

## On new reconstructions of PIE “laryngeals”, especially as uvular stops

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**Abstract.** More than hundred years after the partial confirmation of the laryngeal theory by the Hittite evidence this aspect of the phonological reconstruction of Proto-Indo-European has remained one of the most controversial ones. While there is widespread agreement about the reconstruction of three “laryngeals”, their phonological interpretation is less clear. Recently, two radically different new interpretations have been proposed: 1) a reconstruction of just one “glottal fricative” (corresponding to  $*h_2$ ) by Pyysalo [2013] with sharp critique of most assumptions of the received theory, and 2) a reinterpretation of  $*h_2$  and  $*h_3$  as uvular stops by Kloekhorst [2018], mainly based on their continuation as velar stops in Lycian and Carian. While the former proposal suffers from severe methodological weaknesses and is therefore not further discussed here, the latter seems more promising, as it is based on the usual methodology of comparative reconstruction applied to the actual evidence of Anatolian. After reviewing the most crucial general evidence for the reconstruction of “laryngeals”, especially cases of preserved consonants (including hitherto rarely considered evidence from Iranian), the arguments for uvular stops are discussed. Some problematic phonetic details of Kloekhorst’s proposal are criticized, with the result that a reinterpretation according to this critique may even strengthen the general idea of uvular stops. Especially the assumption of  $*h_3$  being a labialized fortis is rejected, instead it is argued that the evidence points to a non-labialized lenis obstruent, thus introducing a distinction typical for stops within the IE system. At the end, remaining problems are discussed, and an alternative scenario for the Anatolian development is mentioned (though not extensively discussed). The conclusion is that uvular stops might indeed be the original value of PIE  $*h_2$  and  $*h_3$  but they might have become uvular fricatives already in PIE, or in late Proto-Anatolian, and the stop reflexes of younger Anatolian languages could also be secondary, independent of the original status of the PIE sounds.

**Keywords:** Anatolian, Fricatives, Indo-European, Iranic / Iranian, Labialization, Laryngeals, Phonological reconstruction, Phonological typology, Stops, Uvulars.

**Acknowledgment.** This article is partly based on my talk at the Arbeitstagung of the Society for Indo-European Studies in Ljubljana, June 2019. For the further elaboration of this work I have profited from discussions in an academia.edu session about a draft by Alwin Kloekhorst, and I wish to thank him and other participants, notably Stephen P. Durnford, David Kiltz, Juho Pystynen, Marijn van Putten, Zsolt Simon, Rémy Viredaz, Ola Wikander and last but not least our honorand.

## О новых реконструкциях праиндоевропейских «ларингальных» как увулярных смычных

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**Аннотация.** Спустя сто лет после частичного подтверждения ларингальной теории хеттскими данными этот аспект фонологической реконструкции праязыка остается одним из наиболее противоречивых. Широко распространена реконструкция трех ларингальных, но их фонологическая интерпретация остается неясной. В последнее время появилось две радикально различающиеся новые идеи: 1) реконструкция только одного «глоттального фрикативного» (соответствующего  $*h_2$ ), с резкой критикой большинства положений ларингальной теории [Ruysalo 2013], и 2) интерпретация  $*h_2$  и  $*h_3$  как увулярных смычных [Kloekhorst 2018], которая в первую очередь основана на их рефлексах как веларных смычных в ликийском и карийском. Первое из этих предположений характеризуются существенными методологическими недостатками и по этой причине здесь далее не рассматривается. Второй вариант представляется более перспективным, так как он основан на стандартной методологии сравнительно-исторической реконструкции, примененной к имеющемуся анатолийскому материалу. За обзором основополагающих данных для реконструкции «ларингальных», особенно случаев сохранения согласных (в том числе редко привлекаемых иранских примеров), следует обсуждение аргументов в пользу увулярных смычных. В статье подвергаются критике отдельные аспекты гипотезы Клухорста; тем не менее эта критика скорее даже подтверждает реконструкцию ларингальных как увулярных смычных. Автор отвергает идею о том, что  $*h_3$  является огубленным сильным согласным (fortis), и вместо этого приводит данные, указывающие

на неогубленный слабый шумный согласный (lenis), благодаря чему для праязыка можно реконструировать типичную для праиндоевропейских согласных оппозицию. После обсуждения остающихся проблем кратко упоминается альтернативный сценарий развития согласных в анатолийских языках. Автор приходит к выводу, что праиндоевропейские  $*h_2$  и  $*h_3$  могли быть увулярными смычными, превратившимися в увулярные фрикативные уже в праиндоевропейском или в позднем пра-анатолийском; в таком случае смычный характер рефлексов этих звуков в ликийском и карийском вторичен.

**Ключевые слова:** Анатолийские языки, иранские языки, праиндоевропейский, фонологическая реконструкция, фонологическая типология, ларингальные, фрикативные, увулярные, смычные.

## 1. Introduction

1.1. The current mainstream reconstruction of the Proto-Indo-European (PIE)<sup>1</sup> phonological system includes three so-called “laryngeals”  $*h_1$ ,  $*h_2$ ,  $*h_3$ ; some also reconstruct a fourth “laryngeal”  $*h_4$ .<sup>2</sup> Since these sounds have largely disappeared in most IE languages, leaving only indirect traces, their reconstruction is more difficult. While  $*h_1$  (the one “laryngeal” that left the fewest traces) is often reconstructed as a glottal stop  $*[ʔ]$  or a glottal fricative  $*[h]$ , most treatments agree that  $*h_2$  and  $*h_3$  which are more often preserved as consonants (cf. below) were some kind of back fricatives, ranging from velar to pharyngeal.<sup>3</sup>

<sup>1</sup> In contrast to Kloekhorst [2018], I follow Olander [2019] in using Proto-Indo-European (PIE) and not Proto-Indo-Anatolian (PIA) as the designation of the whole family, but in contrast to Olander I use (Proto-)Core IE (CIE) and not Indo-Tocharian for the potential branch of IE comprising all subfamilies other than Anatolian.

<sup>2</sup> For  $*h_4$  cf. especially [Mallory, Adams 1997 (passim); 2006: 55]. The arguments for three laryngeals are well exposed by Eichner [1988], from an Anatolian perspective.

<sup>3</sup> E.g., cf. the following proposals for  $*h_1$ ,  $*h_2$  and  $*h_3$ : /ç/, /x/, /xʷ/ [Tichy 2004: 31; Ringe 1996]; /h/, /x/, /xʷ/ [Rasmussen 1983; 1994]; /x>h/, /χ>x/, /xʷ/ [Normier 1977]; /h/, /χ/, /h/ [Kümmel 2007: 336]; /ʔ/, /h/, /ç/ [Gippert 1994]; /ʔ/, /ç/, /çʷ/ [Beekes 1989; 1994].

1.2. However, some recent proposals for the reconstruction of  $*h_2$  and (partly)  $*h_3$  propose either a “weaker” sound, a glottal fricative, or “stronger” ones, namely uvular stops:

1) Only one glottal fricative (though with variants) corresponding (largely) to  $*h_2$  is reconstructed by the “glottal fricative theory” [Pyysalo 2013] (cf. [Pyysalo, Janhunen 2018a; 2018b; 2019]) which rejects all other “laryngeals” and assumes a radically different system for PIE. However, this model and the applied methodology is deeply problematic, and may be neglected here, as I have treated it elsewhere [Kümmel *forthc.*]. A glottal fricative can hardly be reconciled with the Anatolian evidence for these sounds as discussed below.

2) Quite on the contrary, Kortlandt [2014: 79] proposed to reconstruct  $*h_2$  and  $*h_3$  as uvular stops  $*q$ ,  $*q^w$  in a rather short remark, and Kloekhorst [2018] has discussed this at length, starting from the Anatolian evidence. This proposal is the main topic of the present article, but before we proceed to its discussion, we shall have a look at the kind of evidence used for the reconstruction of these two “laryngeals”.

## 2. The reconstruction of PIE “laryngeals”

2.1. Lost sounds of PIE had already been reconstructed by de Saussure [1879] based on certain peculiarities in the distribution of vowels in the then known ancient IE languages, the morphonology of which would become more regular and transparent by the assumption of lost “sonants” producing rarer types of vowels, i.e. long vowels and rare “colours” of vowels, namely  $*a$  and  $*o$  in places where  $*e$  would be expected. Further research had extended this proposal and added a third such sound not causing any “colouring”, and the term “laryngeals” was introduced.<sup>4</sup> However, these hypotheses were not accepted by most scholars due to being only “theoretical”, until new evidence showed that the newly deciphered Hittite language and its Anatolian sisters had a consonant

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<sup>4</sup> First by Møller [1906; 1911; 1917] who explicitly compared the Semitic “laryngeals”.

corresponding to zero in other IE languages, namely Hittite/Luwian  $\check{h}$  = elsewhere  $\emptyset$ :<sup>5</sup> cf. the following examples of Anatolian words with older IE reconstructions (as those found in [Pokorny 1959]): Hitt. *ḫant-* = IE *\*ant-* ‘forehead’; Hitt. *ḫast-* = IE *\*óst-/ást-* ‘bone’; Hitt. *ḫāran-* = IE *\*oron-* ‘eagle, bird’; Luw. *ḫawi-* = *\*ówi-* ‘sheep’; Hitt. *ḫartakka-* = *\*řkpo-* ‘bear’; Hitt. *ḫaster-* = IE *\*(a)stér-* ‘star’; Hitt. *ḫapp-* = IE *\*ap-* ‘fit’; Hitt. *ḫark-* = IE *\*ark-* ‘to hold’; Hitt. *ḫarki-* = IE *\*argi-* ‘white, bright’; Hitt. *ḫass-* = IE *\*ās-* ‘ashes’, Hitt. *ḫassa-* = IE *\*āsā-* ‘hearth, altar’; Hitt. *ḫissa-* = IE *\*īsā-* ‘Deichsel’; Hitt. *ḫuwant-* ≈ IE *\*(a)wē-* ‘to blow’, *\*wēnto-* ‘wind’; Hitt. *ḫuḫḫa-* = IE *\*awo-* ‘grandfather’; Hitt. *paḫḫur/paḫḫuen-* = IE *\*pūr, pun-/pan-* ‘fire’; Hitt. *paḫs-* = IE *\*pās-* ‘to protect’; Hitt. *eḫar-* = IE *\*ésr* ‘blood’; Hitt. *iḫi-* = IE *\*si-* ‘to bind’; Hitt. *tarḫu-* = IE *\*ter(w)-* ‘to overcome’; Hitt. *-ḫḫa* = IE *\*-a* 1<sup>st</sup> singular (perfect). As this Anatolian consonant was clearly phonemic and contrasted with zero, and no conditions could be detected for a secondary development, it became clear that the new correspondence set Anatolian  $\check{h}$  = zero required one or more sounds of the parent language which were lost outside of Anatolian. And the distribution of these newly discovered sounds seemed to largely match that of the already postulated “laryngeals”, and so the currently dominant theory was established. However, the exact phonetics of these sounds remained contentious, and thus the “algebraic” notation *\*h<sub>1</sub>*, *\*h<sub>2</sub>*, *\*h<sub>3</sub>* reflects the consensus better than anything more concrete. Still, to understand the developments of these sounds and the phonological system, more concrete knowledge about their probable phonetic features would be useful. In order to make such inferences, the most direct evidence comes from direct preservation of these sounds. In the following I will present this type of evidence for the two “laryngeals” which are actually preserved as consonants, i.e. *\*h<sub>2</sub>* and *\*h<sub>3</sub>*.

2.2. The clearest case is *\*h<sub>2</sub>* > Hittite, Palaic, Luwian ( $\check{h}\check{h}$ ), lenited ( $\check{h}$ ). Akkadian  $\check{h}$  continues Common Semitic *\*x/χ*; it was also used for West Semitic *ḫ*, *ḥ*, *ḫ* (but not *h*, *ḥ*), so its sound value may have been a velar, uvular or (less probably) pharyngeal fricative. In addition, we find some cases of an alternation  $\check{h} \sim k/k \sim \check{h}$  in Hittite. Hittite and Luwian words

<sup>5</sup> Cf. [Kuryłowicz 1927; Hendriksen 1941].

with ⟨h(h)⟩ are transcribed in Ugaritic by ⟨ḥ | ġ⟩ = [χ | ʁ], and not by the pharyngeals ⟨ḥ | ʕ⟩ = [ħ | ʕ], so the by far most probable value seems to be a velar-uvular fricative, fortis (voiceless) and lenis (voiced?). In the younger Anatolian languages, all the evidence, especially transcription in Greek and Egyptian, points to a velar stop: Lycian ⟨χ⟩ /k/, Carian *k*;<sup>6</sup> labialized Lycian, Carian ⟨q⟩ /k<sup>w</sup>/,<sup>7</sup> also Lydian *k* in at least some cases.<sup>8</sup>

The rarer sound *\*h<sub>3</sub>* appears to have been lost more often even in Anatolian, but it was preserved at least in some cases (in initial position and beside a sonorant), its reflexes are cuneiform ⟨ḥ⟩ (normally not geminated/fortis in inlaut), and probably also Lycian ⟨χ⟩ /k/, so it merged with reflexes of *\*h<sub>2</sub>*.<sup>9</sup>

2.3. Outside of Anatolian, preservation of consonantal laryngeals is rare or exceptional, while we often find vowels instead of “laryngeals” (mostly *\*a*, but *\*i* in Indo-Iranic and *\*e/a/o* in Greek and Phrygian). However, there seems to be some evidence for consonantal reflexes of *\*h<sub>2</sub>* in (Indo-)Iranic, preserved as some kind of *h*, for the sake of clarity here written as *\*h*.<sup>10</sup> First, there is quite secure evidence for aspirating effects in Indo-Iranic and devoicing effects only in Iranic, from which we can reconstruct a PIIr. *\*h*, cf.

<sup>6</sup> Cf. [Melchert 1994: 282–285, 305ff.; Kloekhorst 2006: 96–106; Adiego 2007: 243, 261; Kloekhorst 2018: 71ff.] and below.

<sup>7</sup> Cf. [Kloekhorst 2006: 97–101, 106; Adiego 2007: 244f., 261; Kloekhorst 2018: 72f.] and below. According to Kazansky [2012] a possible trace of *\*Hw > k<sup>w</sup>* is already attested much earlier in the ideogram for ‘sheep’ in the Linear A syllabary and its syllabic value *qi* /k<sup>wi</sup>/ in Linear B. However, this would only guarantee a labiovelar, not necessarily a stop.

<sup>8</sup> Cf. [Melchert 2004]; possibly also word-initially in *koful* (dative) ‘water’ if a cognate of Hitt. *ḥapa-* ‘river’ (I. Yakubovich in eDIAna s. v., <https://www.ediana.gwi.uni-muenchen.de/dictionary.php?lemma=352>)

<sup>9</sup> Cf. [Melchert 1987; 1994; 2011; Kloekhorst 2006: 85–96, 102f.; 2018: 71ff.]. There is some controversy whether *\*h<sub>3</sub>* was lost in Lycian, in contrast to Luwian (as argued by [Kimball 1987], followed by [Melchert 1994: 72]), but I follow Rasmussen [1992: 56–59] and Kloekhorst [2006: 102f.] in not being convinced by the only potential examples.

<sup>10</sup> Cf. [Kümmel 2016: 82f.; 2018: 162–166; 2020: 245f.].

PIIr. *\*pánt-ah-* ~ *\*pat-ḥ-* ‘path’ > *\*pántā-* ~ *\*patḥ-* > YAv. *paṇtā̃*, *paṇtaṃ* ~ *paθ-*, Ved. *path-*

PIIr. *\*maj-áh-* ~ *\*maj-ḥ-* ‘great’ > PIr. *\*majā-* ~ *\*majḥ-* > YAv. *mazā-* ~ *mas-*; Ved. *\*majh-* > *mah-*

PIIr. *\*dahiwár-* ‘husband’s brother’ > PIr. *\*dhaiwar-* > *\*thaiwar-* > *\*θaiwar-*, Ved. *devár-*

Second, it seems that initial *\*h* was partially preserved as *h/x* in marginal Iranian varieties both in South-Western Iranian (Middle and New Persian) and in Khotanese Saka, cf.

PIIr. *\*hýtá-* ‘bear’ > *\*hýtša-* > Ved. *ṛkṣa-*; PIr. *\*hərča-* > Av. *arša-* / Pers. *xirs*; cf. Hitt. *ḫartka-*

PIIr. *\*hays-/ḫiš-* ‘thill, pole’ > Ved. *īṣá-*; PIr. *\*haysḥ-* > Av. *aēs(a)-* / NP *hēs*, *xēs*; cf. Hitt. *ḫissa-*

PIIr. *\*hās-* ‘ash’ > Ved. *āsa-*; CIr. *\*hāsa-ka-* > Kurdish *ax* / NP *xāk*; cf. Hitt. *ḫāss-*

PIIr. *\*hṛští-* ‘spear’ > Ved. *ṛṣṭí-*; PIr. *\*həršti-* > Av. *aršti-* / Khot. *hālštā*, Pers. *xišt*; cf. Hitt. *ḫars-*

PIIr. *\*haja-* ‘to drive’ > Ved. *ája-*; PIr. *\*haja-* > Av. *aza-* / Khot. *hays-*; cf. Gk. *ἄγω*, Lat. *agō* etc.

PIIr. *\*hukš-* ‘to grow’ > Ved. *ukṣá-*; PIr. *\*huxš(y)a-* > Av. *uxšii-a-* / Khot. *huṣṣ-*; cf. Gk. *ἄέξω* / *αὔξω*

In addition, it has also been argued that Indo-Iranic laryngeals were substituted by *\*k*, *\*γ/x* and *\*š* in Uralic loanwords [Koivulehto 1991; 2001a; 2001b; Katz 2003]; however, it seems that only very few of these etymologies are secure enough, or that they may rather belong to a pre-Indo-Iranic stratum, so that they do not inform us about Indo-Iranic (cf. [Holopainen 2019: 393f.]).

Aside from these direct reflexes, the “colouring” effects of *\*h<sub>2</sub>* and *\*h<sub>3</sub>* are best explained by “faucal” sounds, i.e. uvulars or pharyngeals (cf. [Cohen, Hyllested 2012: 54–57]), and therefore, uvular fricatives are currently most favoured, with a potential Core IE change to pharyngeals [Kümmel 2007: 336; Weiss 2016: 337]. However, one particular type of reflex does not directly favour this reconstruction, and this is the velar stop found in the later Western Anatolian languages, the main basis for Kloekhorst’s new proposal.

### 3. Arguments for uvular stops

1) The main argument by Kloekhorst [2018] for reconstructing uvular stops builds on the Lycian and Carian reflexes. In Lycian, the main reflex of (unlenited)  $*h_2$  is  $\langle\chi\rangle$  /k/ (vs. palatal  $\langle k\rangle$  /c/ <  $*k$ ), and likewise, original  $*h_2w$  (cf. [Kloekhorst 2006: 97–100]) is reflected as  $\langle q\rangle$  /k<sup>w</sup>/, and Carian appears to show the same reflexes. So, Lycian+Carian /k/ vs. Luwian  $h$  /χ/ is the situation from which we should reconstruct Proto-Luwic, and the best reconstruction for this correspondence seems to be a uvular stop  $*q$  /q/. This procedure can be repeated by comparing Proto-Luwic  $*q$  with Hittite  $*\chi$ , and again the best reconstruction would be Proto-Anatolian  $*X = *q$  /q/, and this can again be repeated for Proto-Anatolian vs. Core IE  $*\chi$  (or even  $*h$ ), so we arrive at Proto-Indo-Anatolian (= Proto-Indo-European proper)  $*q$ . The main reason for assuming a stop as the original sound is that an unconditioned development from stop to fricative is much more probable than vice versa, and probably even more so in the case of uvulars.<sup>11</sup> The same would be valid for  $*h_3$  which he assumes to have been the labialized version of  $*h_2$ , i.e.  $*q^w$ . More specifically, Kloekhorst assumes fortis (= geminated) stops  $*q:/$  and  $*q^w:/$  which could be lenited to lenis (= simple voiceless)  $*q$  and  $*q^w$  but this is a separate question connected to the reconstruction of the other stops (which he also reconstructs as fortis geminates for both Proto-Anatolian and Proto-Indo-Anatolian, see [Kloekhorst 2016]; for arguments against the latter reconstruction cf. [Kümmel 2018]).

Kloekhorst also presents some additional arguments:

2) The clear fortis character of  $*h_2$  and its participation in the Anatolian lenition, i.e. weakening after long and between unaccented vowels, parallel to old fortis stops but different from the old IE fricative  $*s$ .

3) The treatment of initial  $*sh_2$  parallel to  $*sT$  (but different from  $*sR$ ), showing a prothetic vowel *i*, cf. Hittite *ish-* like *isk-*, *isp-*, *ist-*.

4) Sound substitutions like Hitt. *Ahhijawa* for Gk. *ak<sup>h</sup>aiw-*.

<sup>11</sup> Cf. the relative frequencies of such changes in [Kümmel 2007: 61–64 vs. 147f.].



## 4. Discussion

In general, the main line of his argumentation seems sound, and the general scenario is certainly a viable hypothesis (depending on the correct interpretation of the younger Anatolian graphemes and sounds). However, there are some problems with details.

4.1. Some of these are relevant for the general development:

1) The development of the PIE (PIA) fortis stops into Anatolian was probably not just one of original geminates undergoing conditioned lenition, but it is equally possible (and in my view more probable) that there was a conditioned fortition (gemination) of PIE  $p, t, k > PA pp, tt, kk / V\_V$  (cf. [Yates 2019; Kümmel 2019] contra [Kloekhorst 2016]). Likewise, we could also assume PIE  $*h_2 > PA *XX$ . This difference would in fact even strengthen the argument for an original uvular stop, since the gemination would be an innovation parallel to the other stops and not just retention.

2) Kloekhorst must assume fricativization of a fortis geminate  $*[q:]$ ,  $*[q^w:]$  but this is hardly plausible: geminate stops cannot be directly fricativized. However, one possible path might work via affrication  $[q:] > [q\chi] > [\chi:]$ , cf. the change of fortis stops to OHG geminate (!) fricatives, probably via affricates (cf. [Kümmel 2007: 68]).

3) Allophonic voicing of  $[\chi:] > [ʁ:]$  (as assumed by [Kloekhorst 2018: 82]) is equally impossible: geminates are never allophonically voiced. The only way to get from  $[\chi:]$  to  $[ʁ]$  is via degemination to  $[\chi]$  and following voicing to  $[ʁ]$ . This would become easier if the original value was not a geminate in the first place.

4.2. More specific problems occur with the assumption that  $*h_3$  was a fortis  $*q^w [q^w:]$ , i.e. just the labialized counterpart of  $*h_2$ , and these are independent of the question whether it was a stop or a fricative.

The main problem is that reflexes of  $*h_3$  show no trace of labialization in Anatolian. This would be surprising in a language family that not only preserves labialization in IE labiovelars, but even developed a new labialized fricative from  $*h_2w$  (as shown by Kloekhorst [2006] himself), i.e. more or less exactly the sound assumed for  $*h_3$ . In this context loss of labialization seems very improbable. The second problem is that we

have good evidence for weaker reflexes of  $*h_3$  in Anatolian: most significantly it was apparently lost between vowels while  $*h_2$  was preserved. If both had only differed in labialization, this would be hard to understand. Kloekhorst's assumption of a special lenition of  $*[q^w:] > [\chi^w:]$  [Kloekhorst 2018: 90] is not only typologically problematic (as discussed above) but also completely *ad hoc*. Alleged parallels such as Latin  $g^w > w$  are not valid for a fortis stop and furthermore still show the preservation of labialization.

The main argument given for the frequent reconstruction of  $*h_3$  as a labialized sound appears to be the “colouring” of PIE  $*e > *o$  caused by adjacent  $*h_3$ , interpreted as a labialization [-round] > [+round]. However, this sound change (if it happened like that which is far from sure) would have to be primarily classified as a backing [-back] > [+back], since contrastive rounding was not a relevant feature of the PIE vowel system but rather a concomitant feature of back vowels. To explain the *o*-colouring, it may be noted that more *o*-like vowels can also be triggered by a nonlabialized uvular fricative or approximant, e.g. the reflexes of uvular *r* in Danish and German dialects (cf. [Kümmel 2007: 333, n. 261; 2012: 313f.]).

To sum up, there is in fact no good evidence for labialization of  $*h_3$  as a feature distinguishing it from  $*h_2$ . Instead, we have more evidence for lenis character as a distinctive trait: in addition to the weaker reflexes in Anatolian together with merger in case of preservation we also find potential supporting evidence in Core IE: one possible though controversial example is the famous leniting effect in  $*pí-b(h_3)-e/o- < *pi-ph_3-e/o-$  ‘to drink’ from  $*poh_3-$  (and in other, less clear cases, cf. [Kümmel 2007: 332, n. 260]). Another possible argument might come from a different development possibly shown by Greek  $*h_3j- = *j- > z-$  (in ζοφός ‘evening’, ζέφουρος ‘western wind’ from  $*h_3jeb^h-$  ‘to enter’, cf. [Janda 2000: 206]), merging with  $*dj, *gj$  in contrast to  $*h_{lj}- > h-$  (cf. [Bozzone 2013]) and (pace Bozzone) also  $*h_2j- > h-$  (cf.  $*h_2ju- > *hu-$  in υγής ‘healthy’, [Weiss 1995]).

Assuming a fortis vs. lenis contrast for  $*h_2$  vs.  $*h_3$  would even support Kloekhorst's reconstruction of stops vs. fricatives in the PIE system. So we could modify his reconstruction to PIE  $*q, *G$  (with fricative

allophones?) which later turned into CIE  $*\chi$ ,  $*\varkappa >$  (dialectal?)  $*\hbar$ ,  $*\zeta$ . Such a reconstruction would cause problems, if the traditional “velar” stops are reconstructed as uvular  $*q$ ,  $*G$  etc. (cf. [Kümmel 2007: 324–327]) but neither the existence of distinct “velars” nor their reconstruction as uvulars are universally accepted.

4.3. However, two problems would remain, one within PIE, and one for the Anatolian development:

1) It is generally assumed that all “laryngeals” patterned like the fricative  $*s$  in PIE root structures, but if they were uvular stops, they should rather agree with the other stops, e.g. they should rather not occur in onsets before a stop, or at the end after a stop. But maybe this is less problematic than often assumed, since it seems possible that PIE allowed sequences of two or even three stops in these environments, cf. roots and words like  $*t\acute{k}ei-$  ‘to settle’,  $*d^h\acute{g}^h\acute{o}m-$  ‘earth’,  $*p\acute{k}ten-$  ‘comb’,  $*tper-snah_2-$  ‘heel’.

2) It remains a bit suspicious that all older Anatolian languages show uvular fricatives while only the younger languages in the west have velar stops. This distribution seems to favour the (typologically less favoured) possibility of a secondary younger, probably areal development. Then, even if PIE originally had uvular stops, these might have turned into fricatives, either already in PIE or in PA (after the fortis/lenis split parallel to the other stops). The uvular fricatives then could have turned into uvular stops (which then were further fronted to velars) in Western Anatolian, triggered by an areal contact phenomenon, possibly a substratum that did not possess back fricatives. In fact, we have some potential evidence that in contrast to Central and Eastern Anatolia where such sounds are also found in the non-IE languages, they might have been absent in the west: if it is true that Etruscan and its relatives originally were spoken in (North-)Western Anatolia (as argued by [Kloekhorst 2012]), their features might reveal something about the areal tendencies there, and it happens that Etruscan indeed may not have had a dorsal fricative, only sibilants,  $f$  and  $h$ .<sup>12</sup> If that was an areal feature of Western Anatolia, it may also

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<sup>12</sup> So according to Wallace [2008: 30f.] who argues for Etruscan  $\langle\chi\rangle = /k^h/$  contra Rix [1985; 2004] and Steinbauer [1999] who assume  $/x/$  or  $/kx/$ . I have to thank

have affected the IE Anatolian languages spoken there, leading to a typologically rare hardening of original  $[\chi] > ([q] >) [k]$ .

## 5. Conclusion

While the Anatolian evidence certainly does not support the reconstruction of  $*h_2$  as a glottal fricative, it can be interpreted in such a way that it points to uvular stops as the original Proto-Anatolian and Proto-Indo-European values of  $*h_2$  and  $*h_3$ . However, this largely depends on the inner-Anatolian evidence, and the possibility of a later, areal Western Anatolian change from fricatives to stops cannot be dismissed.

As for the difference between  $*h_2$  and  $*h_3$ , there is no good evidence for the latter being a labialized counterpart of the former, while a fortis vs. lenis distinction is much better supported. This can even be taken to support an original stop value for these sounds for PIE, but this is independent of the question whether this was preserved in Proto-Anatolian and Proto-Luwic.

## Abbreviations

Av. — Avestan; CIE — Core Indo-European; Gk. — Greek; Hitt. — Hittite; IE — Indo-European; Khot. — Khotanese; Lat. — Latin; Luw. — Luwian; OHG — Old High German; PA — Proto-Anatolian; Pers. — Persian; PIA — Proto-Indo-Anatolian; PIE — Proto-Indo-European; PIr. — Proto-Indo-Iranian; PIr. — Proto-Iranian; Ved. — Vedic; YAv. — Younger Avestan.

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Ola Wikander for reminding me of the potential relevance of the Tyrrhenian languages in this context.

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