to put’. In fact, both roots had a very similar morphological organisation, with a root aorist **d^héh_i-*, an *i*-perfect **d^hh_i-ó*i-*, a reduplicated present, and an *l*-noun **d^héh_i-l-*.*

The morphological similarity between ‘put’ and ‘suck’ may, alternatively, strengthen the suspicion that one meaning was derived from the other. Since ‘to put’ is the more general meaning, it seems likely that ‘suck, nurse’ arose from semantic specialisation. A possible scenario for this development is the following. As we have seen above, we can reconstruct an imperfective meaning for the PIE verbal *i*-stems, and the presence of an experiencer subject in the PIE perfect. The basic meanings of the continuative, directional *i*-present 3sg. **d^hh_i-éi-t* **X_[nom.]* and the non-volitional *i*-perfect 3sg. **d^hh_i-(ó)i-e* **X_[dative]* may then be circumscribed as ‘X is putting (toward)’ and ‘to X there has been putting (toward)’.

respectively. In the context of breastfeeding, the young have to be 'put' to the breast (cf. the Hittite passage cited above), but because of the realia, the agency can be viewed in different ways. Both the mother, who 'puts' the young to her breast (especially the first time after birth), and the new-born, who 'put themselves to' or 'take to' the teats (once they have learned to do so), can adopt the role of the agent. Hence, in non-volitional 'to X there has been putting', both the mother and the young may take the role of the experiencer, whence 'to suck' or 'lactate' (with the mother as the experiencer) or 'to make suck' (the infant being the experiencer). The same semantic polyvalence can be found in the root formations, with (1) Skt. *dhātave* 'to drink', °*dhā́-* 'sucking', Latvian *dēt* 'suck', Slavic *děti* 'children', (2) Germanic **dēan* 'to make suck', and (3) Latin *fētus*, *fēcundus* 'lactating'. There is no evidence that these formations adopted their semantic ambiguity from the *i*-stem verbs; instead, the root formation, too, could apparently be used with the opposite perspectives of 'put' ('make suck') and 'take to' ('suck'). As in the case of the PIE root **nem-* 'to assign, allot', which probably got the opposite meaning 'to take, receive' in Germanic through usage in the middle voice (LIV² 453), similar variation in voice/perspective may explain the multiple valency of **d^{he}h₁-* 'suck, make suck'.

In active 'X is putting', the logical subject would be the mother, but in a transitive middle such as that of Greek θήσαστο 'sucked', it can also be the infant who is 'putting himself' to the breast. The fundamental polyvalence of the verbs expressing the notion of 'suckling on the mother's breast' and their nominal derivatives would thus find a natural explanation: since the actancy in the triangle mother-breast-infant can be expressed from different perspectives, no one semantic expression has come to dominate. Gamkrelidze/Ivanov (1995: 487) cite an Ancient Egyptian parallel for this polyvalence of 'milk' and 'give milk', viz. Egypt. *mhr*, which can express 'to milk (a cow)', 'to suckle', 'to give milk' (of a cow), 'to nurse (a baby)'; whence the terms for 'infant' and for dairy implements (Takács 2008: 464–465, TLA s.v. *mhr*).

Much of the preceding reasoning is of course tentative, and many details remain to be elucidated. Nonetheless, I hope to have shown that it is possible to think of pathways by which 'to put' could, in the specific usage of mammals and their new-born, and within the context of changes in PIE verbal inflexion and valency, give rise to the meanings 'suck', 'make suck' and 'lactate'. Future etymological research may profit from these proposals.

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References

- Ackermann, Katsiaryna. 2014. *Die Vorgeschichte des slavischen Aoristsystems*. Leiden/Boston: Brill.
- Barðdal, Johanna, Thomas Smitherman, Valgerður Bjarnadóttir, Serena Danesi, Gard B. Jensen, and Barbara McGillivray. 2014. Reconstructing constructional semantics: the dative subject construction in Old Norse-Icelandic, Latin, Ancient Greek, Old Russian and Old Lithuanian. In: N. Gisborne and W.B. Hollmann (eds.), *Theory and Data in Cognitive Linguistics* 67, 49–85. Amsterdam: Benjamins.
- Beekes, Robert. 1985. *The Origins of the Indo-European Nominal Inflection*. Innsbruck: IBS.
- Beekes, Robert. 1987. Indo-European neuters in *-i-*. In: G. Cardona & N. Zide (eds.), *Festschrift for Henry Hoenigswald: On the Occasion of His Seventieth Birthday*. Tübingen: Narr, 45–56.
- Beekes, Robert. 2010. *Etymological Dictionary of Greek*. 2 vols. Leiden / Boston: Brill.
- Benveniste, Émile. 1936. *Origines de la formation des noms en indo-européen*. Paris: Arrien-Maisonneuve.
- Brachet, Jean-Paul. 2016. Le suffixe *-ndus*. In: *De Lingua Latina*, revue de linguistique latine du Centre Alfred Ernout [En ligne], 12 | 2016, put online in June, 2016. URL: <http://www.paris-sorbonne.fr/rubrique2315>, 1–4.
- Brugmann, Karl. 1897. *Grundriss der vergleichenden Grammatik der indogermanischen Sprachen*. Erster Band: *Einleitung und Lautlehre*. Zweite Bearbeitung. Strasbourg: Trübner.
- Cheung, Johnny. 2007. *Etymological Dictionary of the Iranian Verb*. Leiden: Brill.
- Derksen, Rick. 2015. *Etymological Dictionary of the Baltic Inherited Lexicon*. Leiden/Boston: Brill.
- Dieu, Éric. 2016. *L'accentuation des noms en *-ā (*-eh₂) en grec ancien et dans les langues indo-européennes*. Innsbruck: IBS.
- eDIL = *Dictionary of the Irish Language*, www.dil.ie.
- Ernout, Alfred & Antoine Meillet. 1959. *Dictionnaire étymologique de la langue latine. Histoire des mots*. 4th ed. Paris: Klincksieck.
- EWaia = Mayrhofer, Manfred. 1986–2001. *Etymologisches Wörterbuch des Altindoarischen*. 3 vols. Heidelberg: Winter.

- Forte, Alexander. 2015. A neglected verb of vision in Ancient Greek. Paper presented at the Harvard GSAS Workshop in Indo-European. Online at academia.edu.
- Frisk, Hjalmar. 1960–1972. 3 vols. *Griechisches etymologisches Wörterbuch*. Heidelberg: Winter.
- Gamkrelidze, Thomas & Vjačeslav Ivanov. 1995. *Indo-European and the Indo-Europeans: A Reconstruction and Historical Analysis of a Proto-Language and a Proto-Culture*. 2 vols. Berlin / New York: Mouton de Gruyter.
- Gorbachov, Yaroslav. 2005. The Origin of the Phrygian Aorist of the Type *edaes*. In: Karlene Jones-Bley, Martin E. Huld, Angela Della Volpe, and Miriam Robbins Dexter (eds.), *Proceedings of the Sixteenth Annual UCLA Indo-European Conference, November 5–6, 2004*. Washington, DC: Institute for the Study of Man, 191–217.
- Grestenberger, Laura. 2013. The Indo-Iranian *cákri*-type. *Journal of the American Oriental Society* 133, 269–293.
- Hackstein, Olav. 1995. *Untersuchungen zu den sigmatischen Präsensstammbildungen des Tocharischen*. Göttingen: Vandenhoeck & Ruprecht.
- Hirt, Hermann. 1921. *Indogermanische Grammatik*. Teil II: *Der indogermanische Vokalismus*. Heidelberg: Winter.
- Kuryłowicz, Jerzy. 1935. *Etudes indo-européennes*. Cracow [etc.]: Gebethner and Wolff.
- Jamison, Stephanie & Joel Brereton. 2016. *The Rigveda. The Earliest Religious Poetry of India*. In 3 vols. Oxford: Oxford University Press.
- Janda, Michael. 2018. Vedisch *dhénā*-. Bedeutung und Etymologie. In: L. van Beek, A. Kloekhorst, G. Kroonen, M. Peyrot, T. Pronk & M. de Vaan (eds.), *Farnah. Indo-Iranian and Indo-European Studies in Honor of Sasha Lubotsky*. Ann Arbor/New York: Beech Stave, 64–71.
- Jasanoff, Jay. 1979. The position of the *hi*-conjugation. In: E. Neu & W. Meid (eds.), *He-thitisch und Indogermanisch*. Innsbruck: IBS, 79–90.
- Jasanoff, Jay. 2003. *Hittite and the Indo-European Verb*. Oxford: Oxford University Press.
- Jasanoff, Jay. 2010. The origin of the Latin gerund and gerundive: a new proposal. In: H. Goldblatt & N. Shields Kollman (eds.), *Rus' Writ Large: Languages, Histories, Cultures. Essays Presented in Honor of Michael S. Flier on his Sixty-Fifth Birthday (= Harvard Ukrainian Studies 28, 1–4 (2006 [2010]))*, 195–208.
- Kloekhorst, Alwin. 2006. Hittite *pai-/pi-* 'to give'. *Indogermanische Forschungen* 111, 110–119.
- Kloekhorst, Alwin. 2008. *Etymological Dictionary of the Hittite Inherited Lexicon*. Leiden: Brill.
- Kloekhorst, Alwin & Alexander Lubotsky. 2014. Hittite *nāi-*, *nē-*, Sanskrit *nī-*, and the PIE Verbal Root **(s)neh₂-*. In: H.C. Melchert, E. Rieken and T. Steer (eds.), *Munus amicitiae. Norbert Oettinger a collegis et amicis dicatum*. Ann Arbor/New York: Beech Stave, 126–137.
- Kortlandt, Frederik. 2007. *Italo-Celtic Origins and Prehistoric Development of the Irish Language*. Amsterdam / New York: Rodopi.

- Kortlandt, Frederik. 2010. *Studies in Germanic, Indo-European and Indo-Uralic*. Amsterdam / New York: Rodopi.
- Kortlandt, Frederik. 2011. *Selected Writings on Slavic and General Linguistics*. Amsterdam/New York: Rodopi.
- Kortlandt, Frederik. 2018. The Indo-European *k*-aorist. In: L. van Beek, A. Kloekhorst, G. Kroonen, M. Peyrot, T. Pronk & M. de Vaan (eds.), *Farnah. Indo-Iranian and Indo-European Studies in Honor of Sasha Lubotsky*. Ann Arbor/New York, Beech Stave, 137–142.
- Kroonen, Guus. 2013. *Etymological Dictionary of Proto-Germanic*. Leiden: Brill.
- Kümmel, Martin Joachim. 2000. *Das Perfekt im Indoiranischen*. Wiesbaden: Reichert.
- LEIA = Joseph Vendryes, Édouard Bachellery and Pierre-Yves Lambert. 1959–. *Lexique étymologique de l'irlandais ancien*. Dublin: Institute for Advanced Studies.
- Ligorio, Orsat & Alexander Lubotsky. 2018. Phrygian. In: J. Klein, B. Joseph & M. Fritz (eds.), *Handbook of Comparative and Historical Indo-European Linguistics (HSK vol. 41.3)*. Berlin/Boston: De Gruyter Mouton, 1816–1831.
- Lindeman, Frederik Otto. 1997. *Introduction to the 'laryngeal theory'*. Innsbruck: IBS.
- LIV² = Rix, Helmut, Martin Kümmel, Thomas Zehnder, Reiner Lipp, Brigitte Schirmer. 2001. *Lexikon der indogermanischen Verben. Die Wurzeln und ihre Primärstammbildungen*. 2., erweiterte und verbesserte Auflage bearbeitet von Martin Kümmel und Helmut Rix. Wiesbaden: Reichert.
- Lubotsky, Alexander. 1989. The Vedic *-áya*-formations. *Indo-Iranian Journal* 32, 89–113.
- Lubotsky, Alexander. 1995. Reflexes of intervocalic laryngeals in Sanskrit. *Kurylowicz Memorial Volume. Part One*, ed. W. Smoczyński. Cracow (Universitas), 213–233.
- Lubotsky, Alexander. 2011. The origin of Sanskrit roots of the type *sīv-* 'to sew', *dīv-* 'to play dice', with an appendix on Vedic *i*-perfects. In: S.W. Jamison, C.H. Melchert, B. Vine (eds.), *Proceedings of the 22nd Annual Indo-European Conference*. Bremen: Hempen, 105–126.
- Malzahn, Melanie. 2010. *The Tocharian Verbal System*. Leiden: Brill.
- Mallory, James P. & Douglas Q. Adams. 1997. *Encyclopedia of Indo-European Culture*. London/Chicago: Dearborn.
- Martirosyan, Hrach K. 2010. *Etymological Dictionary of the Armenian Inherited Lexicon*. Leiden: Brill.
- Matasović, Ranko. 2009. *Etymological Dictionary of Proto-Celtic*. Leiden: Brill.
- Mayrhofer, Manfred. 1986. *Indogermanische Grammatik*. Band 1. 2. Halbband: *Lautlehre*. Heidelberg: Winter.
- Meiser, Gerhard. 1998. *Historische Laut- und Formenlehre der lateinischen Sprache*. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Melchert, H. Craig. 2018. Hittite *tit(ta)nu-*, *titti-*, and Lycian *stta-*. *Chatreššar* 1/2018, 25–33.
- Oettinger, Norbert. 2012. Das Verhältnis von nominaler und verbaler Reduplikation

- im Indogermanischen und Anatolischen. In: H. Craig Melchert (ed.), *The Indo-European Verb. Proceedings of the Conference of the Society for Indo-European Studies, Los Angeles 13–15 September 2010*. Wiesbaden: Reichert, 241–246.
- Pokorny, Julius. 1959. *Indogermanisches etymologisches Wörterbuch*. Bern/München: Francke.
- Risch, Ernst. 1984. *Gerundivum und Gerundium*. Berlin/New York: Walter de Gruyter.
- Scarlata, Salvatore. 1999. *Die Wurzelkomposita im R̥g-Veda*. Wiesbaden: Reichert.
- Schmidt, Hanns-Peter. 1975. Is Vedic *dhénā* related to Avestan *daēnā*? In: J. Duchesne-Guillemin, P. Lecoq and J. Kellens (eds.), *Monumentum H.S. Nyberg*, vol. 2. Teheran: Bibliothèque Pahlavi, 165–179.
- Schulze, Wilhelm. 1885. Indogermanische *āi*-wurzeln. *Zeitschrift für vergleichende Sprachforschung* 27, 420–429.
- Schumacher, Stefan. 2004. *Die keltischen Primärverben. Ein vergleichendes, etymologisches und morphologisches Lexikon*. Innsbruck: Institut für Sprachwissenschaft der Universität Innsbruck.
- Smoczyński, Wojciech. 2007. *Słownik etymologiczny języka litewskiego*. Vilnius: Vilnius University.
- Takács, Gábor. 2008. *Etymological Dictionary of Egyptian*. Volume 3: *m-*. Leiden/Boston: Brill.
- TLA = *Thesaurus Linguae Aegyptiae*, <http://aaew.bbaw.de/tla/>. Last consulted 26 March 2019.
- Toporov, Vladimir. 1975. *Prusskij jazyk: slovar'*. Vol. 1: *A–D*. Moskva: Nauka.
- de Vaan, Michiel. 2008. *Etymological Dictionary of Latin and the Other Italic Languages*. Leiden: Brill.
- de Vaan, Michiel. 2011. PIE *i*-presents, *s*-presents, and their reflexes in Latin. *Glotta* 87, 23–36.
- Vaillant, André. 1936. L'ergatif indo-européen. *Bulletin de la Société de Linguistique de Paris* 37, 93–108.
- Weiss, Michael. 2009. *Outline of the Historical and Comparative Grammar of Latin*. Ann Arbor / New York: Beech Stave.
- West, Martin L. 2003. *Homeric Hymns. Homeric Apocrypha. Lives of Homer*. Edited and translated by Martin L. West. Cambridge (MA) / London: Harvard University Press.
- Willi, Andreas. 2018. *Origins of the Greek Verb*. Cambridge: Cambridge University Press.
- Zair, Nicholas. 2012. *The Reflexes of the Proto-Indo-European Laryngeals in Celtic*. Leiden: Brill.