

Another look at the  $*h_2o$  problem.

## Some etymological and morphological observations on the $*h_2o$ problem.

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### 1. 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  $\bar{a}$ , the compounds in  $-ηγός/αγός$  and the compound  $ἰππημολγός$ . The article finds that the perfect vocalism in  $\bar{a}$  can be explained by the Greek tendency to create an ablaut paradigm  $a/\bar{a}$  (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  $\bar{a}$  and that the  $\bar{a}$  in  $ἰππημολγός$  is a form of *Kompositionsdehnung*, which is proved by the compounds  $ἰππήλατος$  and  $θανατηφόρος$ . We therefore hold that  $*h_2$  did not colour  $o$  into  $a$  and that there is no need for  $*h_4$  either.\*

### 2. 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.

### 3. PIE $*o$ is coloured by $*h_2$ (Lindeman, Ruijgh).

Lindeman and especially Ruijgh argued that the combination  $*h_2o$  yielded  $a$ .<sup>1</sup> Two important elements have been adduced to substantiate this. Ruijgh pointed at perfect forms such as  $ἔστηκα$  "I have put myself and am now standing" (Doric  $ἔστᾱκα$ ),  $τέθηκα$  "I have died and am dead now" (Doric  $τέθῆκα$ ) and  $πέπηγα$  "I have been fixed and am stiff now"

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We use the commonly accepted abbreviations but use *KZ* to refer both to *Zeitschrift für vergleichende Sprachforschung* and to *Historische Sprachforschung*. In our Indo-European reconstructions we only write resonants without indicating whether they were vocalic or consonantal, because we believe that there was no phonological opposition in PIE between vocalic and consonantal resonants.

<sup>1</sup> 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).

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(Doric *πέπᾱγα*).<sup>2</sup> 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 ἔστᾱκα had to go back to a proto form *\*sestoh<sub>2</sub>kh<sub>2</sub>e*, in which the combination *\*oh<sub>2</sub>* yielding Greek *ā*. 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 θνήσκω “I die”: in Homer these aforementioned verbs have the inherited ablaut patterns, with zero grade in the plural forms of the active perfect: ἔσταμεν “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<sub>2</sub>* was *ā*. In addition, he pointed at numerous compounds of verbs with *\*h<sub>2</sub>*, which had long *a* where the normal expected vocalism would have been *o*. He referred to the masculine *nomina actoris* ἵπᾱμολγός “horse-milking”, λοχᾱγός “general, commander” and στρατᾱγός “general, commander”, which he reconstructed as (*transponats*) *\*h<sub>1</sub>ek<sub>1</sub>uo-h<sub>2</sub>melǵos*, *\*log<sup>h</sup>o-h<sub>2</sub>oǵos* and *\*strato-h<sub>2</sub>oǵos*, and to the feminine *nomen actionis* φήμη “utterance, voice” (φᾱμᾱ), which he reconstructed as *\*b<sup>h</sup>oh<sub>2</sub>meh<sub>2</sub>*. 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<sub>2</sub>*. This assumption was followed by Lejeune, Haudry, and Sihler.<sup>3</sup> Lindeman argued in 1970 for the colouring of *\*o* into *\*a* by *\*h<sub>2</sub>* 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 ἄγός “leader” never had *e/o* ablaut since the *\*e* had already been coloured into *a*, and went back to PIE *\*h<sub>2</sub>aǵos*.<sup>4</sup> Lindeman also discarded the evidentiary weight of the 1<sup>st</sup> person singular active by assuming that *\*oh<sub>2</sub>* 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<sub>2</sub>*, but even if the colouring preceded the ablaut patterns, we still think that

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<sup>2</sup> Ruijgh 1971:190, 1978:302

<sup>3</sup> Lejeune 1972:203, Haudry 1979:18 and Sihler 1995:45-46.

<sup>4</sup> Lindeman 1970:34-35, 1987:37-38 and 50-52

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the ablaut affected the  $a$  as can be seen in the cognates Scottish *Loch*, Latin *lacus* and Greek *λάκκος*, all meaning “lake”.<sup>5</sup>

#### 4. 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  $*\bar{a}_2$  (his notation for modern  $\bar{o}$ ) and that  $*a_2A$  became  $o$ , and referred to examples as ὄγμος, βωμός “altar” and φωνή.<sup>6</sup> Möller agreed with him, but adapted the writing and wrote  $oA$  instead of  $*a_2A$ .<sup>7</sup> Kuryłowicz and Beekes followed this and also argued that  $*o$  was not coloured by  $h_2$ ,<sup>8</sup> and in response to Ruijgh’s criticism, Beekes referred to the  $*h_2e$ , and  $*h_2o$  ablaut in word building.<sup>9</sup> His examples included:

- the Greek adjective ἄκρος “top, high”, the Latin adjective *acer* from  $*h_2ekros$  and the noun ὄκρις “top” and the Latin adjective *mediocris* from  $*h_2okr-$  “high”;<sup>10</sup>
- the noun ὄγμος from  $*h_2ogmos$  related to the verb ἄγω from  $*h_2eg-$ ;
- βωμός from  $*g^w oh_2mos$ , related to the root aorist ἔβᾱν in Greek and in Sanskrit *agām*, both meaning “I went”;
- φωνή from  $*b^h oh_2meh_2$  from the root  $*b^h eh_2$  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 *pāscō* “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 *pāscō* is less certain. In the meaning “shepherd”, the Greek word is related to Lithuanian *piemuō* but that word poses problems. If both words continue  $*oh_2$ , it would argue against an evolution  $*oh_2 > *\bar{o}$ .<sup>11</sup> Fraenkel observed the difficult vocalism and explained the irregular *ie* by influence of *pienas* “milk”.<sup>12</sup> Mayrhofer argued that the *nomina actoris* in  $*me/on$  did not have an  $o$  grade, and therefore explained the Greek as  $*peh_3i-$ .<sup>13</sup> Among scholars positing the link between Greek ποιμήν and Lithuanian *piemuō*, Bader was aware of the problems the Greek and Lithuanian words

<sup>5</sup> Fortson 2004:75

<sup>6</sup> De Saussure 1879:135; he used  $a_2A$  on page 135 and  $oa$  on page 139.

<sup>7</sup> Möller 1880:486. We owe the reference to Möller to one of the anonymous referees of *SEC*.

<sup>8</sup> Kuryłowicz 1935:111, Beekes 1969:167-169

<sup>9</sup> Beekes 1972a, and more recently in his treatment of ἄγω, ἀγωγός and ἀγωγή in Beekes 2010.

<sup>10</sup> See also Chantraine 1968-1974:45.

<sup>11</sup> Bader 1978:130

<sup>12</sup> Fraenkel 1960:585

<sup>13</sup> Mayrhofer 1986:174-175

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posed,<sup>14</sup> but Beekes only mentioned the link, but did not discuss the problems.<sup>15</sup> There is, however, other evidence in Lithuanian in favour of the evolution PIE *\*oh<sub>2</sub>* > late PIE *\*ō* > Lithuanian *uo*. Petit showed that the Lithuanian words *stúomas*, *stomuō* and *stomuõ*, all meaning “*taille, stature*” were evidence for the evolution *\*eh<sub>2</sub>* > *\*ā* and *\*oh<sub>2</sub>* > *\*ō*.<sup>16</sup> He argued that the *\*me/on* suffix used the *e* grade and thus continued *\*steh<sub>2</sub>mon*. 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<sub>2</sub>mos*. This form yielded late PIE *\*stōmos*, which became *\*stōmas* in Baltic and *stúomas* in Lithuanian.<sup>17</sup> From this, we can conclude that Lithuanian does not contradict the evolution *\*oh<sub>2</sub>* > *\*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.<sup>18</sup> Rix also pointed at the ending of the 1<sup>st</sup> person singular which is reconstructed as *\*oh<sub>2</sub>* and stated that this also proved that *\*o* was not coloured by *\*h<sub>2</sub>*. Based on all these examples, Beekes, Rix and Mayrhofer have argued that the *\*o* vowel of PIE was never coloured by any laryngeal.<sup>19</sup> In recent times, the particle *\*h<sub>2</sub>o* “up against, next to” has been added to the equation,<sup>20</sup> and Zair has shown that *o* was also the regular reflex of *\*h<sub>2</sub>o* in Celtic.<sup>21</sup> There is therefore no conclusive evidence against the non-colouring, and it has now become the *communis opinio*.<sup>22</sup>

## 5. *\*h<sub>2</sub>o* gave *a* but was then restored into *o*.

Kortlandt admitted that both theories had strong evidence to support their opinions, and argued that *\*h<sub>2</sub>* coloured *\*o* into *\*a* but that the forms with an *a* did not belong to the oldest layer.<sup>23</sup> 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<sub>3</sub>*, leading to the creation of a vowel *o*. He then assumed that in “certain productive categories in Proto-Greek” *\*h<sub>2</sub>* was reintroduced and the newly created clusters *\*oh<sub>2</sub>* and *\*h<sub>2</sub>o* then lead to *a* or *ā*.

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<sup>14</sup> Bader 1978:105-106 and 130.

<sup>15</sup> Beekes 1972b:37, 2010:1217

<sup>16</sup> Petit 2000. We owe the reference to Petit to one of the anonymous referees of the journal.

<sup>17</sup> Petit 2000:272

<sup>18</sup> Rix 1976:222-223

<sup>19</sup> Beekes 1969:167-169; 1995:138-139;147; Rix 1976:71; Mayrhofer 1982:183-14.

<sup>20</sup> Dunkel 1993, 2009:42-43

<sup>21</sup> Zair 2012:21-24; Celtic *oi* was already discussed by Kimball 1987:189.

<sup>22</sup> Fortson 2004:56-58, Weiss 2009:49-50

<sup>23</sup> Kortlandt 1982

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Kortlandt was followed by Ruijgh (against his earlier views).<sup>24</sup> We believe that the scenario outlined by Kortlandt is too complicated (as had been also remarked by Lindeman, who called it “gratuitous”<sup>25</sup>) and we also fail to see how *\*h<sub>2</sub>* could have coloured *\*o* if *\*o* assimilated *\*h<sub>2</sub>* into *\*h<sub>3</sub>*. 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<sub>2</sub>* was first assimilated into *\*h<sub>3</sub>* and then back into *\*h<sub>2</sub>* under influence of the other verbal forms. If one accepts Kortlandt’s analysis, one could argue from the perfect τέθηκα with  $\bar{e}$  vocalism and derived noun θωμός “heap” with  $\bar{o}$  vocalism, both from τίθημι “I put”, proved that *\*oh<sub>1</sub>* originally was assimilated into *\*oh<sub>3</sub>* but was then analogically restored in *\*oh<sub>1</sub>* under influence of the other verbal forms and became *\* $\bar{e}$* . 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.

#### 6. There are two *a* colouring laryngeals: *\*h<sub>2</sub>* and *\*h<sub>4</sub>*.

Kuryłowicz, Sturtevant and Hamp noticed that not all *a* colouring laryngeals caused aspiration in Indo-Iranian nor were preserved in Hittite.<sup>26</sup> In order to account for this, they reconstructed four laryngeals, with *\*h<sub>2</sub>* being the one that remained in Hittite and aspirated, while *\*h<sub>4</sub>* did not aspirate nor survive in Hittite. In addition, Kuryłowicz and Hamp also assumed that that *\*h<sub>2</sub>o* became *a* but that *\*h<sub>4</sub>o* became *o*. Hamp also argued that this *\*h<sub>4</sub>* 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,<sup>27</sup> especially since the etymologies used by Hamp to corroborate his Albanian evidence are not entirely conclusive and have been contested.<sup>28</sup>

#### 7. 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 πέπαγα from *\*pepoh<sub>2</sub>gh<sub>2</sub>e* with long *a* and ἔρωγα “I have been torn and am now broken” from

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<sup>24</sup> Ruijgh 1988

<sup>25</sup> Lindeman 1987:51

<sup>26</sup> Kuryłowicz 1935:27, Sturtevant 1942:§11 and Hamp 1965, 1989:209.

<sup>27</sup> In the most recent treatments of the problem (Petit 2000 and Cohen 2009), the issue of *\*h<sub>4</sub>* was not even addressed, which might be an indication of the little weight that the theory nowadays has.

<sup>28</sup> Ölberg 1972

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*\*wewroh<sub>1</sub>gh<sub>2</sub>e* with long *o*.<sup>29</sup> As both forms had an intransitive aorist with short *a* (ἐπάγην and ἐπράγην), 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<sup>h</sup>uH* influenced the root *\*steh<sub>2</sub>*.<sup>30</sup> She posited that the similarity between ἔφῶν “I came to be” and πέφῶκα “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<sup>h</sup>uH* influenced the root *\*steh<sub>2</sub>*, 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.<sup>31</sup> In a later stage of 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<sub>1</sub>* did not colour *\*o* into *\*e*, the form τέθηκα from *\*d<sup>h</sup>ed<sup>h</sup>oh<sub>1</sub>kh<sub>2</sub>e* cannot be explained, because the expected form would have been \*τέθωκα, as is proved by the Greek θωμός from *\*d<sup>h</sup>oh<sub>1</sub>mos* 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 ἦκα and perfect εἶκα 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 \*ἔστωκα by ἔστᾱκα. In order to explain the difference in perfect root vocalism between πέπᾱγα and ἔρωγα, we assume that the present form πάγνῶμι (with long *a*) influenced the perfect vocalism but that ῥήγνῶμι (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<sub>1</sub>*. 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,

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<sup>29</sup> Ruijgh 1978:302

<sup>30</sup> Kimball 1988:247-249, 1989:151

<sup>31</sup> These forms are not attested, but reconstructed based on the attested plural forms.

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while there was no such parallel in the conjugation of ῥήγνυμι. 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*.<sup>32</sup> 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<sub>3</sub>*, an ablaut paradigm *ā/a* existed in the present and aorists of the stems in *\*-eh<sub>2</sub>*, while a paradigm *ē/e* existed in the present and aorists of roots in *\*-eh<sub>1</sub>*, in the so-called *Narten* presents and imperfects and in the acrostatic declensions (although Greek lost this type of declension).<sup>33</sup> 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.<sup>34</sup> 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 δείκνυμι “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 νέκῶς “dead body, corpse”, instead of the expected nominative *\*νέκους*.<sup>35</sup>

## 8. 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 στρατᾶγός, λοχᾶγός and ἰππᾶμολγός can be reconstructed as (*transponats*) *\*log<sup>h</sup>o-h<sub>2</sub>(o)ǵos*, *\*str(a)to-h<sub>2</sub>(o)ǵos* and *\*h<sub>1</sub>ek<sup>h</sup>uo-h<sub>2</sub>molgos*.<sup>36</sup> In all these compounds one would expect a long *o* if the *o* was not coloured by *\*h<sub>2</sub>*. 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.<sup>37</sup> A second explanation is that of Chantraine,<sup>38</sup> who argued that the long *a* was due to analogy with the vocalism of the verb ἡγέομαι/ ἄγέομαι “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: ἄγωγός

<sup>32</sup> Hackstein 2002: 149-159, 168-289

<sup>33</sup> 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.

<sup>34</sup> An extensive and detailed analysis of the different forms is found in Hackstein 2002: 149-159 and 168-289.

<sup>35</sup> For a detailed analysis of that declension see Hackstein 2002: 207-209.

<sup>36</sup> Bammesberger (1984a:66-68) argued that the root was not *\*h<sub>2</sub>eǵ*, but *\*aǵ*. We believe that Strunk’s analysis of Vedic *ījate* as a reduplicated present *\*h<sub>2</sub>ih<sub>2</sub>eǵetoi* 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<sub>2</sub>eǵ*. (We owe this reference to Michael Meier-Brügger)

<sup>37</sup> 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).

<sup>38</sup> Chantraine 1968-1974:17

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“caarying” and ἀγωγή “the act of carrying”. A third explanation is that of Dunkel,<sup>39</sup> 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<sub>2</sub>* leading to long *a* are the compounds ὠμηστής “eating raw flesh”, ἱπήλατος “leading horses” and θανατηφόρος “carrying death” (besides θανατοφόρος). The third example can be reconstructed as *\*d<sup>h</sup>(u)nh<sub>2</sub>to-b<sup>h</sup>oros* 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.<sup>40</sup> The second can be reconstructed as *\*h<sub>1</sub>ékuo-h<sub>1</sub>lh<sub>2</sub>tos*, and the first example can be analysed as (*transponat*) *\*ōmo-h<sub>1</sub>d-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<sub>1</sub>* 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 the elision.<sup>41</sup> If the elision does not occur, there is no lengthening.<sup>42</sup> 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”.<sup>43</sup> 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

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<sup>39</sup> Dunkel 2000:91

<sup>40</sup> De Saussure 1884 (= Bally-Gautier 1922:474)

<sup>41</sup> 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.

<sup>42</sup> Risch 1974:225, Berenguer-Sánchez 2011:384-385

<sup>43</sup> We owe this reference to one of the anonymous referees of the journal.



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etymologically be explained, such as *δυσώνυμος*.<sup>44</sup> 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 *ἰππᾶμολγός* useless for the hexameter, and a form *θανατοφόρος* would have had too many short vowels.<sup>45</sup> As such, we think that the Greek long vowels in these compounds cannot be used to prove that *\*oh<sub>2</sub>* and *\*h<sub>2</sub>o* yielded Greek *ā* and *α*.

## 9. Conclusion.

In light of all the evidence, we believe that PIE *\*h<sub>2</sub>o* 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 *ἰππήλατος*: these forms prove that the vowel length cannot be used as evidence, since otherwise we would be forced to state that *\*h<sub>1</sub>* coloured *o* into *e*. We assume that the long *a* perfects have been created under the influence of the aorist forms 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<sub>2</sub>* (such as *ὄγμος*, *ἀγωγός*, *ἀγωγή*, *ὄκρις* and *φωνή*) prove that the treatment of *\*h<sub>2</sub>o* was indeed *o*.

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<sup>44</sup> This example was discussed by Risch 1974:225.

<sup>45</sup> De Saussure 1884 (Bally-Gautier 1922:464-470), Collinge 1985:238-239 without reference to de Saussure.

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