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SOME ETYMOLOGICAL AND MORPHOLOGICAL OBSERVATIONS ON THE *h_2o PROBLEM

Abstract. The present article investigates the problem of *h_2o and *oh_2 in Indo-European. Four different suggestions (Ruijgh-Lindeman, Rix-Beekes, Kortlandt and Hamp) have been made, but no agreement has been reached in the scholarship. In Mayrhofer 1986 Rix-Beekes was followed, in Bammesberger's 1988 survey work of the Laryngeal Theory, two of the four theories were posited: Kimball 1988 following Rix-Beekes and Ruijgh 1988 following Kortlandt. More recently, Sihler 1995 agreed with Ruijgh-Lindeman, and in Mallory-Adams 2006 Hamp was followed. We first discuss the four different theories critically, and then proceed to the evidence by analysing the active perfect vocalism in *ā*, the compounds in -*ηγός/αγός* and the compound *ἱππημολγός*. The article finds that the perfect vocalism in *ā* can be explained by the Greek tendency to create an ablaut paradigm *a/ā* (as argued by Kimball and Hackstein) and by a double analogy with the aorist (as is proved by the perfect form *τέθηκα*, which is also due to analogy with the aorist). With regard to the compounds, the article finds that the compounds in -*η/αγός* can be explained by analogy with the verb forms in *a* and *ā* and that the *ā* in *ἱππημολγός* is a form of Kompositionsdehnung, which is proved by the compounds *ἱππήλατος* and *θανατηφόρος*. We therefore hold that *h_2 did not colour *o* into *a* and that there is no need for *h_4 either.[*]

Keywords: laryngeal colouring, *h_2o problem, lengthening in compounds, trilaryngealism.

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1. The problem *h_2o.

It has been long noticed that the combinations with *h_1 and *h_3 did not pose any problems with regards to the outcome of the contraction, but for *h_2 the situation seems different. There is no discussion that it colours a contiguous *e into *a but it is unsure what happens to *o. Some argue that the *o is subject to the same treatment as the *e but others have argued that o keeps its colour, and therefore the *h_2 disappears without any trace besides the vowel lengthening if the laryngeal followed the vowel. The Greek evidence seems ambiguous, and the other Indo-European languages also allow for both evolutions. We now start our analysis.

2. PIE *o is coloured by *h_2 (Lindeman, Ruijgh).

Lindeman and especially Ruijgh argued that the combination *h_2o yielded a.[1] Two important elements have been adduced to substantiate this. Ruijgh pointed at perfect forms such as ἕστηκα 'I have put myself and am now standing' (Doric ἕστᾱκα), τέθνηκα 'I have died and am dead now' (Doric τέθνᾱκα) and πέπηγα 'I have been fixed and am stiff now' (Doric πέπᾱγα).[2] In these forms the stem vowel is a long a, but the active perfect forms are supposed to have o vocalism in the singular, and zero grade in the plural, and therefore Ruijgh argued that ἕστᾱκα had to go back to a proto form *$sestoh_2kh_2e$, in which the combination *oh_2 yielding Greek $\bar{a}$. This was in his opinion strengthened by the perfect forms of the verb ἵστᾱμι 'I put (someone else) in a position, I make someone stand', βαίνω 'I go' and θνῄσκω 'I die': in Homer these aforementioned verbs have the inherited ablaut patterns, with zero grade in the plural forms of the active perfect: ἕσταμεν 'we have been put and are standing', βέβαμεν 'we have gone' and τέθναμεν 'we have died and are dead now'. Ruijgh therefore concluded that the old ablaut forms indicated that these forms were inherited, and that therefore it proved that the reflex of *oh_2 was $\bar{a}$. In addition, he pointed at numerous compounds of verbs with *h_2, which had long a where the normal expected vocalism would have been o. He referred to the masculine *nomina actoris* ἱππᾱμολγός 'horse-milking', λοχᾱγός 'general, commander' and στρατᾱγός 'general, commander', which he reconstructed as (*transponats*) *$h_1ek̑uo-h_2melg̑os$, *$log^ho-h_2og̑os$ and *$strato-h_2og̑os$, and to the feminine *nomen actionis* φήμη 'utterance, voice' (φᾱμᾱ), which he reconstructed as *$b^hoh_2meh_2$. In all these words the long a appeared in those contexts where the normal ablaut patterns required o vocalism, and this lead Ruijgh to conclude that *o was indeed coloured into a by a contiguous *h_2. This assumption was followed by Lejeune,

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[1]   Lindeman 1970: 34–35,48–49; 1982: 27; 1987: 37–38,50–52; Ruijgh 1971: 192–194, 1978: 302 (These are his reviews of Beekes 1969 and Rix 1976).

[2]   Ruijgh 1971: 190, 1978: 302.

Haudry, and Sihler.[3] Lindeman argued in 1970 for the colouring of *o into *a by *h_2 and added later (1987) that the link of ἄγω 'I lead' and ὄγμος 'furrow', and that of φᾱμί 'I speak' and φωνή 'voice' was doubtful, because ἄγω was never used with an agrarian meaning, and that the noun ἀγός 'leader' never had *e/o* ablaut since the *e had already been coloured into *a*, and went back to PIE *$h_2aǵos$.[4] Lindeman also discarded the evidentiary weight of the 1st person singular active by assuming that *oh_2 became *aa. That ending *aa* would then have been reformed into *oa under influence of the other endings with a thematic vowel *o* and the contraction of that secondary cluster *oa* would have yielded *ō*, as can be seen in Greek and Latin. We discuss the arguments of the perfect vocalism and the compounds later, but for now we would like to argue that the link between ἄγω and ὄγμος, and (especially) the one between φᾱμί and φωνή, can hardly be denied. In addition, we disagree with his assumption that the *a* was not subject to ablaut. Personally, we believe that the ablaut *e/o* happened before the colouring of *e* into *a* by the effects of *h_2, but even if the colouring preceded the ablaut patterns, we still think that the ablaut affected the *a* as can be seen in the cognates Scottish *Loch*, Latin *lacus* and Greek λάκκος, all meaning 'lake'.[5]

3. PIE *o was not coloured by *h_2 (De Saussure, Möller, Beekes, Rix, *communis opinio*).

Already de Saussure argued that *a_2A or *oa (his notations for modern *oh_2) became *$ā_2$ (his notation for modern *ō*) and that *a_2A became *o*, and referred to examples as ὄγμος, βωμός 'altar' and φωνή.[6] Möller agreed with him, but adapted the writing and wrote *oA* instead of *a_2A.[7] Kuryłowicz and Beekes followed this and also argued that *o was not coloured by h_2,[8] and in response to Ruijgh's criticism, Beekes referred to the *h_2e, and *h_2o ablaut in word building.[9] His examples included:

- the Greek adjective ἄκρος 'top, high', the Latin adjective *acer* from *$h_2eḱros$ and the noun ὄκρις 'top' and the Latin adjective *mediocris* from *$h_2okŕ$- 'high';[10]
- the noun ὄγμος from *$h_2oǵmos$ related to the verb ἄγω from *$h_2eǵ$-;

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3   Lejeune 1972: 203, Haudry 1979: 18 and Sihler 1995: 45–46.
4   Lindeman 1970: 34–35, 1987: 37–38 and 50–52.
5   Fortson 2004: 75.
6   De Saussure 1879: 135; he used *a_2A* on page 135 and *oa* on page 139.
7   Möller 1880: 486. We owe the reference to Möller to one of the anonymous referees of *SEC*.
8   Kuryłowicz 1935: 111, Beekes 1969: 167–169.
9   Beekes 1972a, and more recently in his treatment of ἄγω, ἀγωγός and ἀγωγή in Beekes 2010.
10   See also Chantraine 1968–1974: 45.

- *βωμός* from *g^woh_2mos*, related to the root aorist *ἔβᾱν* in Greek and in Sanskrit *agām*, both meaning 'I went';
- *φωνή* from *$b^hoh_2meh_2$* from the root *b^heh_2* visible in Greek *φημί* and Latin *fāri*;
- *οἰωνός* from *h_2oui* from *h_2eui* visible in Latin *avis*, both meaning 'bird';
- *οὖς* 'ear' from *h_2ou*- and whereas Latin *auris* 'ear' represents *h_2eu*-;
- the noun *ποιμήν* 'shepherd' from *poh_2*- and from the same root *peh_2* as in Latin *pāsco* 'I guard, I pasture, I protect'.

Most of these forms are convincing and point at a combination *h_2o* becoming *o* in Greek and *h_2e* becoming *a*, but the connection of *ποιμήν* and *pāsco* is less certain. In the meaning 'shepherd', the Greek word is related to Lithuanian *piemuõ* but that word poses problems. If both words continue *oh_2*, it would argue against an evolution *oh_2* > *$ō$*.[11] Fraenkel observed the difficult vocalism and explained the irregular *ie* by influence of *píenas* 'milk'.[12] Mayrhofer argued that the *nomina actoris* in *me/on* did not have an *o* grade, and therefore explained the Greek as *peh_3i*-.[13] Among scholars positing the link between Greek *ποιμήν* and Lithuanian *piemuõ*, Bader was aware of the problems the Greek and Lithuanian words posed,[14] but Beekes only mentioned the link, but did not discuss the problems.[15] There is, however, other evidence in Lithuanian in favour of the evolution PIE *oh_2* > late PIE *$ō$* > Lithuanian *uo*. Petit showed that the Lithuanian words *stúomas*, *stomuõ* and *stomuõ*, all meaning 'taille, stature' were evidence for the evolution *eh_2* > *$ā$* and *oh_2* > *$ō$*.[16] He argued that the *me/on* suffix used the *e* grade and thus continued *$steh_2mon$*. That form yielded late PIE *$stāme/on$*, which became Baltic *$stāmōn$*, which yielded Lithuanian *stomuõ*. The *-mos* suffix on the other hand used the *o* grade. The derived noun was thus *$stoh_2mos$*. This form yielded late PIE *$stōmos$*, which became *$stōmas$* in Baltic and *stúomas* in Lithuanian.[17] From this, we can conclude that Lithuanian does not contradict the evolution *oh_2* > *$ō$*, but also that the example *ποιμήν* is not convincing for this evolution, and should better be abandoned.

Beekes's analysis was followed by Rix, who explained the perfect vocalism as analogy with the root aorists of the same verbs.[18] Rix also pointed at the ending of the 1st person singular which is reconstructed as *oh_2* and stated that this also

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[11]   Bader 1978: 130.
[12]   Fraenkel 1960: 585.
[13]   Mayrhofer 1986: 174–175.
[14]   Bader 1978: 105–106 and 130.
[15]   Beekes 1972b: 37, 2010: 1217.
[16]   Petit 2000. We owe the reference to Petit to one of the anonymous referees of the journal.
[17]   Petit 2000: 272.
[18]   Rix 1976: 222–223.

proved that *o was not coloured by *h_2. Based on all these examples, Beekes, Rix and Mayrhofer have argued that the *o vowel of PIE was never coloured by any laryngeal.[19] In recent times, the particle *h_2o 'up against, next to' has been added to the equation,[20] and Zair has shown that o was also the regular reflex of *h_2o in Celtic.[21] There is therefore no conclusive evidence against the non-colouring, and it has now become the *communis opinio*.[22]

4. *h_2o gave *a* but was then restored into *o*.

Kortlandt admitted that both theories had strong evidence to support their opinions, and argued that *h_2 coloured *o into *a but that the forms with an *a* did not belong to the oldest layer.[23] In order to explain these discrepancies, he assumed that in the neighbourhood of an *o the opposition between all laryngeals was neutralised and they all merged into *h_3, leading to the creation of a vowel o. He then assumed that in "certain productive categories in Proto-Greek" *h_2 was reintroduced and the newly created clusters *oh_2 and *h_2o then lead to *a* or *ā*. Kortlandt was followed by Ruijgh (against his earlier views).[24] We believe that the scenario outlined by Kortlandt is too complicated (as had been also remarked by Lindeman, who called it "gratuitous"[25]) and we also fail to see how *h_2 could have coloured *o if *o assimilated *h_2 into *h_3. If the restoration is confined to Greek alone, as Kortlandt argued, it is in our opinion better to assume that the long vowel in the verbal inflection was restored from other forms and tenses, rather than assuming that the laryngeal *h_2 was first assimilated into *h_3 and then back into *h_2 under influence of the other verbal forms. If one accepts Kortlandt's analysis, one could argue from the perfect τέθηκα with *ē* vocalism and derived noun θωμός 'heap' with *ō* vocalism, both from τίθημι 'I put', proved that *oh_1 originally was assimilated into *oh_3 but was then analogically restored in *oh_1 under influence of the other verbal forms and became *$ē$. As we will argue later on, we prefer a scenario in which the perfect vocalism was analogically taken over from the aorist rather than assuming laryngeal assimilation and restoration followed by another colouring.

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[19]   Beekes 1969: 167–169, 1995: 138–139, 147; Rix 1976: 71; Mayrhofer 1982: 183–14.
[20]   Dunkel 1993, 2009: 42–43.
[21]   Zair 2012: 21–24; Celtic *oi* was already discussed by Kimball 1987: 189.
[22]   Fortson 2004: 56–58; Weiss 2009: 49–50.
[23]   Kortlandt 1982.
[24]   Ruijgh 1988.
[25]   Lindeman 1987: 51.

5. There are two *a* colouring laryngeals: *h_2 and *h_4.

Kuryłowicz, Sturtevant and Hamp noticed that not all *a* colouring laryngeals caused aspiration in Indo-Iranian nor were preserved in Hittite.[26] In order to account for this, they reconstructed four laryngeals, with *h_2 being the one that remained in Hittite and aspirated, while *h_4 did not aspirate nor survive in Hittite. In addition, Kuryłowicz and Hamp also assumed that that *h_2o became *a* but that *h_4o became *o*. Hamp also argued that this *h_4 was still visible in Albanian *h*. His assumptions have been followed by Mallory-Adams. We also believe that the scenario of 4 laryngeals is less likely,[27] especially since the etymologies used by Hamp to corroborate his Albanian evidence are not entirely conclusive and have been contested.[28]

6. The active perfect.

As we have seen before, Rix tried to explain the anomalous perfect vocalism by assuming analogy with the aorist vocalism. Ruijgh reacted to this by pointing out the forms πέπᾱγα from *$pepoh_2ǵh_2e$ with long *a* and ἔρρωγα 'I have been torn and am now broken' from *$wewroh_1ǵh_2e$ with long *o*.[29] As both forms had an intransitive aorist with short *a* (ἐπάγην and ἐρράγην), it was therefore excluded that these forms could be explained by analogical reformation. We disagree with Ruijgh and believe that there are two reasons, which both contributed to the long *a* vocalism, namely analogy with the root aorists and the Greek tendency to build an ablaut paradigm *a*/*ā*. First of all, we agree with Rix that there was indeed an analogical influence. Kimball assumed analogy as well and argued that the influence of the aorist ἔστᾱν on the perfect *ἔστωκα was indirect and that the root *b^huH influenced the root *$steh_2$.[30] She posited that the similarity between ἔφῡν 'I came to be' and πέφῡκα 'I have come into being and now exist', was extended to the aorist ἔστᾱν, leading to a perfect root ἔστᾱ- with long *a*, in which later a perfect marker *k* would have been added. We believe that there is no need to assume that the root *b^huH influenced the root *$steh_2$, but rather assume a levelling in two stages. We believe that one has to start from the root aorists of τίθημι 'I put, I place', ἵημι 'I send, I throw' and δίδωμι 'I give'. These forms were *ἔθην, *ἔην and *ἔδων.[31] In a later stage of

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[26] Kuryłowicz 1935: 27, Sturtevant 1942:§11 and Hamp 1965, 1989: 209.
[27] In the most recent treatments of the problem (Petit 2000 and Cohen 2009), the issue of *h_4 was not even addressed, which might be an indication of the little weight that the theory nowadays has.
[28] Ölberg 1972.
[29] Ruijgh 1978: 302.
[30] Kimball 1988: 247–249, 1989: 151.
[31] These forms are not attested, but reconstructed based on the attested plural forms.

Greek, but still very early (as is proved by Mycenaean *a pe do ke* 'he gave away, he gave back') these root forms were replaced by forms with a marker *k* of which the origin is still not sufficiently explained. As these forms looked in formation very similar to the perfect, we believe that they influenced the perfect vocalism: the form *τέθηκα* from *τίθημι* proves that there was indeed an analogy that operated in these perfect forms. If – as is generally assumed – *h_1* did not colour *o* into *e*, the form *τέθηκα* from *$d^hed^hoh_1kh_2e$* cannot be explained, because the expected form would have been **τέθωκα*, as is proved by the Greek *θωμός* from *d^hoh_1mos* with the expected Greek long *o*. We believe that this proves that the aorist *ἔθηκα* influenced the perfect vocalism and 'replaced' **τέθωκα* by *τέθηκα*. A similar influence is visible between the aorist *ἧκα* and perfect *εἷκα* from *ἵημι*. As the conjugations of *τίθημι*, *ἵημι* and *δίδωμι* were very similar to that of *ἵστᾱμι*, also in the aorist vocalism, we believe that the parallelism between aorist and perfect vocalism was extended to *ἵστᾱμι* as well, leading to the replacement of **ἕστωκα* by *ἕστᾱκα*. In order to explain the difference in perfect root vocalism between *πέπᾱγα* and *ἔρρωγα*, we assume that the present form *πάγνῡμι* (with long *a*) influenced the perfect vocalism but that *ῥήγνῡμι* (with long *e*) did not exert any influence. This of course raises the issue as to why in the case of *τίθημι* this influence was present in a root with **eh_1*. We think that this can be explained by assuming that *ἔθηκα* was an anomalous aorist which was so close in form to the perfect that it influenced the perfect, while there was no such parallel in the conjugation of *ῥήγνῡμι*. The second element contributing to this anomalous vocalism is the fact that Greek had the tendency to create a new ablaut paradigm *ā/a*, rather than the paradigm *ō/a*.[32] These ablaut paradigms came into being only within Greek and after the vocalisation of the laryngeals. An ablauting paradigm *ō/o* already existed in the present and the aorist of the roots in *-eh_3*, an ablaut paradigm *ā/a* existed in the present and aorists of the stems in *-eh_2*, while a paradigm *ē/e* existed in the present and aorists of roots in *-eh_1*, in the so-called *Narten* presents and imperfects and in the acrostatic declensions (although Greek lost this type of declension).[33] Based on all these examples of an ablaut type long/short vowel, we suspect that Greek extended this to the perfect stems of active perfect forms as well.[34] The tendency to have an ablaut between long and short vowel is also observed in the replacement of the **neu/nu* present stems by *nū/nu* in the present formations of verbs such as *δείκνῡμι* 'I show, I display', and probably also contributed to the disappearance of the PIE* *-ou-* stems in Greek, as is seen in the Greek nominative *νέκῡς* 'dead body, corpse', instead of the expected nominative **νέκους*.[35]

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[32] Hackstein 2002: 149–159, 168–289.

[33] Greek preserved some case forms of this paradigm, but created separate words out of it. The clearest example of this are the words *γέρας* and *γῆρας*.

[34] An extensive and detailed analysis of the different forms is found in Hackstein 2002: 149–159 and 168–289.

[35] For a detailed analysis of that declension see Hackstein 2002: 207–209.

7. The compounds with long *a*.

The last issue that we have to address are the compounds with long *a* instead of expected long *o*. Forms as *στρατᾱγός*, *λοχᾱγός* and *ἱππᾱμολγός* can be reconstructed as (*transponats*) *$logʰo$-h_2(o)ǵos*, *$str(a)to$-h_2(o)ǵos* and *h_1eḱuo-$h_2$molgos*.[36] In all these compounds one would expect a long *o* if the *o* was not coloured by *h_2*. However, the evidence is less convincing than it seems, and other explanations are possible as well. First of all, one can assume that we are dealing here with some kind of compound lengthening.[37] A second explanation is that of Chantraine,[38] who argued that the long *a* was due to analogy with the vocalism of the verb *ἡγέομαι/ἀγέομαι* 'I lead, I am the leader of' which seems to be confirmed by the fact that there are words in this group with a long *ō* vocalism: *ἀγωγός* 'carrying' and *ἀγωγή* 'the act of carrying'. A third explanation is that of Dunkel,[39] who argued that compound lengthening was excluded and that the long vowel was the result of inner-Greek secondary ablaut. The most important argument against using these forms as evidence for *oh_2* leading to long *a* are the compounds *ὠμηστής* 'eating raw flesh', *ἱππήλατος* 'leading horses' and *θανατηφόρος* 'carrying death' (besides *θανατοφόρος*). The third example can be reconstructed as *$dʰ(u)nh_2to$-$bʰoros$* with a long vowel in composition but there has never been a laryngeal there and this long vowel is due to the fact that this word otherwise had too many short syllables.[40] The second can be reconstructed as *h_1eḱuo-$h_1$lh_2tos*, and the first example can be analysed as (*transponat*) *$ōmo$-h_1d-*t* and cannot be the result of a contraction either. If we were to follow Ruijgh's arguments, we would be obliged to state that *h_1* coloured *o* into *e*. In our opinion, the long vowels in these compounds are in fact compound lengthenings and we suspect that the typical vowel to indicate this lengthening was the long vowel of the first syllable of the second element of the compound. The origin of these lengthenings is more difficult to account for: the long vowel can either be an old contraction (as Wackernagel argued for), or can be the result of an elision followed by compensatory lengthening to account for

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[36]   Bammesberger (1984a: 66–68) argued that the root was not *h_2eǵ*, but *$aǵ$*. We believe that Strunk's analysis of Vedic *ī̆jate* as a reduplicated present *$h_2ih_2eǵetoi$* is more convincing. The issue seems to have been convincingly resolved by Dunkel 2000, who showed that the Latin verbs in -*īgare* prove that the root was in fact *h_2eǵ*. (We owe this reference to Michael Meier-Brügger).

[37]   Wackernagel 1879; Kühner-Blass 1890: 335–336; this is called "Wackernagel's Law II" and was discussed in Collinge 1985: 238–239, Berenguer-Sánchez 2011 and Krisch 2011: 53–61 (part IV of the *Indogermanische Grammatik*). Ferdinand de Saussure made a similar discovery, but discussed this lengthening in a broader perspective (Bally-Gautier 1922: 464–470).

[38]   Chantraine 1968–1974: 17.

[39]   Dunkel 2000: 91.

[40]   De Saussure 1884 (= Bally-Gautier 1922: 474).

the elision.[41] If the elision does not occur, there is no lengthening.[42] Berenguer-Sánchez argued that the theory of elision and compensatory lengthening could also explain cases such as ἐπήκοος 'obeying' from *ἐπιᾱκοος and τῆτες 'this year' from *kyawetes from an even earlier *kiawetes, in which the glide palatalised and the *a* was elided. We cannot discuss the issue in detail here, but we believe that there is a problem of chronology. The long contraction vowels are old, and happened before the disappearance of the digamma (as elision in Classical Greek never entails lengthening), but the elision of the *i* in both examples can only have happened after the disappearance of the digamma. This makes the suggestion of Berenguer-Sánchez less likely in our opinion: we think that the lengthening had happened before the *i* was elided. We also believe that the long vowel in ἐπήκοος might have been influenced by the perfect ἀκήκοα and/or by the Greek preference to avoid a series of short vowels, and the long vowel of τῆτες by that of the word τήμερον 'today'.[43] We would therefore suggest that the Greeks reinterpreted the long vowels as compound lengthening and expanded the process to compounds where no long vowel could etymologically be explained, such as δυσώνυμος.[44] In addition to the etymological reconstructions, one has to bear in mind that compounds with short vowels would have rendered words such as θανατηφόρος and ἱππᾱμολγός useless for the hexameter, and a form θανατοφόρος would have had too many short vowels.[45] As such, we think that the Greek long vowels in these compounds cannot be used to prove that *oh_2 and *h_2o yielded Greek *ā* and *a*.

8. Conclusion.

In light of all the evidence, we believe that PIE *h_2o leads to Greek *o*. We analysed the arguments in favour of *a* being the result, namely the perfect forms and the compounds with long *a*, and argued that they could be explained by later analogies (especially with the other verbal forms) and/or metrical necessities. This is confirmed by the perfect form τέθηκα from τίθημι and the compound ἱππήλατος: these forms prove that the vowel length cannot be used as evidence, since otherwise we would be forced to state that *h_1 coloured *o* into *e*. We assume that the long *a* perfects have been created under the influence of the aorist forms

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[41] Berenguer-Sánchez 2011, especially 386. We were unable to consult his article in *IF* 117 (to which he referred in his *Emerita* article), because at the time of our writing (2013.02.16), neither the article nor the journal had already appeared.

[42] Risch 1974: 225, Berenguer-Sánchez 2011: 384–385.

[43] We owe this reference to one of the anonymous referees of the journal.

[44] This example was discussed by Risch 1974: 225.

[45] De Saussure 1884 (Bally-Gautier 1922: 464–470), Collinge 1985: 238–239 without reference to de Saussure.

with long *a*, and by the tendency of Greek to create an ablaut pattern long/short vowel. In addition, we believe that the nouns and adjectives with *o* vocalism from roots with *h_2 (such as *ὄγμος, ἀγωγός, ἀγωγή, ὄκρις* and *φωνή*) prove that the treatment of *h_2o was indeed *o*.

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B i b l i o g r a p h y

Bader, F.

1965   *Les composés grecs du type de demiourgós*. Paris: Klincksieck.

1978   De protéger à razzier au néolithique indo-européen: phraséologie, etymologies, civilisation. *BSL* 73. 103–220.

Bally, C. – Gautier, L.

1922   *Recueil des publications scientifiques de Ferdinand de Saussure*. Genève: Sonor.

Bammesberger, A.

1984a   *Studien zur Laryngaltheorie*. Göttingen: Vandenhoeck und Ruprecht.

1984b   *Lateinische Sprachwissenschaft*. Regensburg: Pustet.

1988   *Die Laryngaltheorie und die Rekonstruktion des indogermanischen Laut- und Formensystems*, herausgegeben von Alfred Bammesberger. Heidelberg: Winter.

1989   The laryngeals theory and the phonology of Prehistoric Greek. Vennemann 1989. 35–42.

Beekes, R.

1969   *The Development of the Proto Indo European Laryngeals in Greek*. The Hague: Mouton.

1972a H_2O. *Die Sprache* 18. 117–131.

1972b   The Nominative of the Hysterodynamic Nonu Inflection. *KZ* 86. 30–63.

1989   The nature of the Proto-Indo-European laryngeals. Vennemann 1989. 23–34.

1995   *Comparative Indo European Linguistics: An Introduction*. Amsterdam-Philadelphia: Benjamin.

2010   *Greek Etymological Dictionary*. Leiden: Brill.

Berenguer-Sánchez, J.

2011   Notas sobre la ley de alargamiento de Wackernagel. *Emerita* 79. 381–390.

Chantraine, P.

1933   *La formation des noms en grec ancien*. Paris: Klincksieck.

1948   *Grammaire Homérique*. Paris: Klincksieck [1948 (volume I), 1953 (volume 2)].

1964   *Morphologie historique du grec*. Paris: Klincksieck.

1968–1974   *Dictionnaire étymologique de la langue grecque. Histoire des mots*. Paris: Klincksieck.

Clackson, J.

2007   *Indo-European Linguistics: An Introduction*. Cambridge: Cambridge University Press.

Cohen, P.

2009   On the etymology of Latin *optumus/optimus* and the reflex of PIE *H_2o. In: Rasmussen, J. – Olander, T. *Internal Reconstruction in Indo-European*. Copenhagen. 65–72.

Collinge, N.

1985   *The Laws of Indo-European*. Amsterdam: John Benjamins.

Cowgill, W.

1965   Evidence in Greek. Winter 1965. 142–180.

De Saussure, F.

1879   *Mémoire sur le système primitif des voyelles dans les langues indo euro-péennes*. Leipzig.

1884   Une loi rhythmique de la langue grecque. In: *Mélanges Graux* (Bally-Gautier 1922. 464–476).

Dunkel, G.

1993   Mono- and Disyllabic *ā* in the ṚGVEDA. In: Pirart, E. *Syntaxe des Langues indo-iraniennes*. Barcelona. 1993. 9–27.

2000   Latin verbs in *igāre* and *īgāre*. In: Freiherr Lochner von Hüttenbach, F. – Ofitsch, M. – Zinko, C. (eds.). *125 Jahre Indogermanistik in Graz*. Graz: Leykam. 87–99.

2009   Lithuanian Chips from an Aptotologist's Workshop. *Baltistica* 44.1. 37–57.

Fortson, B.

2004   *Indo European language and culture: an introduction*. Oxford: Blackwell.

Fraenkel, E.
1960   *Litauisches etymologisches Wörterbuch*. Teil I. Heidelberg: Winter.

Frisk, H.
1960–1972. *Griechisches etymologisches Wörterbuch*. Heidelberg: Winter.

Hackstein, O.
2002   *Die Sprachform der homerischen Epen*. Wiesbaden.

Hamp, E.
1965   Evidence in Albanian. Winter 1965. 123–141.
1978   On Greek Prothetic Vowels. *MSS* 37. 59–64.
1989   *The Indo-European obstruent features and phonotactic constraints*. Vennemann 1989. 209–215.

Haudry, J.
1979   *L'Indo-européen*. Paris: Presses universitaires de France.

Jonsson, H.
1978   *The laryngeal theory. A critical survey*. Lund: Gleerup.

Kent, R.
1935   The etymology of Greek *thanatos* and its kin. *Language* 11,3. 207–210.

Kimball, S.
1987   H3 in Anatolian. In: Cardona, G. – Zide, N. *Festschrift for Henry Hoenigswald*. Tübingen: Narr. 185–192.
1988   *OH$_2$ in Common Greek. Bammesberger 1988. 241–256.
1999   *Hittite Historical Phonology*. Innsbruck: Institut für Sprachwissenschaft.

Kortlandt, F.
1980   H$_2$o and oh$_2$. *LP* 23. 127–128.

Kühner, R. – Blass, R.
1892   *Ausführliche Grammatik der griechischen Sprache*. Hamburg: Hahn. 2 Volumes.

Kuryłowicz, J.
1927   L'origine du redoublement attique en grec. *Eos: commentarii societatis philologicae Polonorum* 30. 206–211.
1935   *Études indo-européennes*. Wrocław: PAU.
1958   *L'accentuation indo-européenne*. Wrocław: PAU.
1968   *Indogermanische Grammatik. Teil II: Ablaut*. Heidelberg: Winter.

Lejeune, M.
1972   *Phonétique historique du mycénien et du grec ancien*. Paris: Klincksieck.

Lindeman, F.
1970   *Einführung in die Laryngaltheorie*. Berlin: De Gruyter.
1982   *The triple Representation of Schwa in Greek and some related Problems of Indo-European Phonology*. Oslo: Universitetforlaget.
1987   *Introduction to the "laryngeal theory"*. Oslo: Norwegian University Press.

Lindner, T.
2011   *Indogermanische Grammatik. Band IV.1. Komposition*. Heidelberg: Winter.

Mallory, J. – Adams, D.
1997   (editors). *Encyclopedia of Indo European Culture*. London-Chicago: Dearborn.
2006   *The Oxford Introduction to Proto-Indo-European and the Proto-Indo-European World*. Oxford: Oxford University Press.

Mayrhofer, M.
1981a   Nach hundert Jahren. Ferdinand de Saussures Frühwerk und seine Rezeption durch die heutige Indogermanistik. *Sitzungsberichte der Heidelberger Akademie der Wissenschaften*. 7–38.
1981b   Laryngalreflexe im Indo-Iranischen. *ZPSK* 34. 427–438.
1982   Über griechische Vokalprothese, Laryngaltheorie, und externe Rekonstruktionen. In: Tischler, J. (ed) *Serta Indogermanica. Festschrift für Günther Neumann zum 60. Geburtstag*. Innsbruck: Innsbrucker Institut für Sprachwissenschaft. 177–192.
1986   *Indogermanische Grammatik* I. Heidelberg: Winter.
2004   *Die Hauptprobleme der indogermanischen Lautlehre seit Bechtel*. Wien: Österreichische Akademie der Wissenschaften.
2005   *Die Fortsetzung der indogermanischen Laryngale im Indo-Iranischen*. Wien: Österreichische Akademie der Wissenschaften.

Meier-Brügger, M.
1992   *Griechische Sprachwissenschaft*. Zwei Bände. Berlin: De Gruyter.
2003   *Indo-European Linguistics*. Berlin: De Gruyter.
2010   *Indogermanische Sprachwissenschaft*. Berlin: De Gruyter. (zweite erweiterte Auflage)

Meyer, L.
1881   Castîgâre, fastîgâre, vestîgâre, lîtigâre, und noch einige andere lateinische bildungen mit innerem ig und îg. *BB* 6. 130–137.

Möller, H.
1880   Germanisch $\bar{a}$, $\bar{e}$, $\bar{o}$ in den Endungen des Nomens und die Entstehung des *O* (a_2). *PBB* 7. 482–547.

Ölberg, H.
1972   Einige Überlegungen zur Laryngaltheorie. An Hand des Albanischen. *KZ* 86. 121–136.

Penney, J.
1988   Laryngeals and the Indo-European root. Bammesberger 1988. 361–372.

Peters, M.
1980   *Untersuchungen zur Vertretung der indogermanischen Laryngale im Griechischen*. Wien: Verlag der österreichischen Akademie der Wissenschaften.

Petit, D.
2000   Lituanien *stuomuõ/stomuõ* et la théorie des laryngales. *KZ* 113. 259–275.

Rasmussen, J.
1999   *Selected Papers on Indo-European Linguistics, with a Section on Comparative Eskimo Linguistics*. Kopenhagen: Museum Tusculanum Press.

Risch, E.
1974   *Wortbildung der homerischen Sorache*. Berlin: De Gruyter.

Rix, H.
1976   *Historische Grammatik des Griechischen. Laut- und Formenlehre*. Darmstadt: Wissenschaftliche Buchgesellschaft.

Ruijgh, C.
1968   Observations sur la "métathèse de quantité". *Lingua* 21. 382–399.
1971   Review Beekes 1969. *Lingua* 26. 181–196.
1972   Le rédoublement dit attique dans l'évolution du système morphologique du verbe grec. In: *Mélanges offerts à Pierre Chantraine*. Paris: Klincksieck. 211–230.
1978   Review Rix 1976. *Mnemosyne* IV 31,3.298–307.
1988   Les laryngales en grec préhistorique. Bammesberger 1988. 433–469.

Sihler, A.
1988   Greek Reflexes of Syllabic Laryngeals, with a Postscript on PIE kinship terms in *H_2ter*. Bammesberger 1988. 547–561.
1995   *A Comparative Grammar of Latin and Greek*. Oxford: Oxford University Press.

Smyth, H.
1956   *Greek Grammar.* (Revised and enlarged by G. Messing) Cambridge, MA: Harvard University Press.

Strunk, K.
1977   Zwei latente Fälle des verbalen Präsensstammtyps *tiṣṭha(-ti)* im Veda. *ZDMG* Supplement III. 971–983.

Sturtevant, E.
1942   *The Indo-Hittite Laryngeals*. Baltimore: Language Institute of America.

Szemerényi, O.
1996   *Introduction to Indo-European linguistics*. Oxford: Clarendon Press (translated from Einführung in die vergleichende Sprachwissenschaft, 4e Auflage, 1990 with additional notes and references).

Tichy, E.
2009   *Indogermanistisches Grundwissen für Studierende sprachwissenschaftlicher Disziplinen*. Bremen: Hempen.

Vennemann, T.
1989   (editor). *The new sounds of Indo-European. Essays in phonological reconstruction*. Berlin: de Gruyter.

Wackernagel, J.
1889   *Das Dehnungsgesetz der griechischen Composita*. Basel.

Weiss, M.
2009   *Outline of the Historical and Comparative Grammar of Latin*. Ann Arbor: Beech Stave Press.

Winter, W.
1965   (editor). *Evidence for Laryngeals*. The Hague: Mouton.

Zair, N.
2012   *The Reflexes of the Proto-Indo-European Laryngeals in Celtic*. Leiden: Brill.