Indo-European origins of Anatolian morphology and semantics: innovations and archaisms in Hittite, Luwian and Lycian

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CHAPTER 5

Evidence for the PIE augment in Anatolian

Abstract: In this chapter it is suggested that the peculiar consistent full grade, and prehistorically probably even lengthened grade, in the paradigm of the preterite of Hittite ablauting *mi*-verbs is likely to have spread from the four most frequent verbs of this category, **h₁es*- 'to be', **h₁ep*- 'to take', **h₁eg*^{wh}- 'to drink', **h₁ed*- 'to eat', where it originated in a merger of the root with the augment.[1]

1 Introduction

1.1 Ablaut in the *mi*-conjugation

Hittite *mi*-verbs regularly display ablaut that can be traced back to the PIE *e/*∅-ablaut of athematic verbs: *-e-* in the singular, *-*∅*-* in the plural. Some verbs retain the ablaut as such, for example 3sg. *kuen-zi* / 3pl. *kun-anzi* 'to beat, to kill' < **g*^{wh}*en-ti* / **g*^{wh}*n-enti* (cf. Skt. *hán-ti* / *ghn-ánti*). The exact outcome in Hittite depends on root structure (see Oettinger 1979, Kloekhorst 2008). In verbs of the structure *CVC-*, for example, the pattern normally surfaces as *e/a* (with *a* possibly representing an epenthetic schwa), e.g. **ses-ti* / **ss-enti* 'to sleep' > *šeš-zi* / *šaš-anzi*; **h₁eg*^{wh}*-ti* / **h₁g*^{wh}*-enti* 'to drink' > *eku-zi* / *aku-anzi*.

In PIE, the *e/*∅-ablaut was found both in the present tense and in the past tense. For the latter, cf. e.g. Gr. ἔ-φη, ἔ-φαν 'said' < **h₁e-b*^{h}*eh₂-t*, **h₁e-b*^{h}*h₂-ent*; Skt. *á-gan*, *á-gman* 'went' < **h₁e-g*^{w}*em-t*, **h₁e-g*^{w}*m-ent*. In Hittite, however, present and past are imbalanced in this respect: the preterite of *mi*-verbs has *e* or *ē* throughout the paradigm. The inflection of *šeš*- 'to sleep', for example, is attested as follows.

[1] Thanks to Alwin Kloekhorst, Martin Kümmel, Sasha Lubotsky, Craig Melchert and Tijmen Pronk for useful discussion and remarks.

	pres.	pret.
1sg.	*še**e**š-mi*	*še**ē**š-un*
2sg.	*še**e**š-ti*	–
3sg.	*še**e**š-zi*	*še**e**š-ta*
1pl.	*šaš-ueni*	*še**e**š-uen*
2pl.	–	–
3pl.	*šaš-anzi*	*še**ē**š-er*

There can be no doubt that this is an innovation. The *e/*∅-ablaut of the preterite can be securely reconstructed for PIE, as the examples above illustrate, and is also presupposed by the fact that the present tense forms were historically derived from the preterite by the addition of **-i*.

1.2 Ablaut in the *ḫi*-conjugation

The situation of the *mi*-conjugation is mirrored in the *ḫi*-conjugation. The ablaut of the *ḫi*-conjugation goes back to PIE *o/*∅, but usually does not feature the outcome of ∅ in the preterite plural either: here, too, we find full grades. For example, *au-* / *u-* 'to see' has the pres.pl. forms *ú-me-e-ni*, *uš-t*[*e-e-*]*ni*, *ú-u̯a-an-zi*, but pret.pl. *a-ú-men*, *a-ú-e-er* (similarly *mau-* / *mu-* 'to fall', 3pl.pret. *ma-ú-er*). The verb *dā-* / *d-* 'to take' has pres.pl. *tu-me-e-ni*, *da-at-te-e-ni*, *da-an-zi*, but pret.pl. *da-a-u-e-n*, *da-a-at-te-en*, *da-a-er*. The historically expected pret. forms are still found in compounds: *uda-* / *ud-* 'to bring (here)' has *ú-tum-me-en*, *ú-ter*, *pēda-* / *pēd-* 'to bring (away)' has *pé-e-tu-mé-en*, *pé-e-te-er*.

The *ḫi*-conjugation shows another ablaut peculiarity, found in the two following paradigms in OH (OS underlined):

	***ḫāš-^{i}* / *ḫašš-* 'to open'**		***ḫān-^{i}* / *ḫan-* 'to draw'**	
	pres.	pret.	pres.	pret.
1sg.	–	–	–	–
2sg.	–	–	–	–
3sg.	*ḫa-a-ši*	*ḫa-a-aš-ta*	*ḫa-a-ni*	–
1pl.	*ḫa-aš-šu-(ú-)e-ni*	–	–	–
2pl.	–	–	–	–
3pl.	*ḫa-aš-ša-an-zi*	*ḫé-e-še-er* *ḫé-še-er* *ḫe-e-še-er* *ḫé-eš-šer*	*ḫa-*(*a-*)*na-an-zi*	*ḫa-ni-er-r=a=at* *ḫe-e-ni-r=a-at* *ḫe-ę-ni-er* *ḫe-ni-er*

Of the pret.pl. forms, only *ḫēšer* is OS. This form is remarkable not only for its long vowel, but also for the fact that the vowel has *e*-quality, which is historically unexpected in the *ḫi*-conjugation. Indeed, the present, which was built on the preterite, still has expected *ḫašš*-. Similarly the pres.pl. stem of *ḫan*- is *ḫan*-, the pret.pl. stem *ḫēn*-. The -*ē*- is therefore an innovation. Its intrusional character is further confirmed by the absence of coloring. Indeed the gradual infiltration of the *e*-vocalism, starting in the pret.pl. and over time infesting the entire verb, is clear from the chronological overviews in Kloekhorst (2012). The obvious source for the *e*-vocalism is the *mi*-conjugation. Specifically, Kloekhorst (2012: 156) proposes an analogy to the effect that the *mi*-conjugation pattern 3pl.pres. (*C*)*aC-anzi* : 3pl.pret. (*C*)*eC-er* led to the adaptation of the *ḫi*-conjugation pattern (*C*)*aC-anzi* : (*C*)*āC-er* to (*C*)*aC-anzi* : (*C*)*eC-er*, e.g. *aš-anzi* : *eš-er* = *ar-anzi* : X → *er-er*.[2] This category can therefore also prove useful for the study of the ablaut of the preterite of *mi*-verbs.

2 Previous explanations

The usual assumption is that we are dealing with ablaut leveling. The Hittite state of affairs has been compared to that of Indo-Iranian and Greek, where some athematic formations, notably root aorists, only retain the zero grade in the 3pl., e.g. Skt. 1pl. *ganma*, 2pl. *gantá*, but 3pl. *gmán* 'went', Gr. στῆμεν, στῆτε, but στάν 'stood up/still'.[3] Eichner (1975: 82-83, cf. similarly Barton 1985: 18-19, Kümmel 2018: 241-243) equated these

[2] Melchert (2013) criticizes this proposal by claiming that for *āk*- / *akk*- 'to die' the analogy could only have created ***ekker*, not *eker*. This criticism is beside the mark, however, since the only relevant element here is the vowel quality. The overall structure may simply have been kept from the earlier form *aker*. In addition, there is evidence to suggest that the *ē* was originally long in the *mi*-conjugation as well. On these matters see section 4.

[3] It is extremely unlikely that στάν was shortened from **στᾱ́ντ. As the parallels of Indo-Iranian and the Hittite present confirm, the 3pl. is generally much more resistant to leveling, and in this case the preservation was also supported by most other athematic formations (cf. the zero grades φα- 'to say', δο- 'to give', θε- 'to put' throughout the preterite plural). The older zero grade of the 3pl. can also still be seen in thematicized continuations of root aorists, e.g. ἔβαλον 'threw' < **-g^{w}lh$_1$*- (cf. LIV^2: s.v.).

phenomena, reconstructing full grade in the 1-2pl. of the PIE root aorist. For Hittite, Eichner assumed that the merger of root imperfects and aorists led to a generalization of the ablaut of the latter, and that the full grade was also generalized to the 3pl. This scenario is problematic for several reasons. First, the assumed spread to the 3pl. is quite an analogical step, and indeed Indo-Iranian and Greek generally resist it. Second, the *mi*-conjugation contains hardly any lexemes that can be equated with root aorists known from other languages; the only good example of a Hittite *mi*-verb that can be directly equated with an active root aorist in other IE languages is the one mentioned by Eichner, **d*^{h}*eh*$_{1}$- 'to put' in *uu̯a-te-*^{zi} 'to bring (here)' and *pēḫu-te-*^{zi} 'to bring (there)'. The most typical and frequent members of this class rather continue root presents: **h*$_{1}$*ed*- 'to eat', **h*$_{1}$*es*- 'to sit; to be', **g*^{wh}*en*- 'to kill', **ses*- 'to sleep', **ueḱ*- 'to want', etc. This fact is at odds with the supposed direction of analogy. Third, a general reconstruction of full grade in the 1-2pl. of the PIE root aorist is clearly incorrect, since zero grades are still found in Greek: ἔδομεν, ἔδοτε, (*ἔδον >> ἔδοσαν) 'gave'; ἔμεν, ἕτε, (*ἕν >> ἕσαν) 'released'; ἔθεμεν, ἔθετε, (*ἔθεν >> ἔθεσαν) 'put'. The exceptions in Greek have good individual explanations (see e.g. Harðarson 1993: 150-170, McCullagh 2002). To back up the equation with Indo-Iranian, Hoffmann (1980: 7) mentions ἔβημεν, ἔστημεν, ἔφθημεν, ἔγνωμεν, τλῆμεν. Of these, the latter two can simply be the result of sound law (*CRHC* > *CRV̄C*; note that this is the only option for τλῆμεν, whose full grade counterpart was **telh*$_{2}$-). This type was also beneficial for στη- 'to stand up/still', which had a prominent perfect that was almost identical in the relevant forms: ἕστηκα 'stand', 1-2pl. ἕσταμεν, ἕστατε, which constitute a good motivation for increasing the characterization of the aorist forms *ἔσταμεν, *ἔστατε. That βη- and φθη- followed suit is hardly surprising, and probably they even did so not too long before Homer; cf. still the zero grade retention in du. βάτην next to βήτην. The Greek evidence therefore suggests that the PIE root aorist still had zero grade throughout the plural. Indeed, the forms ἔθεμεν, ἔθετε, (*ἔθεν >> ἔθεσαν) show that the only good example of a Hittite *mi*-verb corresponding directly to an active root aorist had zero grade in all of the plural in PIE. On top of all this, it is by no means assured that the Hittite *mi*-conjugation results from a (re-)merger of root presents and aorists at

all: the internally reconstructable split of root formations into presents and aorists on the basis of their semantics may have been a post-Anatolian innovation. And in any case, all verbs are synchronically structurally similar to Greek and Indo-Iranian athematic presents, whose preterites do not show any tendency towards leveling because the ablaut was supported by the stable ablaut of the present tense. In sum, the comparison with the full grades in the 1-2pl. of some Greek and Sanskrit root aorists is exceedingly weak, and one would do well to compare the preterites of actual cognates of the *mi*-lexemes in question first.

Under any analysis of the Hittite vocalism as resulting from leveling, it remains extremely peculiar that the leveling mechanism would have targeted the preterite in particular, and to an unparalleled extent. Especially in the *mi*-conjugation, the discrepancy between the present and the preterite is striking. The *e*-grade in the preterite of the *mi*-conjugation is completely consistent; there are no exceptions.[4] This is a far cry from the occasional introduction, almost all of them post-OH and restricted to the 1-2pl.,[5] of the full grade in the plural of the present (cf. cases such as *e-šu-u̯a-ni*, *e-ku-ut-te-ni* for older **ašueni*, **akutteni* in the table below). Even the third person of the imperative still has consistent *e/*∅-ablaut.[6] There must be more behind the consistent full grade in the preterite than mere ablaut leveling.

A different explanation was advanced by Oettinger (1979: 111-115). He proposes to trace the vocalism of the preterite of the *mi*-conjugation back to the 3pl., suggesting that not only the ending *-er* was taken over from the original perfect, but in fact the whole 3pl. form, including reduplication, e.g. *ēter*, *ēšer* < **h₁e-h₁d-ēr*, **h₁e-h₁s-ēr*. From the four

[4] That is, there are no ablauting lexemes that generally show zero grade in the preterite plural. In late Hittite, we very rarely come across forms that have taken over the ablaut of the present tense, notably once *appuen* 'we took' (NH) for older *ēppuen* (OH+).

[5] Except NH *uekk-anzi* 'they want' (see the table below), in which *uekk-* replaces **ukk-* to remove the inconvenient alternation of *u̯-* and *u-* (see Kloekhorst 2008: s.v. *u̯ekk-*^{zi}). See further 4 below.

[6] Of the verbs mentioned in the table below, those of which both third persons of the imperative are attested show the following forms: *e-ep-du* / *ap-pa-an-tu* ('to take'); *e-eš-tu* / *a-ša-an-tu* ('to sit; to be'); *e-ku-ud-du* / *a-ku-u̯a-an-du* ('to drink'); *e-ez-du* / *a-da-an-du* ('to eat'); *te-e-ed-du* / *da-ra-an-du* ('to say'); *ku-en-du* / *ku-na-an-du* ('to kill'), *me-er-du* / *ma-ra-an-du* ('to disappear'), *ku-e-er-du* / *ku-ra-an-du* ('to cut').

'Allerweltswörter' *ed-* 'to eat', *eš-* 'to be', *eku-* 'to drink', *epp-* 'to take', the pattern with **ē* then spread to other words, e.g. **me-mr-ēr >> *mērer*. This scenario is rightfully dismissed by Barton (1985: 14-16), who objects that it is much more likely that we are simply dealing with a spread of the perfect ending than that a complete perfect form would have been introduced only in the 3pl., creating a suppletive paradigm, for no good reason. He also points out that most if not all of the lexemes from which the vocalism would have to have spread most likely did not even form perfects in PIE, meaning that there were no forms such as ***h₁e-h₁s-ēr* to introduce into the paradigm to begin with.

The origin of the aberrant vocalism of the preterite of the *mi-*conjugation has, then, been sought in the aorist and in the perfect, but remarkably, not in the actual PIE category that is universally agreed to correspond to the *mi-*conjugation morphologically, with a host of lexical matches to boot: that of athematic root presents. Nevertheless, as we will see, the formal correspondence of these categories extends to the preterite as well.

3 A new interpretation

Since we are dealing with a morphological innovation, i.e., an analogy, we should be able to pinpoint a source in which this vocalism can be understood, which was frequent or otherwise influential enough to exert the analogical force to make its vocalism spread to the rest of its group. To be able to determine this, an overview of relevant data will be helpful. In the following table, all relevant *mi-*verbs are collected, and their oldest attestations are given.[7] They are ordered on the basis of the number of attestations in Old Hittite, and general completeness of attestation. These factors give an indication of the frequencies of the lexemes involved. In order of appearance: *epp-* 'to take', *eš-* 'to sit; to be', *eku-* 'to drink', *ed-*

[7] Bold = Old Hittite (underlined = Old Script), regular = Middle Hittite, grey = Neo-Hittite.

'to eat', *kuen-* 'to kill', *tē-* / *tar-* 'to say', *mer-* 'to disappear', *uekk-* 'to want', *kuer-* 'to cut', *šeš-* 'to sleep'.[8]

epp-	***eš-***	***eku-***	***ed-***	***kuen-***
e-ep-mi	***e-eš-mi***	***e-ku-mi***	***e-et-mi***	***ku-e-mi***
e-ep-ši	***e-eš-ši***	***e-uk-ši***	***e-ez-ši***	***ku-en-ti***
e-ep-zi	***e-eš-za***	***e-ku-zi***	***e-za-az-zi***	***ku-e-en-zi***
[*a*]*p-pu-ú-e-ni*	***e-šu-u̯a-ni***	***a-ku-e-ni***	***a-tu-e-ni***	*ku-u̯a-an-ú-e-ni*
ap-te-ni	–	***e-ku-ut-te-ni***	***[a]z-za-aš-te-e[-ni]***	***ku-en-na-at-te-ni***
ap-pa-an-zi	***a-ša-an-zi***	***a-ku-an-zi***	***a-da-an-zi***	***ku-na-an-zi***
e-ep-pu-un	***e-šu-un***	***e-ku-un***	***e-du-un***	*ku-e-nu-un*
e-ep-ta	*e-eš-ta*	*e-ku-ut-ta*	*e-za-at-ta*	*ku-in-ni-eš-ta*
e-ep-ta	***e-eš-ta***	***e-uk-ta***	*e-ez-za-aš-ta*	***ku-e-en-ta***
e-ep-pu-en	*e-šu-u-en*	*e-ku-e-en*	*e-du-u-en*	*ku-e-u-e-en*
e-ep-tén	*e-eš-te-en*	–	–	*ku-en-tén*
e-ep-per	***e-še-er***	***e-ku-er***	***e-te-er***	*ku-e-ner*

tē-* / *tar-	***mer-***	***uekk-***	***kuer-***	***šeš-***
te-e-mi	–	*ú-e-ek-mi*	*ku-er-mi*	*še-eš-mi*
te-ši	–	*ú-e-ek-ti*	–	*še-eš-ti* (?)
te-e-ez-zi	*me-er-zi*	***ú-e-ek-zi***	***ku-er-zi***	*še-eš-zi*
ta-ru-e-ni	–	–	*ku-e-ru-ę-n*[*i*?]	***ša-šu-e-ni***
tar-te-ni	–	–	–	–
ta-ra-an-zi	–	[*ú-*(*e-*)*e*]*k-kán-zi*	***ku-ra-an-zi***	*ša-ša-an-zi*
te-nu-un	–	*ú-ek-ku-un*	*ku-e-ru-un*	*še-e-šu-un*
te-e-eš	***me-er-ta***	–	–	–
te-e-et	***me-er-ta***	***ú-ek-ta***	***ku-e-er-ta***	*še-eš-ta*
–	–	*ú-e-ku-u-en*	–	*še-eš-u-en*
–	–	–	–	–
te-re-er	***me-re-er***	***ú-e-ke-er***	[*k*]*u-e-re-er*	*še-e-š*[*e-er*]

[8] Verbs that are likely to have behaved the same, but are not attested in the preterite plural (at least not as a root formation; forms that betray a switch to a different inflection type, such as *ḫūgauen* 'we conjured' and *pišši̯er* 'they rubbed', are not informative here), are *kuerš-* 'to cut off', *ḫuek-* 'to conjure', *ḫuek-* 'to slaughter', *ḫuiš-* 'to live', *peš*(*š*)- 'to rub', *šamen-* 'to pass by', *terepp-* 'to plough', *ueḫ-* 'to turn', *uen-* 'to copulate', *uep-* 'to weave(?)'.

A priori, the most likely candidates to be the model of the analogy are the most frequent verbs. It is striking that the four most frequent verbs, *epp-* 'to take', *eš-* 'to sit; to be', *eku-* 'to drink', and *ed-* 'to eat', all have initial *e-*, from PIE **h₁e-* (**h₁ep-*, **h₁es-*, **h₁egʷʰ-*, **h₁ed-*). This is unlikely to be a coincidence. In other words, it is likely that these verbs constitute the source of the aberrant ablaut of the preterite (cf. Oettinger 1979: 113). This narrows the main question down to the following: why would roots starting with *e-* < **h₁e-* have *e-* throughout the paradigm instead of *e-* / *a-*, and only in the past tense?

The following instructive table compares the Hittite evidence with its pendants in other IE languages: athematic root formations beginning with **h₁e-*. Hitt. *eš-* 'to sit; to be' has direct matches in Skt. *as-*, Gr. ἐιμί; Hitt. *ed-* 'to eat' in Skt. *ad-*. We further find the verb for 'to go', **h₁ei-ti* / **h₁i-enti* (Skt. *i-*, Gr. εἶμι).[9] The reconstructable PIE pattern is illustrated with **h₁es-* 'to sit; to be'.

Hitt.		**Skt.**			**Gr.**		**PIE**
epp-	***ed-***	***as-***	***ad-***	***i-***	**ἐσ-**	**εἰ-**	****h₁es-***
e-ep-mi	*e-et-mi*	*ásmi*	*ádmi*	*émi*	εἰμί	εἶμι	**h₁és-mi*
e-ep-ši	*e-ez-ši*	*ási*	*átsi*	*éṣi*	εἶ	εἶ	**h₁és-si*
e-ep-zi	*e-za-az-zi*	*ásti*	*átti*	*éti*	ἐστί	εἶσι	**h₁és-ti*
ap-pu-ú-e-ni	*a-tu-e-ni*	*smáḥ*	*admáḥ*	*imáḥ*	εἰμέν	ἴμεν	**h₁s-mé*(°)
ap-te-ni	*az-za-aš-te-e-ni*	*sthá*	*atthá*	*ithá*	ἐστέ	ἴτε	**h₁s-th₁é*
ap-pa-an-zi	*a-da-an-zi*	*sánti*	*adánti*	*yánti*	εἰσί	ἴᾱσι	**h₁s-énti*
e-ep-pu-un	*e-du-un*	*ā́sam*	*ā́dam*	*ā́yam*	ἦα	ἤια	**h₁é-h₁es-m*
e-ep-ta	*e-za-at-ta*	*ā́sīs*	*ā́das*	*āís*	ἦσθα	ἤεις	**h₁é-h₁es-s*
e-ep-ta	*e-ez-za-aš-ta*	*ā́sīt*	*ā́dat*	*ā́ít*	ἦς	ἤιε	**h₁é-h₁es-t*
e-ep-pu-en	*e-du-u-en*	*ā́sma*	*ā́dma*	*ā́íma*	ἦμεν	ἦμεν	**h₁é-h₁s-me*
e-ep-tén	–	*ā́sta*	*átta*	*áíta*	ἦτε	ἦτε	**h₁é-h₁s-te*
e-ep-per	*e-te-er*	*ā́san*	*ā́dan*	*ā́yan*	ἦεν	ἤϊσαν	**h₁é-h₁s-ent*

The cognate classes in Sanskrit and Greek behave in the same way as their Hittite counterparts: they have the expected *e/*∅-ablaut in the present, but lack ablaut in the preterite, consistently showing a vowel. In the cases of Sanskrit and Greek, however, the reason for this pattern is completely

[9] Marginally attested in Hitt. in the 3pl. *i-i̯a-an-zi* < **h₁i-enti*; otherwise replaced by preverbed *pai-* 'to go'.

clear: the lack of ablaut is caused by the well-known preterite prefix known as the *augment* (**h₁e-*). More precisely by the merger of the augment with the root-initial **h₁e-* and **h₁-*, with both **eh₁eC* (full grade) and **eh₁C* (zero grade) developing to **ēC*. The situation that has to be reconstructed on the basis of Indo-Iranian and Greek bears a striking resemblance to the Hittite state of affairs, which lacks a good internal explanation. The identification suggested by this comparison implies that *Anatolian inherited the augment*.

The formally defined character of the group of verbs that would directly show a remnant of the augment, namely those starting with **h₁*, at first sight suggests a development by which a more widely used augment was generally removed from the language, but survived as a formal peculiarity in those verbs in which it had merged with the root, rendering removal impossible (but see section 6 for another possible reason for the exceptional status of verbs starting with **h₁*, and especially **h₁es-*). The resulting consistent *e*-vocalism that developed in these verbs later served as the model for the less frequent roots with the same ablaut to generalize *e*-vocalism in the preterite: pres. *eC-* / *aC-* : pret. *eC-* / *eC-* = pres. *CeC-* / *CaC-* : pret. *CeC-* / X → *CeC-* (e.g. pres. *eš-* / *aš-* : pret. *eš-* / *eš-* = pres. *šeš-* / *šaš-* : pret. *šeš-* / X → *šeš-*).[10]

4 Vowel length

The most important formal aspect of this identification that requires some discussion relates to vowel length. Like in Greek and Sanskrit, both **eh₁eC* and **eh₁C* eventually became **ēC* in Anatolian. More specifically, since the augment carried the accent, the vowel would have been **é́*. It is not completely certain that **eh₁eC* and **eh₁C* lost the laryngeal at the same time. Possibly, only **eh₁C* > **ēC* is of (pre-)Proto-Anatolian date, whereas **eh₁eC* was retained longer; cf. similarly e.g. **peh₂ur* > *paḫḫur* 'fire' but

[10] This scenario is very similar to what seems currently to be the most popular explanation for the vowel pattern of the preterite (< PIE perfect) of the PGm. fourth and fifth class strong verbs, e.g. **bar-* / **bēr-* 'carried', **gab-* / **gēb-* 'gave' with **ē* after **ēt-* 'ate' < **h₁e-h₁d-* (cf. e.g. Kortlandt 1992: 102-103, Mailhammer 2007: 67-86, esp. 79f., Ringe 2017: 210-211).

**ueh*$_2$*ǵ-* > *u̯āk-* ‘to bite’. This means that it is not excluded that if there was a general deaugmentation, this could still be applied to the singular, but not to the plural. The exact relative chronology of these developments remains to be determined, however, and if one of the other possible scenarios applies (see 6), the augment would have been found throughout the paradigm. *A priori*, then, we should expect the outcome of **é́* at least in the plural, and either that of **é* or also that of **é́* in the singular.

The Hittite material provides us with only very few clues about the original and even synchronic length of the relevant vowels. Nevertheless, as we will see, there is some evidence to suggest that length was at least originally part of the preterite paradigm. This is an additional problem for the traditional assumption of ablaut leveling, which cannot explain this.

As the spelling ***e-e-* is not used in Hittite, forms such as *e-še-er* are ambiguous, and could in principle contain *e* or *ē* (see Kloekhorst 2014: 214-215). Likewise, the first vowel in forms like *e-eš-ta* could be long or short (Kloekhorst 2014: 161-170). Since the sequence *ue* is normally spelled *ú-e* or °*u-e* (Kloekhorst 2014: 155-161), the same applies to roots in which the vowel is preceded by *u*, i.c. *kuen-*, *kuer-* and *uekk-*. For example, *ku-e-en-ta* may in principle spell /k^{w}é́nta/ or /k^{w}énta/. This means that the spellings of most verbs in question are not informative about the synchronic length of the relevant vowels.

In addition, Hittite merged **é́* and **é* in non-final syllables: into a vowel variously spelled plene and non-plene in open syllables (e.g. **néb*^{h}*es-* > *nĕ̆piš-* ‘heaven’, Kloekhorst 2014: 176) and by shortening **é́* in closed syllables (e.g. **d*^{h}*éh*$_1$*ti* > *tezzi* ‘says’, Kloekhorst 2014: 49-50). These two complementary processes were completed at least by the end of the OH period (Kloekhorst 2014: e.g. 60, 185-188). The only relevant OS forms that might precede this merger are *me-re-er* and *ḫé-e-še-er* (a *ḫi*-verb with *-e-* from the *mi*-conjugation; see 1.2): not enough to determine a reliable percentage of plene writing.

And even if we had more forms, such a percentage would not necessarily have been relevant, since it is not excluded that the merger of **é́* and **é* in non-final open syllables was in fact a prehistoric development. Kloekhorst’s (2014: 177-179) OS evidence for a preserved distinction between pre-Hittite **é́* and **é* in open syllables consists of *kē* ‘these’, *lē*

'do not', *pēda-* / *pēd-* 'to take (somewhere), carry', and *utnē* 'land', which show continuations of pre-Hittite **é́* which are almost consistently spelled plene. This situation contrasts with that of *pĕran* 'before' and *nĕpiš* 'heaven', continuing **-é-*, which are spelled non-plene in half or more than half of the cases (Kloekhorst 2014: 175-176). In addition to the original length difference, however, these vowels also differ in another respect: in the latter group, the open syllable does not constitute the end of the word, whereas the *ē* in *kē*, *lē* and *utnē* is in word-final position, and similarly *pēda-* is univerbated from, and still associated with, *pē*, as in *pē ḫark-* 'to have, hold' (cf. Kloekhorst 2014: 193-195). That this is a relevant factor is shown by later stages of Hittite: in MH consistent *ē* in open syllable is only found in *kē*, *lē*, *utnē*, and *apē* 'those', and for MH Kloekhorst (2014: 187) therefore assumes that *ē* in open syllable was preserved in word-final position only. His additional assumption of a shortening of OH *ē* to MH *e* in non-final position is based on *pĕda-* 'to take (somewhere), carry', as well as on *mĕḫur* 'time' and *pĕḫute-* 'to lead, bring', which now seem to share the pattern of *pĕran* and *nĕpiš* (and *gĕnu* 'knee' < **ǵenu-*) (Kloekhorst 2014: 185-186). However, the fact that the only OS lexeme that is relevant here, *pēda-*, was univerbated from *pē*, renders it non-probative for the development of original **ē* in the position: the univerbation may have taken place when original **ē* had already been shortened. If OH *pēda-* > MH *pĕda-* is indeed a real development, this may simply reflect its naturalization as a separate lexeme (only to be analogically restored to *pēda-* in NH; Kloekhorst 2014: 193-195). It is therefore not excluded that **é́* and **é* in non-final open syllables had already merged before attested Hittite.

We do not have any OS attestation of a relevant closed syllable. And again, it is doubtful that even an abundance of such attestations would have tipped the scales in any direction, since it is again not so clear whether **é́* and **é* in closed non-final syllables were still distinct at the time of our earliest texts, or that **é́* in this context had already been shortened and merged with **é* prehistorically. I will briefly discuss this matter here as well, if only to determine whether we could expect to find forms such as **šēšta* and **mērta* in the future, or that even the oldest Hittite would already have had **šešta* and **merta*, as found in later Hittite. According to

Kloekhorst, the merger of **ḗ* and **é* in this context more or less coincided with the dawn of Hittite history. His evidence consists mainly of *tēzzi* (2x OS) for *tezzi* (9x OS, and consistently in later texts) (Kloekhorst 2014: 49-50), a few plene spellings in the suffixes *-eššar* / *-ešn-* < **-eh₁sH-* (Kloekhorst 2014: 53-60) and *-e-^{zi}* < **-eh₁-* (Kloekhorst 2014: 77-78), and the spelling °*ēḫḫ*° in the 1sg. forms of *ai/i*-verbs (e.g. OS *pēḫḫi* 'I give', *tēḫḫi* 'I put'), for later °*eḫḫ*° (e.g. *peḫḫi*, *teḫḫi*) (Kloekhorst 2014: 47, 49, 50, 60). Although one could take this as an indication that *ē* was still intact in this context at the earliest stage of attested Hittite, a closer look at the evidence shows that it cannot be regarded as conclusive. The most frequent OS spelling of *tḗzzi* 'says' is *tezzi*. The rare form *tēzzi* could well be analogical on the basis of the monosyllabic 3sg.pret. *tēt*.[11] That *ē* could be (re)introduced secondarily in this way can be seen, for example, from *mēkk-* 'much' < **meǵ-h₂-*, with non-etymological *ē*, taken over from the nom.-acc.sg.n. *mēk* (Kloekhorst 2014: 46). As for the suffixes, these rather seem to suggest that **ḗ* in this environment had in fact become **é* prehistorically. They show consistent non-plene spelling in OS: *-eššar* / *-ešn-* is spelled non-plene in about 20 attestations, as against one attestation with plene spelling (Kloekhorst 2014: 53-54); the closed syllables belonging to the suffix *-e-^{zi}* are only securely attested without plene spelling (Kloekhorst 2014: 77), and the same goes for the similarly shaped nasal infix verb *ḫulle-^{zi}* (*ḫullezzi*, *ḫullet*) < **h₂ul-n-eh₁-* (Kloekhorst 2014: 62).[12] The plene vs. non-plene spelling ratios discussed so far, all concerning the outcome of **eh₁*, contrast quite sharply with those of *ē*

[11] Cf. the reverse replacement of *tēt* with *tet* on the basis of *tezzi* in later Hittite (Kloekhorst 2014: 42), betraying a desire for these forms to have identical stems.

[12] The suffix *-ešš-^{zi}* < **-eh₁sH-* is not attested in OS. Kloekhorst (2014: 94) adduces *ma-ak-ke-e-eš-zi* (MS/NS) and *ma-ak-ke-e-eš-ta* (OH/MS) 'becomes/has become numerous' as support for the assumption of preserved length, but this assumption is difficult to reconcile with the OS evidence for shortening in the other forms discussed so far, and in fact in the case of this suffix, too, the overwhelming majority of attestations, including quite a few OH/MS and OH/NS cases, do not feature plene spelling (Kloekhorst 2014: 89-94). This rather suggests that the *ē* in the two attestations *makkēšzi* and *makkēšta* is somehow secondary – if these forms are in fact not simply comparable to cases such as *ḫantēzziya-* (Kloekhorst 2014: 65-66) and *kēnzu* (Kloekhorst 2014: 68), with aberrant plene spelling of an etymologically short vowel. The other forms Kloekhorst (2014: 94) mentions are imperatives, in which plene spelling of short vowels is quite regular (Kloekhorst 2014: 94-95).

resulting from monophtongization of **ai* next to **H* as seen in the 1sg. forms of the *ai/i*-suffix, which are almost consistently spelled plene in OS.[13] This may suggest that this monophthongization took place only after original **ḗ* and **é* had fallen together in non-initial closed syllables. The fact that the resulting allomorphy *ē* ~ *ai* is still found in attested Hittite may indeed also be taken to suggest that the monophthongization was operative at a relatively late date. We may even have attestations of intact *ai*, if *ḫaink-* > *ḫenk-* 'to bow' is to be interpreted as such (cf. Kloekhorst 2008: s.v.; 2014: 61).

The intermediate conclusion of the preceding discussion is that the attestations of the relevant Hittite vowels cannot tell us anything about their original length: most spellings of these vowels are ambiguous, the spellings that are not ambiguous are not numerous enough to point in a specific direction, and even if they had been numerous, they would not necessarily have been informative, since **ḗ* and **é* in non-final position may already have merged prehistorically.

Some indirect evidence might be gleaned from the following consonant. In principle, **ḗ* should have lenited following fortis consonants in pre-Proto-Anatolian, which would have had an effect at least in the 3pl., probably in the 1pl. as well, and in the 1sg., if this also had **ḗ*. However, from the relevant *mi*-verbs, there are only two that have a lenitable consonant: *epp-* 'to take' and *uekk-* 'to wish, desire, ask for'.[14] This means that all other verbs did not feature a consonant alternation (cf. e.g. *eš-er*, *eku-er*, *et-er*; *kuen-er*, *kuer-er*, *ter-er*, *mer-er*, all with the same consonant

[13] The only exception is *ḫalzai-* 'to call', which features the 1sg. forms *ḫalzeḫḫi* and *ḫalzeḫḫun* in OS (Kloekhorst 2014: 60). It is probably not a coincidence that these forms are trisyllabic, as opposed to disyllabic *pēḫḫi*, *tēḫḫi*, *nēḫḫun* and *zēḫḫun* (cf. Oettinger 1979: 69, Kümmel 2012: 202).

[14] Eichner (1975: 78-79) saw a remnant of the augment in the preterite of 'to be', because he assumed that e.g. **h₁es-m* would have resulted in ***ešš̆un* rather than *ešun*, i.e. he assumed a long vowel to explain the lenition he observed. However, his evidence for *-šš-* as the regular outcome of **-s-* is to be judged differently: *u̯ešš̆anta* 'they wear' took its *-šš-* from *u̯ašše/a-* 'to clothe' < **us-ie/o-*, with **-si̯-* > *-šš-*, and *kešš̆ar* 'hand' shows fortition of **s* next to *r* (see Kloekhorst 2008: s.vv.). There is not much positive evidence for the outcome of unlenited **s*, but the occurrence of *-š-* rather than *-šš-* in the present of 'to be', specifically the 3pl. **h₁senti* > *ašanzi*, is much more likely to be the result of regular sound law than to be the result of analogy (contrast **h₁penti* > *appanzi*).

that also appeared in the rest of the paradigm). This severely reduces the chances that the aberrant lenition would have persisted into historical times, rather than being analogically restored. Indeed, in *epp-*, we find *e-ep-pu-un*, *e-ep-pu-en* and *e-ep-pe-er* rather than ***e-pu-un*, ***e-pu-en* and ***e-pe-er*. That these forms indeed stem from morphological restoration is strongly suggested by the only other *mi*-verb that could reveal a potential lenition: *uekk-* 'to wish, demand', which goes back to PIE **ueḱ-* (Skt. *vaś-*, Gr. ἑκ-). Unexpectedly from a PIE point of view, in Hittite we find both *uekk-* and *uek-*, the latter a variant with apparent lenition, requiring a preform **ueḱ̄ḱ-*.[15] It has been speculated that this goes back to an 'acrostatic' present **ueḱ̄ḱ-ti*, **ueḱḱ-nti*. However, not only is there no evidence for the existence of this type in PIE, the evidence for this verb also rather points straightforwardly to a root present with regular *e/Ø*-ablaut (Skt. *váṣṭi*, *uśánti* < **ueḱti*, **uḱénti*).[16] Hitt. *uek-* < **ueḱ̄ḱ-* therefore must have a different explanation. It is difficult to see what this **ḗ* should be if not the **ḗ* predicted by the analysis above. Indeed, it may be significant that we find both *ú-e-ek-k*° and *ú-e-k*° (*ú-e-g*°) in *uek*(*k*)*anzi* and *uek*(*k*)*un*, but only the lenited forms in the preterite plural: *uekuen* and *ueker*. It is understandable why *uek*(*k*)- should still show a lenited variant, whereas *epp-* did not. Unlike **h₁ep-* / **h₁p-* > *epp-* / *app-*, the original paradigm **ueḱ-* / **uḱ-* would have resulted in Hitt. **u̯ekk-* / **ukk-*, with an alternation between *u̯* and *u* that Hittite did not tolerate (see Kloekhorst 2008: s.v.). This could be resolved either by generalizing the ablaut of the singular, leading to *uekk-anzi*, or by taking the corresponding stem of the preterite, resulting in *uek-anzi*, thus lending more prominence to the variant *uek-*. Over time, *uek-* even became the only stem of this verb (cf. ptc. *uekant-*, verbal noun *uekuu̯ar*, impf. *uekiške/a-*).

[15] The spelling with *-k-* is too frequent to be able to be explained away as a simplified spelling of *-kk-* (thus Kloekhorst 2008: s.v. *uekk-*).

[16] Melchert (2014: 255-256), who opts for the 'acrostatic' reconstruction of Hitt. *uek-*, is therefore forced to assume that Skt. *váṣṭi* and Hitt. *uekzi* continue different formations, and that both of these languages lost the other formation that is supposed to have existed. This awkward scenario was created only to explain the Hitt. stem variant *uek-*. The observed semantic difference between the Skt. and Hitt. verbs ('to wish, want' ~ 'to demand') is of course trivial, and does not require a derivational operation.

We may further try to get some information from the *ḫi*-conjugation. In a process akin to the later spread of *e*-vocalism, the oldest type of *ḫi*-conjugation 3pl.pret., e.g. *aker*, *ḫāšer*, is likely to have been created in imitation of the pattern of the *mi*-conjugation. The spelling of the vowel and following lenition show that these forms had a long vowel. However, since these paradigms feature the *mi*-conjugation *pattern* rather than the actual forms, the evidence for the exact shape of the original *mi*-conjugation model is too indirect to be decisive. Both a model with **ē* and one with **e* would have produced *ḫi*-conjugation forms with a long vowel and lenition: this was the only regular shape of the full grade stem in the *ḫi*-conjugation. For example, even if *eš-er* had a short vowel at this point, the pattern pres. *eš-* / *aš-*, pret. *eš-* / *eš-* would still have inspired a paradigm pres. *ḫāš-* / *ḫašš-*, pret. *ḫāš-* / X → *ḫāš-*.

The *e*-vocalism of the *mi*-conjugation was taken over by *ḫāš-*^{i} / *ḫašš-* 'to open', *šākk-*^{i} / *šakk-* 'to know', *ār-*^{i} / *ar-* 'to arrive', *āk-* / *akk-* 'to die', and *ḫān-*^{i} / *ḫan-* 'to draw (water)' (see Kloekhorst 2012). Some of these still had their older vocalism in OH. The one exception is *ḫāš-*^{i} / *ḫašš-*, whose 3pl.pret. is found as *ḫēšer* in OH. The single *-š-* after the *-ē-* rather than the *-šš-* as in *ḫašš-anzi*, which still features the original plural stem, shows evidence for lenition, and so, for a long preceding vowel. One conceivable reason for this is that the vowel was long in its original locus, i.e. the *mi*-conjugation, as well. Unlike in the *mi*-conjugation, in the *ḫi*-conjugation the long vowel and the lenition of the following consonant were analogically supported, since this pattern was also paradigmatically found in the frequent 3sg.pres. (in this case *ḫāši*). However, it is equally possible that the *e*-vocalism of the *mi*-conjugation model was (already) short when it was taken over, since the original 3pl. form, *ḫāšer*, already featured a long vowel with lenition of the following consonant. This means that the overall structure may have been kept from this form, while only the color of the vowel was adapted to that of the *mi*-conjugation. Again, then, the specific *ḫi*-conjugated forms are not informative about the original length of the vowel in the *mi*-conjugation.

Finally, some additional evidence may be sought in the phenomenon of the spread of *e*-vocalism from the *mi*-conjugation itself and the peculiar pattern it displays. Kloekhorst (2012) has shown that the starting point of

the intrusional *e*-vocalism in each lexeme was the preterite plural, and specifically the 3pl. If the *mi*-preterite had **e* throughout the paradigm, it is not immediately clear why this would not simply have been identified as a full grade, which was already paralleled in the *ḫi*-conjugation. If the *e*-vocalism was in fact distinct from the **e* of the present (and the singular?), however, i.e., if it rather was **ē*, this would have provided a motivation for its spread to the *ḫi*-conjugation: the **ē* would have been a unique marker of the (plural?) preterite, and its initial spread to the *ḫi*-conjugation, notably to *ḫāš-*^{i} / *ḫaššš-*, may have been at least in part due to this quality. Again, however, it is not at all excluded that the *e* was (already) short in the *mi*-conjugation when it spread, with the analogy rather being based on the **e* of the plural preterite contrasting with the zero grade of the plural present.

We may conclude the following. The synchronic length of the first vowel of OS forms like *e-eš-ta* 'was' and *e-še-er* 'were' remains unclear, and is a moot point if **é́* and **é* had already merged in non-final syllables before attested Hittite. Similarly, since almost all verbs in question did not have lenitable consonants, the preterite of *epp-* 'to take', with unlenited *-pp-*, may well be the result of restoration. That this is indeed the case is strongly suggested by the only other relevant verb with a lenitable consonant, *uekk-* 'to want', which does show a stem variant **uéḱ-* > *uek-*. This variant spread from the preterite to the 3pl.pres. in order to replace **ukk-*, and further from there, ensuring its survival. Characteristic length may further have been one of the motivations behind the spread of the *e*-vocalism specifically of the preterite to the *ḫi*-conjugation, although the characteristic feature may also have been the contrast of **e* with zero in the present. The resulting *ḫi*-stem *ḫēš-* also points to a long vowel, but it is not clear whether this stems from the *mi*-conjugation source, or that this structure was kept from the earlier form *ḫāš-*. In sum, only *epp-* and *uekk-* really have any bearing on the original length of the preterite *e*-vocalism. While the absence of lenition in *ēpper* could well be secondary, the evidence for **ē* in *ueker* is hard to account for in the original ablaut leveling scenario. It is therefore additional evidence for the augment scenario.

5 PIE

The augment has up to this point only been known from Greek, Phrygian, Armenian, and Indo-Iranian.[17] It has been uncertain whether it should be reconstructed for PIE or if it resulted from an innovation defining the branches involved as a subgroup. The usual thinking favors the latter option (cf. Fortson 2010: 101).

The most important factor contributing to the communis opinio seems to be the fact that the augment is found as an obligatory past tense marker only in later stages of the most relevant languages, i.e. in classical Greek and classical Sanskrit, whereas older stages, i.c. Homeric Greek and Rigvedic Sanskrit, also display unaugmented past tense forms with some frequency. Indeed, in Homeric Greek unaugmented past tense forms outnumber augmented ones. On the basis of these documented developments, one could be tempted to conclude that the grammaticalization of the augment was still going on even within the attested stages of the individual languages, and to extrapolate that the augment will have been even less grammaticalized at earlier stages, which could then be taken to point to a late origin.

Unfortunately, this line of reasoning does not withstand scrutiny. If we regard the developments between, for example, Homeric and classical Greek as reflecting the final step in a roughly linear grammaticalization process from non-existent through optional to obligatory, the stage at which there was no augment would have to far postdate the stage at which Greek, Phrygian, Armenian and Indo-Iranian were still one language. And yet, its existence at this stage is undeniable. Once we accept a non-linear process of grammaticalization, the fact that the final stage of grammaticalization took place within the historical period does not have any bearing on the date of the initial stage.

Moreover, scenarios along these lines ignore the fact that there is clearly a *functional* difference between augmented and unaugmented past tense forms, in Homeric Greek, in Rigvedic Sanskrit, and in Avestan – and the

[17] On potential remnants in Tocharian and Germanic, see n. 23.

distributions in these languages match remarkably well.[18] In Homer,[19] unaugmented past tense forms are typical of sequential past narrative, whereas categories in which past events are mentioned in other contexts, which generally have some relation to the present, rather use augmented past tense forms. A prominent example of the latter type of context is (non-narrative) direct speech.[20] As Willi (2018: 395-411) has demonstrated, Avestan and Rigvedic Sanskrit show distributions that can plausibly be interpreted in a very similar way. This difference between a past tense category without a relation to the present and one with a relation to the present is clearly reminiscent of the typologically common dichotomy of which various instantiations can be found, for example, in English (simple past ~ present perfect), German (*Präteritum ~ Perfekt*), French (*passé simple ~ passé composé*), and Italian (*passato remoto ~ passato prossimo*). As is well known, the latter of these pairs, the past tense with a relation to the present (present perfect) tends to encroach on the domain of the former, the past tense without a relation to the present (simple past), and may even completely oust it, as it did, for example, in (spoken) French, northern Italian, and southern German. Similarly, the present perfect that developed from the PIE perfect in most daughter languages often also obtained the function of a simple past (e.g. PIE *$*g^we$-g^wom-e 'has come' > Goth. *qam* 'has come, came', Dutch *kwam* 'came'). The Greek and Sanskrit developments by which the domain of augmented forms was extended from present perfect to simple past, with the augment ultimately becoming a general past tense marker, are unmistakably typologically related.

The functional difference is fatal to any scenario using the 'optionality' of the augment in Homeric Greek and Rigvedic Sanskrit to argue for a late origin. The augment was not an optional past tense marker which gradually became obligatory, but initially had a more specific function, which was then expanded to marking past tense more generally independently in

[18] See especially Willi (2018: 357-415), although unfortunately his otherwise helpful treatment suffers from the desire to interpret the augment as a perfectivity marker on the basis of perceived cognacy with the reduplicated aorist.
[19] For the Homeric state of affairs, see Allan (2016: § 2) and Willi (2018: 358-376), with more details, examples and references to older literature.
[20] More marginal ones are similes and gnomes, in which augmented aorist forms similarly alternate with *present* tense forms.

several daughter languages. This functional expansion of the augment must be strictly separated from its origin: just like the comparable developments in other languages are not informative with regard to the antiquity of the ousting form, the Greek and Sanskrit developments cannot tell us anything about the age of the augment in its function of expressing present perfects. There is no reason to assume that the augment in this function was not of PIE date.

The facts that have over the years been adduced as *positive* indications that the augment existed already in PIE have not been able to persuade most scholars, and indeed most of these are inconclusive.[21] Ultimately, the non-Anatolian languages cannot shed any definitive light on the question whether Anatolian inherited the augment or not. Only the Anatolian data would be able to tell whether it was there already when Anatolian split off. Since assuming the existence of the augment for PIE is not only unproblematic, but in fact *solves a problem* in Anatolian, the conclusion must be that the augment was there already in PIE.

6 **h₁es-*

There is one peculiarity of the non-Anatolian languages that increases the number of possible interpretations regarding the status of the augment in pre-Proto-Anatolian. Without this peculiarity, it would be most natural to assume that Anatolian went through the same development as historical Greek and Sanskrit, i.e. an extension of the use of the augment to all past tense forms, and that it subsequently disposed of the redundant morpheme, except in verbs starting with **h₁*, where the augment and the stem had formed an unresolvable unit, after which the pattern of these verbs was extended to other verbs. However, alternative possibilities are enabled by the fact that in the non-Anatolian languages, at least one of the pivotal verbs starting with **h₁* behaves quite uniquely with regard to the augment.

[21] For example, it has been claimed (cf. e.g. Kortlandt 2004) that the augment originally triggered zero grade of the ending in the 3pl. (cf. Skt. *kranta* but *akrata* 'they made' < **kʷr-énto*, **h₁é-kʷr-nto*), which would suggest that it existed at a very early stage. However, this alternation also allows for other explanations (cf. e.g. Willi 2018: 350 n. 87 with refs.).

As Praust (2003) has demonstrated, Indo-Iranian, Greek and Armenian show that the preterite of *h_1es- 'to be' *only* occurred in augmented form, even at the earliest stages. Praust's explanation is that corresponding unaugmented forms would have been expected in statements of general truths – the main locus of these forms in Sanskrit – and that PIE rather used a zero-copula in such statements.[22] According to Praust, the neat distribution between augmented and unaugmented forms found in *h_1es- suggests that it shows the original state of affairs, and therefore he reconstructs this situation for PIE, and also for all other PIE verbs: unaugmented forms with secondary endings – the equivalents of the zero-copula in all verbs other than *h_1es- – occurred in statements of general truths, whereas past tense forms always featured the augment. The argument is not bulletproof (cf. also Willi 2018: 357 n. 1). Rather than a functionally well-defined category, unaugmented forms with secondary endings rather constitute a multi-functional residual category resulting from not being characterized with either *-*i* or *h_1e- in functional domains that are not necessarily closely related, and while one of these domains is that of statements of general truths, another very distinct one is that of sequential past narrative. The survival of this clearly archaic state of affairs in Greek and Sanskrit directly contradicts the idea that *h_1e- was a general past tense marker in PIE. It clearly shows that the characteristic of the past tense of *h_1es- to always feature the augment in this context was exceptional. And since this is an exceptional characteristic of the *past tense* of *h_1es-, the zero-copula, which belongs to a different functional domain, cannot explain it. But even though PIE may not have had a general functional distribution between augmented and unaugmented forms in the way Praust envisages it, it is in any case an important observation that the only reconstruction of the past tense of PIE *h_1es- that is supported by the comparative evidence is *augmented*. This means that a reconstruction of its ambiguous Hittite descendant, *e-eš-ta*, etc., as *h_1es-*t* rather than *h_1e-h_1es-*t* entails postulating a form that contradicts all other available evidence.

[22] The zero-copula in statements of general truths is undoubtedly an archaism from before the grammaticalization of *h_1es- 'to sit' into a copula; see Chapter 6.

Possibly in imitation of **h₁es-*, some descendants of other verbs with initial **h₁*, especially **h₁ei-*, are also found with a higher percentage of augmented forms in the daughter languages. Most conspicuously, as with **h₁es-*, the Indo-Iranian continuations of the past tense of **h₁ei-* 'to go' are never found without the augment (e.g. Skt. *āit*, never ***et*).[23]

The previous observations have some consequences for our interpretation of the Anatolian data. Since **h₁es-* is one of the four verbs originally starting with **h₁* from which the Hittite past tense ablaut pattern is likely to have spread, and arguably the most important of the four, the appearance of a fully grammaticalized augment from the outset in non-Anatolian IE exactly in this verb further strengthens the proposed inner-Anatolian scenario. The same goes for the observation that other verbs starting with **h₁* may follow suit.

The deviant behavior of **h₁es-* also means that we do not necessarily have to assume that the augment developed to a more general past tense

[23] Intriguingly, as Kortlandt (1996: 172) points out, a reconstruction **h₁e-h₁ei-* > **ēi-* would also immediately account for the Tocharian imperfect of *y-* 'to go', viz. B *yai*, *yey*, A *ye-ṣ* < PToch. **yey-*. The alternative analysis of this form as an old optative cannot really be ruled out, but does require some extra assumptions, namely that this optative became doubly marked (**ye-* < **h₁i-ieh₁-* + **-y-* < **-ih₁-*) and that the imperfect function of the optative as found in B was of Proto-Tocharian date, which is not obvious given the sometimes complicated imperfect formations in A. While the augmented reconstruction does have the disadvantage of requiring that the parallel imperfect of 'to be' (B *ṣai*, *ṣey-*, A *ṣe-ṣ*) was shaped after 'to go', a development **h₁e-h₁ei-* > **yey-* is straightforward, and this reconstruction gains further probability in light of the exceptional obligatoriness of the augment in verbs with initial **h₁* in other languages, in any case **h₁es-*, and also specifically **h₁ei-* in Indo-Iranian. For a nuanced treatment of both scenarios see Peyrot (2012: 111-113).

The tendencies discussed here also warrant a more serious look at the interpretation of **ē* in Germanic **ēt-* 'ate' (the most likely source for the **ē* of the plural of the preterite of fourth and fifth class strong verbs; see n. 10) < **h₁e-h₁d-* as reflecting an augmented imperfect rather than a reduplicated perfect (cf. e.g. Bammesberger 1986: 57). Even if we rather expect a perfect from a Germanic perspective, the assumption of a surviving imperfect would have the benefit of straightforwardly explaining the appearance of **ēt-* throughout the paradigm rather than only in the weak stem next to a strong stem reflecting **h₁e-h₁od-*, for which an outcome **ēt-* is dubitable. When the original imperfect of 'to be' (**ēs-*) had not yet been replaced by **was-* / **wēz-*, at some point before Proto-Germanic, the conditions for the survival of the imperfect of 'to eat' would have been quite favorable. **ēs-* may also still have been around to help inspire the spread of **ē* to all fourth and fifth class strong verbs.

marker in Anatolian: as long as it is accepted that at least the past tense of **h₁es-* always featured **h₁e-*, the pattern may have spread from **h₁es-* alone. The Anatolian augment in general may never have gone past the stage of occurring in presentic contexts but not in sequential past narrative before disappearing. If this was the point at which the augment was lost in Anatolian, this loss may have consisted not of a general removal of the augment from augmented forms, but of unaugmented forms (injunctives) taking over the functional domain of augmented forms. This would have resulted in a general category of past tense forms that did not have any past-tense marking prefix except in **h₁e-h₁es-* (and perhaps other verbs with initial **h₁*), which did not have an unaugmented counterpart that could have taken over. Of the two competing patterns within the new unified past tense category, the pattern of the past tense of **h₁es-* was then generalized (after contraction had taken place).

We could even go one step further, although this does lead to more speculative territory. What was the reason for **h₁es-* to show a fully obligatory augment in all of its past tense uses before all other verbs in the first place? Although there may in principle have been some formal or functional factor that somehow sped up the grammaticalization process in this particular verb (but which?), it is difficult not to think of the possibility that **h₁e-h₁es-* was in fact the *source* of the prefix **h₁e-*. Compare, for example, the Greek νῦ ἐφελκυστικόν, whose likely source, ἦν 'was' (Rix 1992: 243), is the only 3sg. form to consistently feature the -ν. The verb 'to be' is in principle a suitable candidate for being the source of such a major verbal innovation. Moreover, the fact that **h₁es-* begins with **h₁* allows us to analyze **h₁e-h₁es-* as an originally reduplicated stem (to be compared with **h₁e-h₁s-o* 'to sit down'? cf. Chapter 6), in accordance with Willi's (2018: 376-381) objections to scenarios in which the augment started out as a separate particle. The element **h₁e-* would then have spread from this past tense form to other past tense forms in contexts in which a more explicit marking of the past tense was desirable, i.e. in otherwise presentic contexts, where the past tense constituted a shift in temporal reference (cf. Allan 2016: § 2). Since the Anatolian state of affairs can just as well be explained if only the past tense of **h₁es-* had a prefix **h₁e-*, the scenario in which **h₁e-h₁es-* is the source of the augment would allow for

the further possibility that Anatolian descends from the stage at which this *h_1e- had not yet spread to other verbs at all. But we cannot easily distinguish whether the stage that is continued in Anatolian was the initial one or a similar one to that reflected in Homeric Greek and Vedic Sanskrit, and the deviant behavior of *h_1es- may have a different background. Note in any case that the secure PIE date of the augment at least in *h_1es- means that one has to assume *either* that the PIE augment was restricted to and spread from *h_1es-, *or* that the augment was used in other verbs as well already in PIE, and so, in pre-Proto-Anatolian.

7 Conclusion

The analysis has led to the following conclusions. The prefix *h_1e- – the augment – existed in PIE at the very least in the past tense of *h_1es- 'to sit, be', which *only* appeared in augmented form. If this was not in fact the source of the prefix, it was used in other verbs as well, albeit only in otherwise presentic contexts, where it served to mark the shift to a past tense more explicitly; it was not generally used in sequential narrative. This state of affairs was inherited as such in the oldest Greek and Sanskrit. Some daughter languages lost the augment, while others, notably Greek and Sanskrit, extended its functional domain to include past tense more generally.

In Anatolian, a trace of the augment is still found in the ablaut of the past tense of *mi*-verbs, which aberrantly features full grade throughout. This ablaut is likely to have spread from the four most frequent verbs of this category, *h_1es-, *h_1ep-, *h_1ed-, *h_1eg^{wh}-, in which the augment and the stem had coalesced to form a long vowel (the leniting effects of which can still be seen in *uek-* < *$u\acute{e}\acute{k}$-), which was later shortened. The coalescence of augment and stem may have contributed to the survival of this remnant: this made its removal in these verbs impossible. It is possible that the augment had developed to a general past tense marker before it was generally removed. However, given the fact that it is exactly *h_1es- that features an obligatory augment in the oldest Greek and Sanskrit, this is not necessarily the case; it is also possible that the augment in general

never reached the stage of a general past tense marker in Anatolian, and that the removal of the augment in general rather consisted of unaugmented forms taking over the functions of augmented forms. This would also have resulted in the restriction of the augment (or its reflex) to *h_1*es*- (and perhaps other verbs with initial *h_1, if these had already assumed the same pattern) because *h_1*es*- did not have an unaugmented counterpart that could have ousted the augmented form. If one is prepared to believe that the past tense of *h_1*es*- was in fact the source of the augment, a third option would be that Anatolian descends from a stage in which only the past tense of *h_1*es*- featured the prefix *h_1*e*-.

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