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

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Innovations and Archaisms in Hittite, Luwian and Lycian

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Indo-European Origins of Anatolian Morphology and Semantics

Innovations and Archaisms in Hittite, Luwian and Lycian

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Abbreviations and symbols

LANGUAGES AND SCRIPTS

Alb.	Albanian
Arm.	Armenian
Av.	Avestan
CLuw.	Cuneiform Luwian
Cret.	Cretan
Eng.	English
Germ.	(Modern High) German
Goth.	Gothic
Gr.	Ancient Greek
Hitt.	Hittite
HLuw.	Hieroglyphic Luwian
Hom.	Homeric Greek
IE	Indo-European
It.	Italian
Lat.	Latin
Latv.	Latvian
Lith.	Lithuanian
LNS	Late New Script
Luw.	Luwian
Lyc.	Lycian
MH	Middle Hittite
MHG	Middle High German
MoGr.	Modern Greek
MS	Middle Script
Myc.	Mycenaean
NH	Neo-Hittite
NS	Neo-Script
Nw.	Norwegian
OCS	Old Church Slavic
OH	Old Hittite

OHG	Old High German
OIr.	Old Irish
OLat.	Old Latin
ON	Old Norse
OPruss.	Old Prussian
OS	Old Script
PAnat.	Proto-Anatolian
PGm.	Proto-Germanic
PIE	Proto-Indo-European
PLuw.	Proto-Luwic
PSlav.	Proto-Slavic
RCS	Russian Church Slavic
Sab.	Sabellic
Skt.	Sanskrit
Sp.	Spanish
Sw.	Swedish
Thess.	Thessalian
ToA	Tocharian A
ToB	Tocharian B
ToAB	Tocharian A and B
VLat.	Vulgar Latin

GRAMMAR

abl.	ablative
acc.	accusative
adj.	adjective
adv.	adverb
all.	allative
aor.	aorist
c.	common (gender)
conj.	conjugation
dat.	dative
dir.	direct cases
du.	dual

f.	feminine (gender)
fut.	future
gen.	genitive, genitival
gen.adj.	genitival adjective
imp.	imperative
impf.	imperfect, imperfective
inf.	infinitive
intr.	intransitive
loc.	locative
m.	masculine (gender)
n.	neuter (gender)
nom.	nominative
obl.	oblique cases
perf.	perfect
pl.	plural
plupf.	pluperfect
PN	personal name
poss.pron.	possessive pronoun
ppp.	passive past participle
pres.	present tense; present aspect
pret.	preterite, past tense
ptc.	participle
sg.	singular
subj.	subjunctive
subst.	substantive, substantivized
tr.	transitive
voc.	vocative

SYMBOLS

>	develops into
<	develops from
>>	is analogically replaced by
<<	analogically replaces

→	is the derivational base of; outcome of a proportional analogy
←	is derived from
*…	reconstructed form
…*	unattested form of an attested lexeme
**…	counterfactual form
°	omission of part of the form
~	comparable to, cognate with, varying with; (in example sentences) the word(s) under discussion
/	paradigmatically alternating with
//	the tablets on either side are duplicates
+	join with
∅	zero
#	word end
C	consonant
V	vowel
R	resonant
H	laryngeal
P	labial stop
T	dental stop
K	velar stop
X	variable in a proportional analogy

LITERATURE

IBoT	İstanbul Arkeoloji Müzelerinde bulunan Boğazköy Tabletlerinden Secme Metinler
KBo	Keilschrifttexte aus Boghazköi
KUB	Keilschrifturkunden aus Boghazköi
TL	Tituli Lyciae

obv.	obverse, recto, front side
rev.	reverse, verso, back side

RV	Rigveda
Il.	Iliad
Od.	Odyssey
Hdt.	Herodotus
Cic.	Cicero
Amic.	*De amicitia*
Leg.	*De legibus*
NT	New Testament
Rom.	*Romans*

TEXT

c.	circa; century
cf.	confer, compare
cont.	continued
dial.	dialectal
e.g.	exempli gratia, for example
ed(s).	editor(s)
esp.	especially
et al.	et alii, and others
etc.	etcetera
f.	from page (preceding number) onward
fthc.	forthcoming
i.c.	in casu, in this case
i.e.	id est, that is
lit.	literature; literally
mr.	mister
n.	note
p.c.	personal communication
refs.	references
sc.	scilicet, namely, supply
s.v.	sub voce, under the lemma
vel sim.	vel similia/simile, or similar
viz.	videlicet, to wit, namely
vs.	versus, as opposed to

“Many resemblances are evident at first sight, others are discovered by more careful investigation, and the more closely we analyse the recondite structure of the kindred tongues, the more we are surprised to find them constantly developed by the same principle.”

— Franz Bopp, 1820

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Introduction

The Anatolian branch of the Indo-European language family is of central importance for the reconstruction of Proto-Indo-European. It has long been suspected that Anatolian was the first branch to split off from the family. If this is the case – and current scholarship favors this option –, the stemmatic consequence is that for the reconstruction of any given feature of the proto-language, the evidence of the Anatolian branch is as important as that of all other Indo-European languages combined. If all other Indo-European languages unanimously point to one reconstruction, but the Anatolian evidence to another, there is *a priori* a serious possibility that Anatolian preserves the older situation, and that the innovation took place in the prehistory of the last common ancestor of the other Indo-European languages. The assumption of Anatolian's early departure rests exactly on cases in which this is the most probable scenario.

Although the body of scholars accepting the 'Indo-Anatolian hypothesis' seems to be ever growing,[1] all aspects of the hypothesis, both concerning the nature and the extent of the differences we have to reckon with, are still heavily debated. There is not a single element that is universally agreed upon, and theories run wild. This is not so much because of the non-Anatolian part of the comparison, of which we have gained quite a good grasp ever since Indo-European linguistics was founded on it in the 19th century. It is in part due to the fact that the interpretation of the Anatolian data is still in flux. There are only few dedicated specialists. This makes branch-internal progress slow, and can even catalyze the spread of incorrect ideas, which also emerge relatively easily due to the limitations of our corpora and the inherent complexity of linguistic reconstruction. The idea that Anatolian may be extremely archaic has inspired several backprojections without careful assessment of the possibility that the Anatolian situation is secondary. Very often, also, ideas are based mainly on Hittite, leaving valuable information provided by Luwian and Lycian

[1] Cf. Kloekhorst & Pronk (2019: 3 with refs.).

aside, or conversely, too much compellingness is attributed to Anatolian languages about which we know, and can only know, next to nothing.

For the reconstruction of Proto-Indo-European, and for an informed opinion regarding the Indo-Anatolian hypothesis, it is absolutely critical to know and understand the Anatolian facts. This goes in particular for morphology and semantics, which harbor the bulk of potential divergences. Indeed most Indo-Anatolian arguments that have been proposed are of morphological or semantic nature.[2] The boldest of them concern morphology. At the same time, historical morphology is among the less well understood parts of the already generally understudied field of Anatolian linguistics.

Aims, basis and contents

The present work is meant to mend part of this unfortunate situation. It aims to contribute to our knowledge and understanding of Anatolian, and by extension Proto-Indo-European, by offering in-depth analyses of essential issues in Anatolian historical morphology and semantics.

The objects of the investigations are the three best-attested Anatolian languages that allow for solid analysis: Hittite, Luwian and Lycian. The latter two descend from a sub-node in the Anatolian family tree called Proto-Luwic, and are therefore 'Luwic' languages. I do not consider the other Anatolian languages (Palaic, Lydian, Carian, Pisidian, Sidetic) at present informative for the reconstruction of Proto-Anatolian. It is to be hoped that their corpora will grow in the future. As it is, our knowledge of these languages is informed by our reconstruction rather than the other way around.

The work as a whole is divided into two parts, of which one deals with nominal, the other with verbal matters. While the nominal morphology of Hittite is by now quite well understood (although here, too, there is still room for improvement), we are still in the process of establishing even

[2] For a collection of proposals see Kloekhorst & Pronk (2019: 3-5). The more improbable ones do not feature in this list, but we will encounter some of those in the course of this work.

synchronic Luwic morphology, and accordingly, of finding diachronic explanations for the patterns found. It will therefore not come as a surprise that all studies in the nominal part focus on Luwic.

By far the most important phenomenon in Luwic nominal morphology is that of the so-called '*i*-mutation', a topic that has given rise to several wholly incompatible historical interpretations, with far-reaching consequences. The phenomenon of *i*-mutation is the topic of the first chapter, which leads to an assessment of the developments of the main nominal stem classes between Proto-Anatolian through Proto-Luwic to the individual Luwic languages.

The second chapter takes as its starting point the observation that Luwic proper names have their own inflection. The paradigms are established, and a historical explanation is offered for the endings that deviate from those of the appellatives. The search for the origin of the dative ending leads to a reappraisal of the Hittite use of the allative instead of the dative-locative in *i*-stems, and has important consequences for the debated reconstruction of the Proto-Anatolian allative, which is further relevant for the Indo-Anatolian hypothesis.

Probably, one characteristic feature of Proto-Luwic onomastic inflection was the use of the genitive, whereas appellatives used an inflected counterpart, the genitival adjective. In the third chapter, the Lycian allomorphy of the genitival adjective suffix (*-ahe/i-* ~ *-ehe/i-*) is scrutinized to determine the distribution and nature of the allomorphs. This has been the subject of debate, with different synchronic interpretations leading to different historical interpretations. The genitive and genitival adjective suffix are here ultimately traced back to **-osio*(-), which problematizes the notion that the *o*-stem genitive **-osio* was an innovation of non-Anatolian IE.

The second part of the work deals with verbal issues, and this is also where semantics play a pivotal role. There is no doubt that the main issue in Anatolian historical verbal morphology is the origin of the *ḫi*-conjugation, which has inspired various scenarios with far-reaching consequences for the reconstruction of Proto-Indo-European and the Indo-Anatolian hypothesis. The *ḫi*-conjugation is the subject of the fourth and largest chapter, and naturally leads to a shift of focus to Hittite. The chapter

offers a detailed reconstruction of the prehistory of the *ḫi*-conjugation, and contains a systematic analysis of the principles behind the distribution of lexemes among the *mi*- and *ḫi*-conjugations. Naturally, it also discusses the semantics of the PIE perfect.

One element that has been used for subgrouping in Indo-European linguistics is the past tense marker known as the augment. The value of this feature for determining subgroups has to be reconsidered in view of the fifth chapter, in which evidence is provided suggesting that the augment is of Proto-Indo-European date and left traces in Hittite.

The sixth and seven chapters focus on the semantics of two of the most prominent verbs in almost all Indo-European branches, **h*$_1$*es*- 'to be' and **deh*$_3$- 'to give', respectively. It is argued that the Anatolian meanings 'to sit' and 'to take' preserve the original, Proto-Indo-European meanings, which were lost in the prehistory of the ancestor of the other Indo-European languages. Thus, these verbs constitute evidence in favor of the Indo-Anatolian hypothesis.

Finally, the conclusion gives an overview of the most important findings.

Practical indications

Each chapter is conceived as a separate and self-contained study, featuring its own bibliography. Indeed, all chapters will also be published as separate articles in peer-reviewed journals.[3]

[3] Currently, it is only known that the article counterpart of Chapter 1 will be published in *Historische Sprachforschung*, and that of Chapter 3 in *Hungarian Assyriological Review* (as part of the proceedings of the conference 'Current Research on Lycian' held in Munich, 2017). The exact fate of the article versions of the chapters will be reported on stefannorbruis.nl. The articles may turn out to deviate in some places from the chapters in this book due to the review process. One recurring discrepancy between the two versions of each text is that references to other chapters appear in this dissertation as crossreferences (e.g. 'Chapter X' rather than 'Norbruis fthc.'). As in the article versions, however, references to sections and notes are always chapter-internal, and are therefore not preceded by the number of the chapter. The introduction, summary and conclusions, and the index will remain unique features of this book.

The work often relies on established dictionaries and databases for the identification of places of attestation and of the sources of received opinions. For Hittite, the main dictionaries are HW^2, CHD, HED, HEG, and EDHIL. Currently, the main online database for Luwian is ACLT, which includes vocabulary lists for both Cuneiform and (Iron Age) Hieroglyphic Luwian with links to their digitized corpora (Starke 1985 and Hawkins 2000, respectively). For Cuneiform Luwian there is also the CLL dictionary. The main Lycian dictionaries are those of Melchert and Neumann. In addition, exhaustive lexical treatments for all non-Hittite Anatolian languages are gradually becoming available through eDiAna.

The present work is not an exhaustive treatment of Anatolian historical morphology and semantics. An attempt to write an exhaustive historical morphology of Anatolian would have faced serious difficulties without extensive analyses of some of the topics discussed here. In its detailed treatment of these topics, however, the present study touches on many aspects of inflectional morphology, and it is hoped that the table of contents and the index will lead readers looking for a specific topic to a useful passage.

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ACLT = Ilya Yakubovich, *Annotated Corpus of Luwian Texts*, http://web-corpora.net/LuwianCorpus/search/.

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Nominal Part

CHAPTER 1

The origin and spread of the '*i*-mutation' paradigm and the prehistory of the Luwic nominal stem classes

Abstract: In this chapter it is argued that the Luwic paradigm known as '*i*-mutation' originated in ablauting *i*-stems, which lost the oblique suffix by sound law and spread categorically, through the identity of the oblique cases, initially to the consonant stems, and later to the *o*-stems. The *ā*-stems, which are argued to survive as a class not only in Lycian but also in Luwian, escaped the spread because their oblique cases were not identical. The same goes for the *u*-stems, except in those cases where the stem vowel was consonantal.[1]

1 Introduction

Proto-Luwic had a common gender nominal paradigm that is continued in its best-attested daughter languages in the following forms:[2]

	CLuw.		**HLuw.**		**Lyc.**	
	sg.	pl.	sg.	pl.	sg.	pl.
nom.	*-iš*	*-inzi*	*-is*	*-inzi*	*-i*	*-i*
acc.	*-in*	*-inz*	*-in*	*-inzi*	*-i*	*-is*
dat.-loc.	*-i*	*-anz*	*-i*	*-anz*	*-i*	*-e*
abl.	*-ati*		*-adi*		*-edi*	
gen.adj.	*-ašša/i-*		*-asa/i-*		*-ehe/i-*	

[1] I would like to thank Alwin Kloekhorst, Craig Melchert, David Sasseville, Xander Vertegaal, Kate Bellamy and the anonymous reviewer for their comments on earlier versions of this paper.

[2] Here I leave out the more marginal genitive plural, **-on* (Lyc. *-ẽ*), whose exact locus and status in Proto-Luwic are not securely known. In the present context, it does not make any difference whether or not one reconstructs this ending for this paradigm. The same goes for the gen.sg. **-Vsso* (HLuw. *-Vsa*, Lyc. *-Vhe*), which was most probably restricted to proper names (see Chapter 2).

In all of these languages this is the most frequent nominal paradigm, both in nouns and in adjectives. For adjectives, the accompanying neuter paradigm is identical to that of the common gender except for the nominative-accusative, which has the ending *-a* in the plural, and comes in two variants in the singular: thematic (nom.-acc.sg. *-*on*) and consonantal (nom.-acc.sg. *-∅). For example, the Lyc. adjective meaning 'upper' (nom.-acc.sg.c. *hrzz-i*, etc.) has a thematic neuter counterpart: nom.-acc.sg. *hrzz-ẽ*. Similarly, the HLuw. word for 'each, all' (nom.sg.c. *tanim-is*, etc.) has a nom.-acc.sg.n. *tanim-an-za*.[3] Examples of adjectives with a consonantal neuter are CLuw. 'evil' (nom.sg.c. *ă̆dduu̯al-iš*, etc., nom.-acc.sg.n. *ă̆dduu̯al*) and Lyc. 'how(ever) many' (nom.pl.c. *km̃mẽt-i*, nom.-acc.sg.n. *km̃mẽ*, with loss of final *-*t*). Etymologically, most words and suffixes that inflect according to this paradigm continue *o*-stems (e.g. CLuw. *-mma/i-*, participle suffix, ~ Gr. -μενος < *-*mh₁no-*) and consonant stems[4] (e.g. CLuw. *ĭššar-iš* 'hand' ~ Hitt. *keššar*, Gr. χείρ < **ǵʰesr-*). So far, no agreement has been reached about the origin of the paradigm and its alternations, and how it came to affect the inflectional classes it affected.

2 Previous analyses

The alternations of the paradigm outlined above, both paradigm-internal and relative to the accompanying neuter, have been interpreted in various ways. When the synchronic details of the paradigm and its alternations had not yet become clear, the type was generally seen as a class of *i*-stems, which had spread to originally non-*i*-stem lexemes.[5] Two major revising analyses have appeared since then: Starke 1990 and Rieken 2005. In the following I will present and discuss their analyses.

[3] HLuw. nom.-acc.sg.n. forms always feature the historically unclear element =*za* (after *l*, *n*) or =*sa* (elsewhere). In CLuw. this element is not yet found in all instances.
[4] Hereafter *C*-stems.
[5] Cf. e.g. Kammenhuber (1969: 281): "Im K.-Luw. greift die -*i*-Deklination … um sich".

2.1 Starke 1990

2.1.1 Analysis

The first to study the complex in detail was Starke (1982: 408-409 n. 3; 1990: 59-93), who argued against a designation as *i*-stems, and instead regarded the inflection of the neuter of the adjectives, i.e. thematic and consonantal, as original. This tied in well with the fact that most words with this inflection are etymologically *o*-stems and *C*-stems. The element that needs to be explained in this analysis is the *-i-* found in the direct cases of the common gender. Its apparent position between stem and ending (*ăddu̯al-i-š*, *-i-n*, *-i-nzi*, *-i-nz*), in the case of thematic stems with substitution of the original stem vowel, allowed Starke to analyze it as a suffix, which, in view of its restriction to the common gender, he regarded as a common gender marker. This marker was, in his view, restricted to the nominative and accusative because these were the cases designated for expressing gender differences (Starke 1990: 61, further developed by Melchert 1994b).

Analyzing the distribution of the supposed gender suffix in CLuw., Starke concluded that all common gender stem types except “*i*/*i̯a*”-stems, namely *C*-stems, *a*-stems and *u*-stems, showed *i*-insertion, but only to some degree. This led him to devise a notation indicating whether or not a specific member of a certain class had received the *-i-* (Starke 1990: 61): the addition of “*(i)*” indicated that it had received it (e.g. *ĭššar(i)-* ‘hand’), its absence that it had not (e.g. ^{d}*tarḫunt-*, the Storm-god). For suffixed *a*-stems, in which the *-i-* replaced the *-a-*, he used “*a(/i)*” (e.g. *-mma(/i)-*, participle suffix), which in later literature developed into *-a/i-*. Starke (1990: 62-64, 91-93) saw the following distributions in CLuw. All common gender *C*-stems, both nouns and adjectives, received the suffix, except for the two theonyms ^{d}*tarḫunt-* and ^{d}*tiu̯at-*. In *a-* and *u*-stems, only adjectives were affected (e.g. *-mma(/i)-*, participle suffix, *u̯ašu(i)-* ‘good’), but not all (not those in *-zza-*, e.g. ^{URU}*taurišizza-* ‘of Taurisa’), and *a-* and *u*-stem nouns were in principle not affected, except by analogy to associated *C*-stems. Similar distributions were observed in HLuw. and Lyc. (Starke 1990: 67-70).

Starke (1990: 71-85) tried to find traces of the same phenomenon in Lydian, Palaic, and Hittite.[6] For Hittite, he adduced the *i*-stem inflection that seemed to have been secondarily attached to what he analyzed as *u̯a*-stem adjectives, e.g. *dankui-* 'black, dark', supposedly < **dankuu̯a-* < **d*^{h}*eng*^{w}*-o-*, which has *i*-less forms in derivations such as *danku-ešš-* and *danku-nu-*, and might correspond to CLuw. *dakkuu̯i-*[7] '?'. He also tried to trace the vowel alternations found in the enclitic possessive pronouns (e.g. nom.sg.c. *=šši̯š*, acc.sg.c. *=šši̯an*, *=šši̯in*, nom.pl.c. *=šši̯eš*, *=šši̯š*, acc.pl.c. *=šši̯uš*, gen.sg. *=šši̯aš*, dat-loc.pl. *=šši̯aš*) back to the distribution of *-*i-* and *-*o-* found in Luwic.

Starke's findings led him to posit the following historical scenario (Starke 1990: 86). The *i*-suffixation was initially restricted to *o*-stem adjectives (as was still the case in Hittite, in Starke's view). It was then extended to *u*-stem adjectives through a reinterpretation of *i*-suffixed *u̯a*-stems as *i*-suffixed *u*-stems, and even later (on account of Lydian) also extended to *C*-stem adjectives. Eventually, in Proto-Palao-Luwic, it spread to *C*-stem nouns.

Initially, Starke (1982: 408-409 n. 3) sought the origin of the *-i-* in the PIE feminine suffix *-*ih*$_2$-. This suffix is sometimes referred to as a "Motionssuffix", after the shift to a specific gender that it brings about. This term was carried over to the Luwic *-i-*, with *i*-suffixation being referred to as "*i*-Motion", and in more recent literature mostly as "*i*-mutation". Although the identification with PIE *-*ih*$_2$- was taken up quickly and approvingly (e.g. by Oettinger 1987, Melchert 1994b), Starke himself (1990: 86) abandoned the idea because of the supposed origin in the *o*-stem adjectives, whose feminine is formed with the suffix *-*eh*$_2$- rather than with *-*ih*$_2$- in other IE languages. As an alternative, Starke (1990: 88) compared the substitution of *-*o-* with *-*i-* to a similar substitution of *-*o-* with suffixes starting with *-*i-* in some PIE derivations, e.g. those of the *vṛkī́*-type (Skt. *vṛ́k-a-* 'wolf' → *vṛk-ī́-* 'she-wolf', *kṛṣṇ-á-*

[6] Of these, only (pre-)Lydian is now usually accepted to feature the paradigm (cf. most recently Sasseville 2017). Additionally, it has been proposed for (pre-)Carian (cf. Adiego 2007: 346-347). Putative remnants in Pisidian and Sidetic are, like most statements on these languages in their current states of attestation, guesses at best.

[7] The neuter is not attested, so only the common gender is noted here.

‘black’ → *kṛṣṇ-ī́-* ‘night’). In Starke’s view (1990: 88-89), some *o*-stem adjectives may similarly have had *i*-stem variants, which were then integrated into the *o*-stem paradigm out of a desire to mark the common gender even more explicitly.

Starke’s 1990 historical interpretation has not received much attention, in part because his putative traces in Hittite and Palaic, and therefore the supposed origin in *o*-stem adjectives, have not found general acceptance. However, his initial reconstruction of **-ih_2-* has spawned quite some scholarly activity, and his interpretation of *-i-* as a suffix marking common gender is still found today. The terms ‘*i*-mutation’ and ‘*i*-mutated’ have made their way into the standard descriptive grammatical terminology of the Luwic languages, as has the notation system Starke designed on the basis of his analysis. The most common accompanying description of ‘*i*-mutation’, to the effect that an *-i-* is “inserted between stem and ending” (a recent example is Melchert 2017: 178), also still reiterates Starke.

2.1.2 Discussion

The main problem with Starke’s account is that the analysis of *-i-* as a meaningful suffix cannot be upheld. First, its supposed original restriction to the direct cases is not expected for a suffix, especially not if these cases already expressed the difference that the added element is supposed to have expressed (*pace* Melchert 1994b). Moreover, synchronically, the *-i-* is certainly not a gender suffix, or any other meaningful derivational element. There is no synchronic process which inserts the *-i-* into an underlyingly different stem type. Rather, the *-i-* is part of an inflectional paradigm.[8]

In Starke’s analysis it also remains unclear why each stem class was only partially affected by the suffix, and in a quite haphazard way. Furthermore, the analysis of most Luwian stem classes as having both mutated and non-mutated members does not work on a synchronic level. There is no association of “*a(/i)*”-stem nouns with *a*-stem nouns, or of

[8] See also 4.4.2.2, where the *-i-* is analyzed as part of the endings. The idea that *-i-* is “inserted between stem and ending”, apart from falsely describing *i*-mutation as a synchronic process, is also historically inaccurate. For example, *ī̆šša(ri)š* ‘hand’, the Luwian equivalent of Hitt. *keššar*, originally did not have an ending, and so the historically added element is *-iš* rather than *-i-*.

"*(i)*"-stem nouns with *C*-stem nouns. Rather, this notation obscures the fact that there is synchronically no difference between "*a(/i)*"-stem and "*(i)*"-stem nouns, and that both supposed types are actually one and the same. For example, there is no difference in the inflection of *ǎnna(/i)*- 'mother' and that of *ǐššar(i)*- 'hand'; these notations are based purely on etymological considerations (Hitt. *anna*-, *keššar*). As a consequence, neither Starke's notation system nor his concept and term *i*-Motion (or *i*-mutation) are of any help in the descriptive grammar of Luwic, but rather have an obscuring effect. I therefore think it is time to change both. See my proposal for alternatives below (in 3).

Admittedly, it did not help that the phenomenon was first analyzed in detail for Luwian, whose vocalic changes had obscured a clearer picture. This picture was however preserved in Lycian (see 4.3.3.1), but the relevant facts, namely distinct Lycian outcomes of PAnat. *a*- and *o*-vocalism, were discovered only later (Melchert 1992, Rasmussen 1992). If the first analysis of the phenomenon had instead been on Lycian and after the discovery of these vocalic developments, it would most probably have resulted in a very different account from Starke's. As it is, Starke carried over his analysis of Luwian to Lycian, and this was taken over by later scholars without due integration of the extra information that Lycian provides – more on this in 4.3.3.

2.2 Rieken 2005

2.2.1 Analysis

A different approach was taken by Rieken (2005), who returned to the old *i*-stem interpretation of the paradigm. This analysis is faced with the opposite task, requiring an explanation of all forms without -*i*-, i.e. the common gender oblique cases and all cases of both accompanying neuter types.

From a list of *i*-mutated suffixes composed by Melchert (1994b: 232-234), most of which are adjectival, Rieken (2005: 51) concludes that the phenomenon originated in the adjectives.

Rieken (2005: 52ff.) identifies the replacement of *-*o*- with *-*i*- as belonging to the IE morphological complex that has been called the Caland

system. She starts from a PIE derivational process by which an *i*-stem abstract noun could be derived from an *o*-stem adjective (e.g. Gr. ἄκρος ‘topmost’ → ἄκρις ‘mountain top’, supposedly from an older abstract meaning). According to Rieken, the direction of derivation could synchronically also be interpreted the other way around (*i*-stem abstract → *o*-stem adjective). She then proposes that alternative abstract nouns arose due to the substantivization of the neuter nom.-acc.sg. form of the *o*-stem adjective (which would then mean, for example, both “das Große” and “die Größe”), and that new adjectives were derived from these substantivized *o*-stem adjectives by the creation of a mirror image of the reversed interpretation of the previous rule, leading to a derivational possibility *o*-stem abstract → *i*-stem adjective. These would then be the origin of the *i*-stem adjectives continued in the Hitt. *-i-/-ai-*ablauting (i.e. proterodynamic, or PD) adjectives, such as *šalli-* ‘big’, and in the Luwic common gender *i*-mutation paradigm. She finds a trace of the *o*-stem base from which these *i*-stems were supposedly originally derived in Hitt. *ḫatuka-*, a variant of *ḫatuki-* ‘terrible’.

A crucial assumption, building on a framework developed by Widmer (2004), is that the neuter counterpart of amphi- and proterodynamic adjectives, including the *i*-stem adjectives that are relevant here, originally differed from the common gender only in ablaut, e.g. Lat. *maiōr, magis* (later >> *maius*) < *-*iōs*, *-*is*. To illustrate this for the proterodynamic adjectives, Rieken (2005: 60-62) adduces **p*(*e*)*lh₁-u-/-eu-* ‘much, many’ (Goth. *fil-u-*, Gr. πολ-ύ-/πολ-έ-), and assumes that the Greek *o*-vocalism stems from the, in her view, defining acrostatic ablaut of the neuter. Following the demise of ablaut types and internal derivation, the neuter was no longer distinct from the common gender, and had to be characterized in some other way.

Rieken (2005: 62ff.) proposes that Hittite and Luwic solved this problem in different ways. Hittite created a neuter of the *šall-i* type in analogy to the neuter of the *u*-stems (e.g. *āššu-* ‘good’). Luwic instead integrated into the paradigm the (substantivized) *o*-stem abstracts from which the *i*-stem adjectives were supposedly derived. This created the alternation of *i*-stem forms in the common gender and *o*-stem forms in the neuter gender found in the adjectival *i*-mutation complex. The alternation

then became productive and was transferred to fully thematic adjectives, and from there to thematic nouns. Finally, an analogy created the *i*-mutated *C*-stems: like thematic adjectives, *C*-stem adjectives could also be substantivized into abstract nouns (e.g. *ăddu̯̯al-* 'evil' and 'evilness'), and the pattern of the thematic adjectives (abstract noun = neuter of the adjective; the common counterpart has *-i-* before the endings in the direct cases) was applied here as well, leading to the type c. *ăddu̯̯āl-i-š*, n. *ăddu̯̯al*(*-za*).

Rieken (2005: 66) finds a confirmation of the origin of the paradigm in the Caland system in the fact that some primary adjectives of this type have an adjectival meaning ('big', 'shiny', explicitly mentioned are *dakku̯̯a/i-* 'dark' and *ala/i-* 'high') and that two of them are regarded as originally being part of the system (Rieken mentions HLuw. *ura/i-* 'big', CLuw. *šalḫa/i-* 'big').

The paradigm-internal alternations of the common gender are analyzed by Rieken (2005: 65, 67) as developed by sound law from originally **-i-/-oi̯-*ablauting adjectives, with loss of *-i̯-* between identical vowels and contraction of the surrounding vowels already in PAnat. (on this see 4.2.1.2).

2.2.2 Discussion

Rieken's scenario in which the Anatolian PD *i*-stems were derived from thematic abstract nouns, which arose due to substantivization of a thematic adjective, cannot be upheld, as there is no evidence to support it. No thematic abstract nouns exist next to *i*-stems in Hittite, or in any other IE language. The proposed connection with the derivation of *i*-stem nouns from *o*-stem adjectives is also too convoluted to be convincing.

Further, the idea that some words displaying this inflection may originally have belonged to the Caland system is not meaningful, because these few adjectives do not have any special status within the class.[9]

[9] Note, furthermore, that all the words that Rieken mentions are problematic in one way or another. The only attested forms of alleged HLuw. "*ura/i-*", acc.pl.n. MAGNUS-*i*+*a*, MAGNUS+*ra/i-ia*$^{-a}$, cannot belong to a form ***ura/i-* but only to *uriya/i-* (cf. Hawkins 2000: 162; on the notation *-iya/i-* see 4.2.2.1). CLuw. "*šalḫa/i-*" is only attested as the abl. *šalḫāti*, a hapax whose meaning and stem type are not

Rather, the inflection is simply the most basic one, home to the vast majority of the entire lexicon (on the non-special status of adjectives see 4.1).

Moreover, the basic premise for the scenario in which Luwic incorporated a thematic neuter into an *i*-stem paradigm, namely that the *i*-stem adjectives in PIE had a neuter which was distinct from the common gender originally only in ablaut, and later not at all, cannot be correct. Whether or not the neuter of these adjectives had a different ablaut pattern than their common gender counterpart, in PIE the neuter was clearly distinct from the common gender in its endings: the common gender had nom.sg. *-*s*, acc.sg. *-*m*, the neuter gender nom.-acc.sg. *-∅, and similarly the plural had *-*es*, *-*ms* vs. *-(*e*)h_2. The Hittite pattern of c. *šall-iš*, *šall-in*, n. *šall-i* can be directly compared with that of *i*-stem adjectives in other IE languages, cf. e.g. Skt. m.f. *bhū́r-is*, *bhū́r-im*, n. *bhū́r-i* ‘much’, Lat. m.f. *dulc-is*, *dulc-em*, n. *dulc-e* ‘sweet’.[10] It also remains puzzling how Hittite could have created the *i*-stem neuter in analogy to the *u*-stems, as these should have had the same problem (the supposed original shape of the neuter is even backed up with the *u*-stem example πολύς rather than with an *i*-stem). The *šalli*-type neuter was, then, not a Hittite creation, but inherited from PIE. This deprives Rieken’s scenario of its main explanation for the co-occurrence of common gender *i*-stems and neuter gender *o*-stems in the same lexeme. In addition, the scenario offers no clear motivation for the analogical extension of the adjectival *i*-stem type to other stem types, nor for the lack of extension to the unaffected types.

ascertained. The interpretation of CLuw. *dakkuu̯i-*, again a hapax, is completely dependent on the supposed Hittite equivalent *dankui-* ‘dark’. The meaning and etymology of CLuw. *ala/i-* are likewise debated.

[10] The same pattern is also found in Greek, e.g. m.f. ἄπολις, ἄπολιν, n. ἄπολι ‘without city’. Here, however, the other cases have been reshaped into dental stems, i.c. ἀπολιδ- (e.g. nom.pl. ἀπόλιδες).

3 Terminology and notation

Before moving to my own analysis, a few words regarding terminology and notation are necessary. For reasons outlined in 2.1.2, I will operate with an alternative to Starke's terminology. Instead of '*i*-mutation' stems, I will use the term ***i*-stems**, the designation used before Starke. Accordingly, I cite nouns with *-i-* rather than with *-(i)-* or *-V/i-*, which are needlessly complex. This notation will be used for *all* nouns of this type, whatever their origin (e.g. CLuw. *ă̆nni-* and *ĭššari-* rather than *ă̆nna/i-* and *ĭššar(i)-*).[11] In the adjectives, a further distinction should be made between *i*-stems with a thematic neuter and *i*-stems with a consonantal neuter. For these I will use *-V/i-* and *-C(i)-*, respectively (e.g. Lyc. *hrzze/i-*, *km̃mẽt(i)-*), as is by now customary, but to be understood as a combination of the indicated stem type paradigms (*-V-* + *-i-* and *-C-* + *-i-* (*-Ci-*)).[12] Although

[11] Again in accordance with the general practice before Starke, and in some cases later as well (cf. e.g. Hawkins 2000). The lack of an *-i-* in the oblique cases should not lead to any trouble in identifying the type from the name and notation. Compare for instance the main types of Greek *i*-stems (e.g. πόλις, πόλε- 'city'), *u*-stems (e.g. βαθύς, βαθέ- 'deep') and *s*-stems (e.g. νέφος, νέφε- 'cloud'), whose oblique cases do not contain the stem phoneme either. As I will argue in 4.2.2, in nouns and adjectives there are no other *i*-stems that are more entitled to this designation. The more fully-fledged *i*-stems in proper names may be contrasted with the *i*-stems in nouns and adjectives by referring to them for example as non-ablauting or onomastic *i*-stems. Indeed, a distinction between appellative and onomastic inflection is required for all stem types (see Chapter 2).

Note that I do not wish to claim with the label '*i*-stems' that the *-i-* should be analyzed as part of the stem. Rather, I will argue that it can also be, and indeed was, analyzed as part of the endings. It would therefore also be possible to speak of '*C*-stems', and to cite them without the *-i-* (e.g. *ă̆nn-*, *ĭššar-*). However, the morphological status of the *-i-* is in fact ambiguous, and depends on what it is compared with. Paradigm-internally, it can only be seen as part of the endings, but it is also parallel to, for instance, the *-a-* of the *a*-stems. As Luwic defies clear-cut classification in this respect, the choice is somewhat arbitrary, and I choose to speak of '*i*-stems' to bring the characteristic *-i-* to mind. It would also be possible to use the term '*a/i*-stems' and to cite all members of the class with *-a/i-*. This would bring out the alternation within the paradigm, and make for a more visual contrast with the non-ablauting *i*-stems. However, this notation is also more complex than necessary, and leads to the suboptimal situation in which the designation of this paradigm coincides with the notation of this paradigm plus the thematic paradigm in the adjectives.

[12] The notation system used here is, then, different from that designed by Yakubovich for the Annotated Corpus of Luwian Texts (ACLT) and the Digital

the following analysis also provides more descriptive possibilities, the terms ‘*i*-mutation’ and ‘*i*-mutated’ could still be appropriately used for referring to the prehistoric conversion of *o*-stems and *C*-stems into *i*-stems.

4 A new account

4.1 The adjectives

The first step forward, in my view, is to move away from the adjectives. Both Starke and Rieken assume an origin of the paradigm in the adjectives, for different reasons. Starke did so because the remnants he saw in the non-Luwic languages, especially Hittite, were restricted to the adjectives. As these supposed remnants are not accepted today, neither are Starke’s arguments for an origin in the adjectives. Rieken bases her assumption of an origin in the adjectives on a list of affected suffixes – leaving the majority of the lexicon out of consideration.

Philological/Etymological Dictionary of the Minor Language Corpora of Ancient Anatolia (eDiAna) (cf. Yakubovich 2015). The system currently used there has several downsides, in my opinion. Most fundamentally, the notation is based on morpheme boundaries that I do not follow. For example, the designation of Luwian “*(i)*-stems” (*i*-stems) results from an analysis of the direct case forms as *-i-* + ending (*-i-s*, *-i-n*, *-i-nzi*), but of the oblique endings as *-adi*, *-anz*, etc. I think this distinction is synchronically unwarranted. Within the paradigm, *-i-* and *-a-* rather have to be analyzed on the same level (see 4.4.2.2 and the previous note). Following the same principle, Yakubovich notes the neuter *a*-stems with *-(a)-* (e.g. *parn(a)-*), taking the *-a-* as part of the stem in the direct cases, but as part of the endings in the oblique cases. At the same time, the *-a-* of the common gender *a*-stems, noted with *-a-* (e.g. *huha-*), *is* taken as the stem vowel throughout the paradigm. In addition, since no distinction is made between paradigm-internal and intra-paradigmatic alternations, *i*-stem nouns and *i*-stem adjectives with a *C*-stem neuter are both noted with *-(i)-*, whereas *i*-stem adjectives with a thematic neuter do have a separate notation, viz. *-(a/i)-*. In general, the brackets, a device inherited from Starke’s system, make it seem as if the content of these brackets is optional rather than part of a well-defined inflection type, and they mostly create confusion. Such a massive application is therefore not recommendable. Moreover, I do not share the wish to express all alternations in one single notation. One simple notation may imply an alternation. It makes for a much neater system.

In my view, the adjective does not have a special status when it comes to the origin of *i*-mutation.[13] The two adjectival types can be straightforwardly understood, with Starke, as *o*-stems and *C*-stems whose common gender was *i*-mutated, just like in nouns common gender *o*-stems and *C*-stems were normally *i*-mutated. The question is more general: why were common gender *o*-stems and *C*-stems converted into *i*-stems? I will therefore shift the focus from the adjectival complex to the *i*-stem paradigm in general.

4.2 Identifying the paradigm

4.2.1 Paradigm-internal analysis

4.2.1.1 Morphological clues

In order to identify the *i*-stem paradigm historically, it is most straightforward to start from the paradigm itself, analyzing it internally. In my view, the distribution of the vowels (*-*i*- and *-*o*-), viz. direct vs. oblique cases, strongly suggests that we should look for an origin in an ablauting paradigm. Moreover, the *-*i*- of the direct cases suggests that the stem type we are dealing with is also historically an *i*-stem, as had generally been assumed before Starke. This leads us to ablauting *i*-stems. Specifically, the zero grade *-*i*- in the direct cases alternating with a vowel in the oblique cases points to a PD paradigm. I therefore agree with Rieken that the *i*-stems should historically be compared to the PD *i*-stems.[14]

[13] It would be more valid to assume a special role for the adjectives if the PD *i*-stems were predominantly adjectival, as the evidence of Hittite and the remaining scraps of the originally parallel Luwic *u*-stems (cf. 4.4.1 n. 53) might be taken to suggest. However, since eventually all types of *i*-stems in nouns and adjectives end up being inflected as the one type of *i*-stems left (cf. 4.2.3), this distinction was apparently lost at some point.

[14] Starke (1990: 57-58) had already considered this possibility, but rejected it in view of adjectives of the type *parr-aḭ-a(/i)-*, which he regarded as thematicizations of the PD *i*-stems. As will be discussed below (4.2.2.2, and cf. similarly Rieken 2005: 68), this type has to be interpreted in a different way. Furthermore, the idea that *i*-stems had given up their ablaut in CLuw. (Starke 1990: 57) must be rejected, as the *i*-stems in question are rather *iḭa/i*-stems (see 4.2.2.1).

In the following overview the CLuw. paradigm is placed alongside the Hittite PD *i*-stem paradigm,[15] which has an older and a later variant (cf. Hoffner & Melchert 2008: 91, 94-96; main example Hitt. *šalli-* ‘big’).

	CLuw. *i*-stems		**Hitt. PD *i*-stems**			
			older		later	
	sg.	pl.	sg.	pl.	sg.	pl.
nom.	*-iš*	*-inzi*	*-iš*	*-aeš*	*-iš*	*-aeš*
acc.	*-in*	*-inz*	*-in*	*-auš*	*-in*	*-auš*
dat.-loc.	*-i*	*-anz*	*-ai*	*-aš*	*-ai*/*-i*	*-a̯iaš*
abl.	*-ati*		*-az*		*-a̯iaz*	
gen.(adj.)	*-aššа/i-*		*-aš*		*-a̯iaš*	

The younger Hitt. paradigm shows restoration of the *-i̯-* in analogy to the parallel *u*-stems, where *-u̯-* had remained: *-i-*, *-a°* was changed to *-i-*, *-a̯i̯-a°* after *-u-*, *-a̯u̯-a°* (cf. Melchert 1984: 45). In OH, however, we find a paradigm with a distribution of *-i-* and apparently bare endings starting with *-a-* that is very similar to that of the Luwic paradigm. In the case of OH there is no doubt that the *-a-* of the endings is the result of a contraction of two vowels previously surrounding **-i̯-* (cf. Rieken 2005: 63-64, Hoffner & Melchert 2008: 94).

4.2.1.2 *i*-stem paradigm: fleshing out the details

Trying to formulate a possible scenario, Rieken (2005: 65 n. 19; 67), at least for Luwic, departs from a paradigm in which the nom. and acc. sg. and pl. have **-i-*, and the other cases **-ói̯-*. She argues that the loss of **-i̯-*, which she assumes to have happened between identical vowels, and the subsequent contraction (**-oi̯-o-* > **-ō-*) had already happened in Proto-Anatolian (Rieken 2005: 67-71). The resulting long vowel should explain the allegedly relatively frequent plene spellings of the ablative in CLuw. In order to explain some further CLuw. plene spellings in the nom. and acc. sg., Rieken assumes that the original suffixal accent of the oblique cases was carried over to the direct cases, where it caused lengthening. The near-lack of such plene spellings in the acc.pl. and dat.-loc.pl. she ascribes

[15] Showing only the cases and gender relevant for a comparison with Luwic.

to the following cluster **nts* (Rieken 2005: 65 n. 19). To my mind, this scenario needs improvement.

4.2.1.2.1 Ablaut vowel **-e-* and a more general loss of **-i̯-*

The Luwic languages do not distinguish between original *e*- and *o*-vocalism: in Lycian they both emerge as *e*, and in Luwian the merged vowel further collapsed with *a*. Rieken (2005: 63) reconstructs the ablaut vowel of the *i*-stem suffix as **-o-* on account of Hitt. *-a-*, further comparing the Gothic and Balto-Slavic genitive forms (Goth. *-ais*, Lith. *u*-stem *-aus*). However, Hitt. *-a-* is not conclusive either: it may in principle continue **-e-* or **-o-* (in either case with retraction of the accent to the root). Most of our IE evidence rather points to an ablaut vowel **-e-*, including Greek (e.g. πόλις, πόλε- 'city') and Sanskrit (e.g. *agnís*, dat.sg. *agnáye*, nom.pl. *agnáyas* 'fire'). Even Balto-Slavic and Gothic do not unequivocally point to a variant **-o-*, but also support **-e-*, e.g. Goth. nom.pl. *-eis* < **-ei-es*. In view of the abundant evidence for *e*-vocalism in the other IE languages (cf. further, e.g., Fortson 2010: 125, Beekes 2011: 202-203), Hitt. *-a-* has also generally been reconstructed as **-e-* since Melchert (1994a: 138, calling his earlier attempt to reconstruct **-o-* "ill-advised"), and I will also assume an original paradigm with *e*-vocalism.

One issue with the assumption of *e*-vocalism for the ablaut vowel is that a sound law **-ei̯o-* > **-o-* would conflict with other proposals regarding outcome of **-ei̯o-*. The *parrai̯a/i*-type has been claimed to go back to **-ei̯-o-*, a thematicized *i*-stem, but this analysis is now outdated (see 4.2.2.2). An idea that is still current, however, is that the verbal suffix continued in Luw. *-ī̆-/-ai-*, Lyc. *-i-/-ei-* (e.g. Luw. *tupidi*, *tupainti*, Lyc. *tubidi*, *tubeiti* 'to strike') goes back to **-ei̯e/o-*, with the 3pl. Luw. *-ainti*, Lyc. *-eiti* going back to **-ei̯onti* with syncope of the **-o-*, implying that **-ei̯o-* gives **-Vi-*. The probative value of this form is reduced, however, by the fact that its exact prehistory is unclear: the reality of the invoked syncope is not beyond doubt, and the suffix has also rather been reconstructed as **-o-i̯e/o-*, the source of the Hitt. *ḫatrae*-class (e.g. Kimball 1999: 366). Moreover, if we assume for the sake of argument that the reconstruction **-ei̯e/o-* is correct, and that the lack of a vowel in the 3pl. ending is indeed due to syncope, the two outcomes of **-ei̯o-* can easily be

reconciled by assuming that the syncope was conditioned. This is usually assumed for Luwic syncope in any case (cf. e.g. Melchert 1994a: 275-276). The exact conditions are debated, but it would not *a priori* be strange to find syncope in **CVC-ê̯onti* but not in e.g. **CVC-ê̯os* or **CVC-ê̯odi*. That the two should indeed be kept separate is clearly suggested by the parallel situation of the lack of *-*o*- in the 3pl. ending Luw. -*inti*, Lyc. -*iti* < *-*î̯onti* next to its preservation in the *î̯o/i*-stems, e.g. Luw. -*î̯anz*, -*î̯adi*, Lyc. -*ije*, -*ijedi* < *-*î̯os*, *-*î̯odi* (for this type see 4.2.2.1). The 3pl. form Luw. -*ainti*, Lyc. -*eiti* can therefore hardly be considered decisive regarding the regular outcome of *-*ê̯o*- in general. Accordingly, it does not constitute an obstruction to the reconstruction of original *e*-vocalism in the *i*-stems, with a subsequent development *-*ê̯o*- > *-*o*-.

As for the loss of **î̯*, there is no reason to assume that this occurred only between vowels of the same quality. There are no compelling examples of old intervocalic **î̯* surviving as such in Luwic (except, understandably, after **i*).[16] Rieken (2005: 69) uses the distinction to explain the apparent retention of **î̯* until the loss of **o* in the 3pl. ending *-*ê̯onti* > Luw. -*ainti* discussed above. However, we only have to assume that this form somehow escaped the loss of **î̯* if this preceded the loss of **o* (provided that the reconstruction is correct to begin with). Indeed, Rieken assumes that loss of **î̯* in the *i*-stems had already happened by Proto-Anatolian. However, since loss of intervocalic *î̯* is a typologically very common development (cf. Kümmel 2007: 126-127), we may also separate these developments in Luwic and Hittite (so e.g. Kimball 1999: 366-367), in which case the loss of **î̯* could simply postdate the loss of **o* in the 3pl.

[16] Apart from the 3pl. ending -*ainti* discussed in the following, the intervocalic examples given by Melchert (1994a: 260) for Luwian consist of two examples after **i* (*pî̯a*- ‘to give’ and the *î̯a/i*-suffix) and the outdated example of the adjective *parrâ̯a/i*- (see 4.2.2.2).

ending.[17] Regardless of the exact reconstruction of the 3pl. ending,[18] I consider this to be the more likely option. It would remove the awkward assumption of a centuries-long unrestored *i*-stem paradigm in Hittite until right after the beginning of the historical period. Further note the different outcomes of the dative **-eḭ-i*, which develops to *-i* in Luwic, but to *-ai* (*-āi*) in Hittite (see 4.2.1.2.3).[19]

Initially, the resulting vowel will have been long, as contracting vowels tend to be. However, since the relevant case endings are usually spelled non-plene in CLuw., I assume that, like in Hittite, they featured a shortened vowel which resulted from a retraction of the accent to the root. This retraction of the accent may have been a Proto-Anatolian innovation. More on accent in the following section (4.2.1.2.2).

The quality of the vowel resulting from contraction cannot be exactly determined, except that we can assume that the contraction of **e* and **o* resulted in a mid-vowel. In any case, if the mid-vowels were at this point still distinct at all, the eventual pre-Proto-Luwic mid-vowel merger removed any distinction between them. Here I use **-o-* to designate the resulting vowel. This is the original (pre-merger) quality of the desinential vowels that do not result from contraction, i.e. those in the oblique case endings of other stems (cf. e.g. Hitt. *-aš*, *-az* < **-os*, **-oti*). Also, if one prefers to assume that the mid-vowels were still distinct at this point, **-o-* (< **-ō-*) rather than **-e-* would be the more likely outcome of the sequence **-eo-* (cf. likewise Hittite *-a-*).

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[17] It is possible, however, that the loss of **i̯* was earlier in the sequence **ei̯i*, as per Melchert (1994a: 277). This is based on the 3sg. form of the verbal suffix, **-ī-di*, which may have followed the path **-ei̯e-di* > **-ei̯i-di* > **-ei-di* > **-ī-di* (Melchert 1994a: 277) rather than **-ei̯e-di* > **-ē-di* > **-ī-di* (Rieken 2005: 69). This would then suggest the chronology 1) **ei̯i* > **ei* > **ī*, 2) loss of **o* in the 3pl. ending, 3) loss of intervocalic **i̯*.

[18] Note that Kimball (1999: 366) operates with a preform **-V-i̯enti* which underwent the Luwic sound change **i̯e* > **i̯i*. This requires an earlier replacement of **-ii̯onti* with **-ii̯enti*.

[19] One might still try to connect the developments by considering the possibility that the loss of intervocalic **i̯* was an areal feature, but since Luwic must have lost it in pre-Proto-Luwic, and Hittite rather towards the historical period, the time difference seems to be too large for that to work.

4.2.1.2.2 No length in the direct case endings

Second, the assumption of a long *-ī-* in the direct cases on account of some CLuw. plene spellings does not stand up to scrutiny, nor does, as a consequence, its supposed support for an origin in the suffix **-ih₂-* or for Rieken’s accent shift. First, out of hundreds of attestations, only a handful have a plene spelled desinential vowel.[20] Moreover, a close look at the attestations with plene spelling reveals that the direct case plene spellings are lexically distributed. Specifically, most of them are not regular *i*-stems, but *i̯a/i*-stems[21] (see already Carruba 1982, Melchert 1990: 200-201). For example, the nom.sg.c. *ta-a-ti-i-i*[*š*], *ta-ti-i-iš*, nom.pl.c. *da-a-ti-i-in-zi* belong to the adjective *tāti̯a/i-* ‘paternal’ (see Melchert 1993: s.v. *tāti(ya)-*). This is a derivation with the suffix *-i̯a/i-* (< **-i̯o-*) of *tāti-* ‘father’, which itself only shows the desinentially non-plene-spelled forms *ta-a-ti-iš*, *ta-a-ti-in* and *ta-ti-in-zi*. Similarly for AMA, we only find plene spellings in the meaning ‘maternal’ (AMA-*i-iš*, AMA-*i-in*), whereas the meaning ‘mother’ only shows non-plene-spelled direct case endings (*an-ni-iš*, *a-an-ni-iš*, *a-an-ni-eš*, *a-an-ni-in*, AMA-*in*) (see Melchert 1993: s.vv. *ānni(ya)-*, *ānna/i-*). There is, then, a contrast in the direct cases between plene spelled *-i-* in *i̯a/i*-stems, and non-plene-spelled *-i-* in *i*-stems. The handful of plene spellings in actual *i*-stems must be regarded as irregularities, perhaps partially mistakes (cf. Rieken 2017: 25-26). Consequently, the *-i-* of the *i*-stems must have been short in CLuw. See further 4.2.2.1.

Recently, Vertegaal (2018) has proposed that HLuw. non-column-final plene spelling indicates length or disyllabic sequences. Almost all well-attested *i*-stems have such plene spellings. This could then be taken to indicate that *i*-stems have a long *-ī-* in HLuw. However, I do not think this is the case.

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[20] Even counting cases with *-u-i-* or *-ú-i-* such as *da-ak-ku-ú-i-iš*, which should not, however, be regarded as equal to spellings of the type *-Ci-i-iC*. Rather, *-ú/u-i-* can be used to spell *u̯i*, just like *-ú/u-e-* and *-i-e-* can be used to bypass the lack of the signs ***u̯e* and ***i̯e* (Kloekhorst 2014: 134-161, 430-434, Rieken 2017: 26-27). Hence, a spelling *da-ak-ku-ú-i-iš* may just as well stand for *dakkuu̯iš*. In view of the almost complete lack of plene spellings elsewhere, this is the only realistic option.

[21] On this notation for what is also often noted as *-i(i̯a)-*, see 4.2.2.1.

First, it is *a priori* unlikely, as the HLuw. situation would be in conflict with both the CLuw. evidence and the other arguments adduced here in favor of an origin in the PD *i*-stems. As such, if these plene spellings indicated length, this length would surely be secondary.

Second, however, I think the plene spellings are best interpreted in a different way. The *i*-stem direct cases make up the bulk of the word-internal plene spellings. This very skewed distribution would be unlikely to be there if writing length was the primary concern of the stonemasons. In my view, these plene spellings rather constitute another instantiation of the filling practice that is clearly the motivation behind most column-final plene spellings (see Vertegaal 2017). One possible factor in the distribution is the realness of the vowel of the final sign. Note that the nominal paradigms contain the only frequent occurrences of word-final consonants, and that the *i*-stems are the main nominal type. The tendency seems to be to double real vowels rather than empty vowels. For instance, in the entire Iron Age corpus there are only 13 examples of *-na-a* spelling an acc.sg.c., and all of them are found in 8th-century texts.[22] The norm is clearly to write *-Ci-i-na* and *-Ca-a-na*, which together occur far more frequently, and in Iron Age inscriptions before c. 800 are indeed the only possible variants. This complementary distribution with word-final plene spelling suggests that they are two sides of the same coin. It seems that the plene spelling of empty vowels was not favored, and the scribes wrote *-CV-V-Ca* rather than *-CV-Ca-a* to spell /°CVC/ with a filler. Probably there are even more factors at play,[23] but in the *i*-stem paradigm length does not seem to be one of them.

[22] KARKAMIŠ A24a2+3 (*a-sú+ra/i*(REGIO)-*ia-na*$^{-a}$(URBS)), BULGARMADEN (*wa/i+ra/i-pa-la-wa/i-na*$^{-a}$), KARKAMIŠ A6 (("MENSA.SOLIUM")*á-sa-na*$^{-a}$, "SCALPRUM"-*su-na*$^{-a}$), KULULU 1 ((DEUS)TONITRUS-*hu-u-za-na*$^{-a}$), KULULU 4 (*tu-wa/i-mi-na*$^{-a}$), KARKAMIŠ A15b (REGIO-*ni-si-i-na*$^{-a}$, *za-ma-ti-i-na*$^{-a}$), KIRŞEHİR (*tá-mi-na*$^{-a}$), ASSUR letter f+g (*kwa/i-na*$^{-a}$, *wa/i-la-mi-na*$^{-a}$), SULTANHAN ([*mu-w*]*a/i-ta-li-na*$^{-a}$), ASSUR letter e (*sa-na-wa/i-zi-na*$^{-a}$). Cf. also *sa-na-wa/i-zi-na*$^{-i}$ in ASSUR letter d.

[23] For example, the spelling of the nom.-acc.pl. with *-Ci-i-zi* and *-Ca-a-zi* may be analogical to the nom. and acc. sg. This may in turn have led to a wider application of fillers in penultimate position, including before verbal endings (e.g. *-ti*, *-ta*) and enclitics (e.g. *=ha*).

4.2.1.2.3 Discrepancies between Luwic and Hittite

Finally, the discrepancies between the Luwic and the Hittite paradigms, not mentioned in Rieken (2005), should be accounted for, notably the acc.pl. (CLuw. *-inz*, Hitt. *-auš*) and the dat.-loc.sg. (CLuw. *-i*, Hitt. *-ai*).[24]

The acc.pl. apparently shows a difference in ablaut: transposed to preforms, the Luwic ending is most straightforwardly reconstructed as **-i-ms* and that of Hittite as **-ei-ms* (**-e̯i-m̥s*) or perhaps **-ei-oms*.[25] The PIE paradigm can help determine which of these variants is older. In the other IE languages we find ample evidence for a nom.pl. **-e̯i-es* next to an acc.pl. **-i-ms* (cf. Beekes 2011: 203), e.g. Skt. nom.pl. *agn-áyas*, acc.pl. *agn-ī́n* ‘fire’, Cret. Gr. nom.pl. τρ-έες, acc.pl. τρί-ινς (for *τρ-ίνς, cf. πόλ-ινς, ὄϝ-ινς) ‘three’, Lat. nom.pl. *turrēs*, acc.pl. *turrīs* ‘tower’, Goth. nom.pl. *qen-eis*, acc.pl. *qen-ins* ‘wife’, Lith. nom.pl. *pil-ys*, acc.pl. *pil-is* ‘castle’. It therefore seems that Luwic **-i-ms* represents the older variant, and that Hittite *-auš* resulted from a generalization of the full grade of the suffix in the plural.

As Rieken assumes loss of **i̯* between like vowels only, it is unclear how she derives the Luwic dat.-loc.sg. **-i* from the supposed preform **-oi̯-i*. More probably, PLuw. **-i* and Hitt. *-ai* (*-āi*) represent different outcomes of **-e̯i-i*. Luwic shows an unsurprising development of **e̯ii* to **ī̆* (cf. Melchert 1994a: 277),[26] while Hittite shows loss of **i̯* and lengthening of the preceding vowel (cf. Kloekhorst 2008a: 90; 2014: 389-390, 395-398).

Another notable difference between Hittite and Luwic is that Hittite restored the *-i̯-* soon after the beginning of the historical period, whereas in Luwic no such restoration took place. This can be explained by the (near-)lack of ablauting *u*-stems in Luwic. The PD *u*-stems served as the model for restoration in Hittite (cf. Melchert 1984: 45). In Luwic, however,

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[24] Since the Luwic nom.pl. was created on the basis of the acc.pl. in post-PAnat., it can be left out of the equation.

[25] With some stretch one might also try to trace the PLuw. acc.pl. **-ints* back to **-ei-ms* > **-ī-nts* > **-i-nts*, but this would require an – in itself already quite unlikely – monosyllabic syllabification **-ei-ms*, which would then still not be identifiable with the closest option for the Hittite preform, **-e̯i-m̥s*.

[26] For the potential parallel in the development **-e̯ie-* > **-e̯ii-* > **-ī-* assumed by Melchert (1994a: 277), cf. 4.2.1.2.1 n. 17.

u-stems had become quite rare, eventually even becoming extinct in Lycian (see 4.3.2), and the surviving lexemes mostly show a non-ablauting paradigm (on the traces of ablaut see 4.4.1 n. 53). There was, then, no clear model for the restoration of *-*i̯*-.

This is a crucial point. Once *-*i̯*- had been lost, there was no way to understand the earlier morphological principle behind the alternation of *-*i*- and *-*o*-. Rather, the speakers of Luwic must simply have accepted the paradigm as it had come to be. Moreover, at this point the elements *-*is*, *-*in*, *-*intsi*, *-*ints* could synchronically within the paradigm only be analyzed as operating on the same level as *-*i*, *-*os*, *-*odi*, *-*osso*-. I will return to this point below (4.4.2.2).

4.2.1.2.4 Paradigm-internal analysis: outcome

I thus arrive at the following reconstructions and developments of the paradigm.

	PAnat.		**(pre-)PLuw.**		**CLuw.**		**OH**	
	sg.	pl.	sg.	pl.	sg.	pl.	sg.	pl.
nom.	*-*i*-*s*	*-*ei*-*es*	*-*is*	>> *-*intsi*	-*iš*	-*inzi*	-*iš*	-*aeš*
acc.	*-*i*-*m*	*-*i*-*ms*	*-*in*	*-*ints*	-*in*	-*inz*	-*in*	>> -*auš*
d.-l.	*-*ei*-*i*	*-*ei*-*os*	*-*i*	-*os*	-*i*	-*anz*	-*ai*	-*aš*
abl.	*-*ei*-*odi*		*-*odi*		-*ati*		-*az*	
g.(a.)	*-*ei*-*os*(*io*-)		*-*osso*-		-*aššа/i*-		-*aš*	

4.2.2 Other *i*-stems?

The hypothesis that the Luwic *i*-stems originate in the PAnat. PD *i*-stems would not work if this type is more plausibly continued by some other Luwic stem type. One of Starke's arguments to dismiss the *i*-stem interpretation of the paradigm was that he saw continuations of *i*-stems in two other types: "*i*/*i̯a*"-stems, now more commonly denoted as *i(i̯a)*-stems, and *a/i*-stems of the *parrai̯a/i*-type. In the subsections that follow I will determine the place of these two types, as well as of a third stem type containing -*i*- in proper names.

4.2.2.1 Luw. -*i(i̯a)*-, Lyc. -*i(je)*-

The *i(i̯a)*-stems have long been analyzed as *i*-stems with alternative endings (acc.sg.c. -*i̯i̯an* instead of -*in*, etc.). Carruba (1982) separated them from the *i*-stems and showed that *i(i̯a)*-stems are rather adjectival formations continuing the appurtenance suffix *-*i̯i̯o*- (with -*i̯i̯an* rather being the nom.-acc.sg.n. form). Although Starke accepted that this suffix was the main origin of the class, he believed that these stems did not normally show *i*-mutation; rather, they were gradually being replaced by the *i*-mutation paradigm (-*i̯i̯an* >> -*in*, -*i̯i̯ati* >> -*ati*, etc.) (Starke 1990: 91, 63-64). Starke’s account does not fully appreciate Carruba’s disentanglement of the two types.

Carruba also noted the frequent plene spellings in the nom. and acc. sg.c. of the *i(i̯a)*-stems (cf. 4.2.1.2.2), and explained these with reference to the *i*-stem paradigm, specifically that of the genitival adjective, proposing an analogy n. -*aššan* : c. -*aššiš* = n. -*i̯i̯an* : c. X → -*i̯i̯iš* (Carruba 1982: 40). This was adapted by Melchert (1990: 200-201), who identified the replacement *-*o*- >> *-*i*- with Starke’s *i*-mutation phenomenon. This account does not seem to have been generally accepted in more recent literature, in which it is sometimes stated that the -*i*- in this paradigm results from syncope of -*i̯i̯a*- (e.g. Yakubovich 2015: § 6.2). There can be no doubt, however, that the paradigm should be interpreted as -*i̯i̯*- + *i*-stem paradigm. This is shown by the morphological distribution of -*i*- (in the direct cases) and -*a*- (in the oblique cases) as established by Carruba, which has in the meantime also come to light for Lycian, confirming the analysis. The CLuw. plene spellings in the nom. and acc. sg.c. also neatly confirm the analysis. Whatever the exact phonetic interpretation,[27] these spellings must reflect the double -*i*- that we also expect morphologically, i.e. the -*i*- inherent to the suffix and the -*i*- of the

[27] The most logical options are -*ī*- and -*i̯i*-. In my opinion, -*i̯i*- is the most plausible option, because such an interpretation also fits forms like *ku-um-ma-i-in-zi* /kummai̯inzi/, with a glide rather than a long vowel (cf. Melchert 1990: 202, Rieken 2017: 26). Moreover, at least historically we most probably have to reckon with *-*i̯i̯*-, i.e. *-*i̯i̯o*- whose *-*o*- was replaced with *-*i*-.

i-stem paradigm. We therefore have to reconstruct the Proto-Luwic paradigm as *-*î̯*- + *i*-stem paradigm. Cf. the following overview:[28]

	PLuw.		**CLuw.**		**Lyc.**	
	sg.	pl.	sg.	pl.	sg.	pl.
nom.c.	*-*î̯-is*	*-*î̯-intsi*	°*i-i-iš*	°*i-i-in-zi*	*-i*	*-i*
acc.c.	*-*î̯-in*	*-*î̯-ints*	°*i-i-in*	°*i-i-in-za*	*-i*	*-is*
nom.-acc.n.	*-*î̯-on*	*-*î̯-a*	°*i-î̯a-an*(*-za*)	°*i-î̯a*	*-ijẽ*	*-ija*
dat.-loc.	*-*î̯-i*[29]	*-*î̯-os*	°*i*(*-i*)	°*i-î̯a-an-za*	*-i*	*-ije*
abl.	*-*î̯-odi*		°*i-î̯a*(*-a*)*-ti*		*-ijedi*	
gen.adj.	*-*î̯-osso/i-*		°*i-î̯a-aš-ša/i-*		*-ijehe/i-*	

In order to reflect this analysis in notation, I use *-*î̯o/i-* (CLuw. *-î̯a/i-*, HLuw. *-iya/i-*, Lyc. *-ije/i-*) rather than *-*i(î̯o)-* (CLuw. *-i(î̯a)-*, HLuw. *-i(ya)-*, Lyc. *-i(je)-*).[30] With the analysis of this type as *î̯o/i*-stems, it is clear that they do not reflect original *i*-stems, but rather *o*-stem adjectives whose common gender was turned into an *i*-stem.

4.2.2.2 Luw. *-â̯ia/i-*, Lyc. *-Vije/i-*

Another type that Starke regarded as a continuation of *i*-stems is the one exemplified by the adjective *parrâ̯ia/i-* (meaning unclear, traditionally 'high'), in which he saw a thematicization of the weak stem of a PD *i*-stem:

[28] The Lycian paradigm may be illustrated with Lyc. *ehbije/i-* 'his, her': sg. c. nom. *ehbi*, acc. *ehbi*, n. nom.-acc.n. *ehbijẽ*, dat.-loc. *ehbi*, pl. c. nom. *ehbi*, acc. *ehbis*, n. nom.-acc. *ehbija*, dat.-loc. *ehbije*, abl. *ehbijedi*, gen.adj. *ehbijehe/i-*.

[29] I regard this as an innovation for *-*î̯o* (elaborated upon in Chapter 2). If the scanty evidence for an alternative Luwian ending *-î̯a* is accepted, it would indicate that *-*î̯o* was still part of this paradigm in Proto-Luwic.

[30] So now also Rieken 2017. It should be noted, however, that the implied sequence *-î̯i-* does not occur as such in HLuw. or Lyc. For example, Lyc. *prñneziji-* 'household member', which shows the suffix in substantivized form, only shows up as *prñnezi* and *prñnezije-*. This indicates that *-î̯i- had been contracted to *-i-*, meaning that for these languages, on a synchronic level, at least for the common gender, the notations *-i(ya)-* and *-i(je)-* are more accurate (technically, the n./c. format would then suggest e.g. *-iya/i(ya)-* and *-ije/i(je)-* for the adjective, but such an elaborate notation is not very useful except perhaps as an analytical tool). In southern HLuw., the *-i-* of the common gender direct cases has subsequently started to replace the sequence *-iya-* found elsewhere in the suffix in analogy to the pattern of the other stems (e.g. dat.pl. *-iyanz* >> *-inz*, nom.-acc.sg.n. *-iyanza* >> *-inza*), effectuating the rebirth of full-blown *i*-stems in appellatives.

**b^{h}rǵ^{h}-V$\underset{\wedge}{\text{i}}$-* > **parr-a$\underset{\wedge}{\text{i}}$-* + *-a(/i)-*. This type was more convincingly explained by Melchert (1990: 201-202) as resulting from attachment of the same suffix **-i$\underset{\wedge}{\text{i}}$o-* discussed in the previous section to vocalic stems, without the original but synchronically unmotivated replacement of the stem vowel of the base, e.g. *$\underset{\wedge}{\mu}$ašḫa-* → *$\underset{\wedge}{\mu}$ašḫa-$\underset{\wedge}{\text{i}}$a/i-*, *kumma-* → *kumma-$\underset{\wedge}{\text{i}}$a/i-*.[31] It appears that *-i$\underset{\wedge}{\text{i}}$-* was reduced to *-$\underset{\wedge}{\text{i}}$-* intervocalically in Luwian. The sequence is still intact in Lycian, however, e.g. *ade-* → *ada-ije-*, *ebe-* → *ebe-ije/i-*, which, along with the functional identity, confirms the correctness of the interpretation. Again, then, we are not dealing with remnants of *i*-stems, but with *i$\underset{\wedge}{\text{i}}$o*-stem adjectives.

4.2.2.3 *i*-stems outside nouns and adjectives

There are more genuine *i*-stems to be found in Luwic. Luwian proper names attest a paradigm nom. *-is*, acc. *-in*, dat. *-i$\underset{\wedge}{\text{i}}$a*, gen. *-issa*, *-issi*, gen.adj. *-issa/i-*. This paradigm is partially innovated, but must also continue an *i*-stem inflection. Given its restriction to proper names, however, the type is in complementary distribution with the ‘*i*-mutation’ stems, which are not normally found in names in Luwian. Indeed, when *i*-mutation stems are used as proper names, they inflect according to this onomastic *i*-stem paradigm. For example, the onomastic equivalent of the HLuw. adjective *ázama/i-* ‘beloved’ is *ázami-* (gen.sg. $^{\text{I}}$*á-za-mi-sá*), that of *muwatala/i-* ‘mighty’ is *muwatali-* (gen.sg. $^{\text{I}}$*mu-wa/i-ta-li-si*). These types were synchronically linked, and are best also taken together historically, as the remaining descendants of *i*-stems in appellatives and names, which generalized, respectively, the ablauting (PD) and non-ablauting *i*-stem types. In Lycian, the more common ablauting *i*-stem type has been extended to proper names. Some traces of non-ablauting *i*-stem inflection remain, however (e.g. in genitives of the type *trm̃milihe*, *ijãnihe*, *xadawãtihe*).[32]

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[31] For *parra$\underset{\wedge}{\text{i}}$a/i-* itself, however, Melchert (1990: 202 n. 12) still hesitatingly entertained the possibility that it could reflect an *i*-stem. There is, however, no reason to assume that we are not simply dealing with *parra-$\underset{\wedge}{\text{i}}$a/i-* in this case as well.

[32] For a detailed treatment of Luwic onomastic inflection, see Chapter 2. A similarly grammatically complementary *i*-stem type is found in the pronouns, namely in **k^{w}i-* ‘who, what, which’, which archaically also features **-i-* in the neuter direct cases (**k^{w}i*, **k^{w}i$\underset{\wedge}{\text{i}}$a* < **k^{w}id*, **k^{w}ieh$_2$*), among other peculiarities. Perhaps numerals also had

4.2.2.4 Other *i*-stems: conclusion

From the previous sections it is apparent that there is no category of *i*-stems that would prevent us from identifying the Luwic *i*-stems as found in nouns and adjectives also historically as *i*-stems. Rather, the identification naturally connects two loose ends: the apparent loss of *i*-stems in Luwic appellatives and an appellative stem class that morphologically looks like a type of *i*-stem but has not found any other convincing origin. The complementary distribution with, and linkage to, the onomastic *i*-stems further confirm the identification.

4.2.3 Lexical evidence: the inflection of original *i*-stem lexemes

The idea that the Luwic *i*-stems continue PAnat. *i*-stems would only make sense if the PAnat. *i*-stem lexemes continued in Luwic in principle (still) inflect according to the *i*-stem paradigm. This is indeed the case. The equivalent of the Hittite suffix *-ili-* (e.g. *karū-ili-* 'former') is *-il(i)-* (e.g. CLuw. *ḫant-il(i)-* 'first', *puu̯atil(i)-* 'past', Lyc. *trm̃mil(i)-* 'Lycian'). CLuw. *dakkuu̯i-* is normally seen as the equivalent of Hitt. *dankui-* 'dark'. The word for 'sheep', inherited from PIE **h₃eu-i-* (Gr. ὄ(ϝ)ις, Lat. *ovis*, Skt. *ávi-*, PGm. **awi-*, etc., probably also Hitt. UDU-*iš*), shows up in Luwian as *ḫāu̯i-*.[33] As far as comparison allows us to see, no *i*-stems have

a distinct type of *i*-stem, if Lyc. *kbi-* '(an)other' (< *'second') (n. *kbi*(?), *kbija*, gen.adj. *kbijehe/i-*) is to be interpreted as such rather than as *kbije/i-*, with a nom.-acc.sg.n. **kbijẽ*.

[33] Only the direct cases and the dat.sg. are attested unambiguously: CLuw. nom.sg. *ḫa-a-ú-i-iš*, acc.pl. UDU-*in-za*, HLuw. nom.sg. (OVIS.ANIMAL)*há-wá/í-i-sá*, dat.sg. (OVIS.ANIMAL)*ha-wa/i-i*. No unambiguous forms with *-a-* have so far been attested, in CLuw. due to the lack of attestations and in HLuw. due to the ambiguity of the script. Kloekhorst (2008a: s.v. *ḫāu̯i-*) argues that NH *ḫau̯iia-šši-* 'sheep-like', which is generally regarded as a Luwian loanword because of the inflection of the suffix, shows that we are dealing with a fully-fledged Luwian *i*-stem rather than an *i*-mutation stem. However, since, as was argued in 4.2.2, no such *i*-stem type exists in Luwian nouns, the word can only have inflected according to the regular *i*-stem paradigm. Hitt. *ḫau̯iia-šši-* is therefore either a Luwoid coinage in Hittite on the basis of the native Hittite word, or it was adapted after the native word. The Lycian word for 'sheep', *xawa-*, is clearly a secondary *a*-stem, showing the effect of the considerable productivity that *a*-stems enjoyed in Lycian – see 4.3.3.4. This transfer can also be understood much more easily starting from an *i*-mutation paradigm, whose

ended up in a different class in Proto-Luwic. Note that these lexemes did not all originally inflect according to the same *i*-stem type. The suffix *-ili-* does not show any ablaut in Hittite, Hitt. *dankui-*/*dankuu̯ai-* is PD, and whatever the exact ablaut pattern of **h₃eu-i-* was, it was in any case not PD (cf. Skt. gen.sg. *ávyaḥ* < **-i-os*). Apparently, the PD type was at some point in pre-Proto-Luwic generalized among *i*-stem nouns and adjectives.[34]

4.3 The extent of the spread of the *i*-stem paradigm

If the Luwic *i*-stem paradigm originated in the PAnat. PD *i*-stem paradigm, it clearly spread beyond its original nucleus. As mentioned in 1, most members of this nominal class were originally *C*-stems or *o*-stems. In the sections that follow I will determine the distribution of the paradigm and its relation to other stem classes more precisely. This can then inform a theory regarding a possible scenario for the spread of the paradigm.

4.3.1 *C*-stems

As has already been observed by Starke (1990: 62-64, 91-93), all certain former common gender *C*-stems have been *i*-mutated, the only exceptions being the theonyms Tarhunt (CLuw. ^{d}*tarḫunt-*, HLuw. (DEUS.TONITRUS)*tarhunt-*, Lyc. *trqqñt-*) and Tiwad (CLuw. ^{d}*tiu̯at-*).[35] If we take into account the observation made in 4.2.2.3, that the domain of the *i*-mutation paradigm is the noun and adjective, whereas all other parts of the nominal system, including proper names, in principle do not feature this type, then there are no exceptions.[36]

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morphemes containing *-i-* can be analyzed as endings (see 4.4.2.2), than from a fully-fledged *i*-stem paradigm.

[34] This might have been a first step in their massive expansion, but it is also possible that the generalization happened only after (part of) the spread of the PD type to other stem types, which would have made it the dominant type among the *i*-stems (cf. the spread of the paradigm to proper names in Lycian).

[35] In HLuw., the aberrancy of these names led to some restructuring in the direct cases. Instead of the historically expected nom.sg. form **tarhunz*, we normally find the extended form *tarhunzas*, as well as the acc.sg. *tarhunzan*; for the nom.sg. **tiwaz* we find *tiwazas* and *tiwadis*, with the acc.sg. *tiwadin*.

[36] On the *C*-stem turned *a*-stem *kbatra-* 'daughter', very probably also through an *i*-stem stage, see 4.3.3.4.

4.3.2 *u*-stems

In Luwic appellatives, the *u*-stems have become an infrequent type – in Lycian to the point of extinction – leading to some obscurity regarding the exact shape of the paradigm. Starke (1990: 62) saw a distinction between non-mutated *u*-stem nouns and mutated *u*-stem adjectives, but it is nowadays usually assumed that *u*-stems were in principle not mutated. Indeed, Starke's adduced examples do not stand up to scrutiny. CLuw. "*ă̆ddu(i)-*" is rather *ă̆dduu̯a-* 'evil' (Melchert 1993: s.v.); *madduu̯inzi* 'of wine' is better analyzed as a form of *maddu-ii̯a/i-* than of *maddu-* (Melchert 1993: s.v.); "*danku(i)-*", or rather *dakkuu̯i-* '?', is indeed an *i*-stem, but if it is connected with Hitt. *dankui-* 'dark' (see Kloekhorst 2008a: s.v.), it is also historically an *i*-stem rather than an *i*-mutated *u*-stem; *u̯ă̆šu-* 'good' is still a *u*-stem (acc.sg.c. *u̯āšun*, see Melchert 1993: s.v.).

One confusing element, however, is that the regular nom.pl.c. ending has been taken over from the *i*-stems so that, for example, the nom.pl.c. of *u̯ă̆šu-* is attested as *u̯ašuenzi*, *u̯āšuienzi*. Similarly, the adjective *kuu̯anzu-* 'heavy, important (?)' (nom.sg.c. *kuu̯anzuš*, nom.-acc.sg.n. *kuu̯anzu*) has a nom.pl.c. *kuu̯anzuinzi*. The same adjective is probably behind HLuw. *356-*zu-* (acc.sg.c. *356-*zú=ha*), whose nom.pl.c. is attested as *356-*wa/i-zi*. The borrowing of this ending into the *u*-stem paradigm should not be confused with a complete conversion of *u*-stems into *i*-stems, however. The borrowing may be understood in the following way. In the full-grade variant of the suffix as found in ablauting *u*-stems, continuing PAnat. *-*eu̯-*, the *-*u̯-* is consonantal rather than vocalic. It should therefore come as no surprise if the forms with a full-grade suffix were also treated as consonant stems. The form *mi-i-i̯a-u̯i*$_5$*-en-zi* (cf. 4.4.1), although not with certainty identifiable as a *u*-stem, suggests that in ablauting *u*-stems the full-grade suffix was also found in the nom.pl.c. This may well be the reason that, like *C*-stems in general, it obtained the nom.pl. ending *-*intsi*.[37] In the singular, however, the endings were *-*us* and *-*un*, with a vocalic *u*, and these were therefore not treated as *C*-stem endings. The non-ablauting *u*-stems show the same distribution, with the prevocalic

[37] Note that the taking over of *-*intsi* as an ending constitutes further evidence for its analysis as an ending.

variant of the suffix, *-*uu̯*-, in all of the plural (*-*uu̯-intsi* parallel to *-*uu̯-o*°), but the preconsonantal one, *-*u*-, in the nom. and acc. sg.

In Luwian, there is only one example of a *u*-stem that was completely converted into an *i*-stem: *u̯āu̯i*- ‘cow’ (CLuw. GUD-*iš*, HLuw. (BOS.ANIMAL)*wa/i-wa/i-sa*). This can be explained using the same formal principle: of the attested original *u*-stems, it is the only one whose *-*u*- was always preceded by a vowel, and so, whose *-*u*- was consistently consonantal. Accordingly, the entire lexeme was treated as a *C*-stem, and acquired the *i*-stem inflection like all other *C*-stems (see 4.3.1). All other original *u*-stems, however, have not been *i*-mutated, but survive as *u*-stems. This must hold for Proto-Luwic as well.

In Lycian, the outcome of *-*u*- is consonantal -*b*- in the oblique cases, most clearly shown by the word for ‘horse’ in abl. *esbedi*, gen.adj. *esbehe/i*-.[38] We do not have an attestation of a sg. direct case, but unless this had the extremely archaic shape **esu*- < **h₁ekʷu*- (HLuw. *ázu*-), the consonantal variant of the stem was probably generalized, leading to a complete conversion into an *i*-stem (**esbi*-).[39] As part of a general Lyc. tendency (see 4.3.3.4), some nouns referring to animate beings received an *a*-suffix and thus found their way into the *a*-stem class (e.g. *xahba*- ‘grandchild’).[40]

4.3.3 *ā*-stems and *o*-stems

4.3.3.1 Lyc. *a*-stems < *ā*-stems

One of the major factors that must have prompted Starke to analyze the -*i*- of the *i*-stem paradigm as an element that intruded into various stem classes

[38] For Anatolian, the reconstruction of a *u*-stem **h₁ekʷu*- ‘horse’ rather than an *o*-stem **h₁ekʷuo*- is straightforward (Hitt. ANŠE.KUR.RA-*u*-, CLuw. ANŠE.KUR.RA-*u*-, HLuw. (EQUUS.ANIMAL)*ázu*-); see Kloekhorst (2008a: 10 and s.v. **ekku*-).

[39] Given the general conversion of common gender *C*-stems and *o*-stems into *i*-stems (see 4.3.1 and 4.3.3.2), the word for ‘horse’ was certainly not a *C*-stem ***esb*- or an *o*-stem (*e*-stem) ***esbe*-.

[40] It is not completely clear whether *xahba*- ‘grandchild’ is an adapted continuation of an original *u*-stem with (more or less) the same meaning or a derivation from a *u*-stem with a different meaning. The *u*-stems that have been compared (cf. Weitenberg 1984: 159-160, Melchert 2004: s.v.), viz. HLuw. (NEPOS)*hasu*- ‘family, offspring’, Luw. *ḫamšu-kkalla*- ‘great-grandchild’ (but *ḫamši*- ‘grandchild’) and Hitt. *ḫaššu*- ‘king’, allow for both options.

but affected only some of their members, is the fact that Luwian has both *a*-stems with *-a-* throughout the paradigm and another class with the same oblique cases, but with *-i-* in the direct cases. The Luwian integral *a*-stems, and similarly the Lycian *a*-stems, had up to Starke's time been universally equated with the Hittite *a*-stems and reconstructed as PAnat. *a*-stems < PIE *o*-stems,[41] and Starke's identification of the other class as *a*-stems < *o*-stems with an intrusive *-i-* is therefore understandable, even more so considering their most frequent neuter equivalent in *-an* < **-om*.

This interpretation changed with the discovery that Lycian had distinct outcomes of PLuw. **ă̆* and **ŏ̆*, in the guise of *a* and *e*, respectively (Melchert 1992, Rasmussen 1992), which led to the realization that Lycian *a*-stems continue *ā*-stems < *eh₂*-stems, whereas *o*-stems are continued as *e*-stems (Melchert 1992: 48, Hajnal 1994: 138-140). Importantly, the Lyc. *a*-stems do not show any *i*-mutation. There are no *i*-stems with *-a-* instead of *-e-* in the oblique cases (e.g. nom.sg. *-i*, abl. *-adi*). Remarkably, this discovery has had no impact on the interpretation of *i*-mutation. Rieken (2005: 49) does mention the lack of *i*-mutation in the *a*-stems, but does not try to explain it. Yet, not only should the lack of *i*-mutation in Lycian *a*-stems be accounted for, it also provides a major clue concerning the nature of the spread of the *i*-stems. This will become clear below (4.4.1).[42]

4.3.3.2 Lyc. *e*-stems < *o*-stems

It is generally agreed that most PAnat. common gender *o*-stems underwent *i*-mutation in Luwic. The *iu̯o/i*-stems are a case in point (see 4.2.2.1). In looking for a distribution between mutated and non-mutated common gender *o*-stems, we have to consult Lycian, which, in having kept the vowels of the *ā*-stems and *o*-stems apart (unlike Luwian) helps distinguish between *ā*-stems (Lyc. *a*-stems) and *o*-stems without *i*-mutation (Lyc. *e*-stems). In order for a Lycian word to be identified as a common gender *e*-stem, as distinct from an *i*-stem and a neuter *e*-stem, it would have to show one of the following diagnostic endings: nom.sg.c. *-e*, nom.pl.c. *-ẽi*, or acc.pl.c. *-es*, from **-os*, **-ontsi* and **-onts*, respectively. When looking for

[41] Cf. e.g. Pedersen (1945: 15-16), Houwink ten Cate (1961: 54).
[42] On the productivity of the *a*-stems in Lycian see 4.3.3.4 below.

nouns and adjectives that show these endings, it soon becomes apparent that they are extremely rare. Only a handful of lexemes meet this condition. Most secure are *epewẽtlm̃me-* ‘περίοικος’ (only nom.pl. *epewẽtlm̃mẽi*) and *esedẽ̃ñnewe-* ‘offspring’ (nom.sg. *esedẽ̃ñnewe*, acc.sg. *esedẽñnewẽ*, dat.sg. *esedẽ̃ñnewi*). We further have a nom.sg. apposition to a name, *manaxine*, and possibly *kete* (TL 5, 4) is to be interpreted in the same way. Finally, three forms on the Xanthos stele formally look like acc.pl.: *pzzidezes* (TL 44b, 9) […]*ewes* (TL 44b, 11) and *xawales* (TL 44b, 17). This very low number of lexemes contrasts sharply with the abundance of attested *a*-stems, *i*-stems, and neuters. There are, then, at most a handful of remaining common gender *e*-stem lexemes in Lycian nouns and adjectives, and one may ask if these words are in fact regular nouns and adjectives, rather than, for example, designations with an onomastic inflection.

In the periphery of the nominal system, outside of nouns and adjectives, we do find more *e*-stems. Among proper names, *e*-stems (nom.sg. *-e*) are frequent. We also find an *e*-stem in the pronoun *ebe-* ‘this’ (nom.sg.c. *ebe*, acc.sg.c. *ebẽ*, nom.pl.c. *ebẽi*), which neatly corresponds to Hitt. *apā-* < **h₁ob*ʰ*ó-*. Interestingly, this pronoun has variants extended with adjectival suffixes that are normally *i*-stems, but that in this pronominal environment occur as *e*-stems: acc.sg.c. *ebẽñnẽ* (*ebe-* + *-(w)ñne/i-*, see Kloekhorst 2008b: 135-137), next to a few occurrences of the *i*-stem form *ebẽñni*; acc.pl.c. *ebeijes* (*ebe-* + *-ije/i-*, cf. 4.2.2.2), beside *ebeis*. We may also regard the enclitic pronoun *=e-* (cf. Kloekhorst 2011) as an *e*-stem (cf. Hitt. *=aš*, *=e* < **=os*, **=oi*). This distribution again matches that found earlier (cf. 4.2.2.3 and 4.3.1): in Proto-Luwic the PD *i*-stems belonged to nouns and adjectives, and were not found in the rest of the nominal system.

4.3.3.3 Luw. *a*-stems

As mentioned above, the Luw. *a*-stems (‘without *i*-mutation’) have traditionally been equated with the Hittite *a*-stems and traced back to PIE *o*-stems. However, the existence of PAnat. *ā*-stems < *eh₂*-stems, continued in Lycian, provides a second possible origin for the common gender Luwian *a*-stems, which is still being explored. Hajnal (1994: 166-167) first reasoned that *o*-stems had often been *i*-mutated, and that therefore any non-mutated *a*-stem may at least be suspected to continue an old *ā*-stem. He

mentions some CLuw. words for which he deems this probable, because they also show plene spellings which would indicate a long stem vowel (*gašga-* 'Kaska', "*ḫutarla-*" 'slave', "*pāta-*" 'foot'),[43] or have a dat.-loc.sg. in *-a* (*ḫūmma-* 'pig-sty'), which may be compared to the Lyc. *a*-stem dat.-loc.sg. ending *-a*. He further equates the suffixes CLuw. *-azza-* and Lyc. *-aza-*, with the possible word equations CLuw. *u̯asḫazza-*, a divine epithet, ~ Lyc. *wasaza-*, a kind of priest, HLuw. *kumaza-* 'priest (?)' ~ Lyc. *kumaza-* 'priest'. Recently, Sasseville has made a similar case for the suffix Luw. *-alla-*, Lyc. *-ala-*, distinguishing it from Luw. *-alla/i-*, Lyc. *-ele/i-* (Sasseville 2014/2015: 109f.), as well as for CLuw. *-aššа-*, Lyc. B *-asa-* (Sasseville 2018), and he explicitly regards this as additional support for deriving the Luw. *a*-stems from *eh₂*-stems (Sasseville 2014/2015: 119; 2018: 303, 313). To the lexical equations we can add the *Paradebeispiel* of the category, HLuw. *huha-* 'grandfather', which neatly corresponds to Lyc. *xuga-* 'grandfather'.[44]

Although such word and suffix equations suggest that at least some Luw. *a*-stems go back to *eh₂*-stems, there can in my opinion be no doubt that the complete *type* of the common gender Luw. *a*-stems goes back to *ā*-stems < *eh₂*-stems rather than to *o*-stems, and has to be identified with the Lycian *a*-stems. The first strong indication pointing to this categorical identification is the skewed distribution in Lycian nouns and adjectives between common gender *a*-stems (abundant) and common gender *e*-stems (extremely rare, if existent at all, see 4.3.3.2), which strongly advises us to assume that the main input for the Luw. *a*-stems were likewise *ā*-stems. However, the decisive argument, in my view, is the Luw. dat.-loc.sg. *-a* (cf. also Sasseville 2014/2015: 109). It has by now become clear that the Luw. dat.-loc.sg. ending *-a* is not an alternative to the ending *-i*, but rather

[43] None of these examples can be upheld, however. As expected for a former *C*-stem, the word for 'foot' rather was an *i*-stem, cf. HLuw. ("PES")*pa-ti-zi* 'feet'; the form *patāš* is more probably a dat.-loc.pl. (cf. Norbruis & Sasseville fthc.). The assumption of an *a*-stem *ḫutarla-* on the basis of the syntactically unclear form *ḫūtarlān* is also suspect in view of HLuw. SERVUS-*li-*; indeed, according to Melchert (p.c.), the form in *-ān* probably does not exist, and the correct reading is rather *ḫūtarlānni*[*š*]. In view of the determinative, the form $^{\text{LÚ.MEŠ}}$*gašgāš*, again of unclear syntactic status, is also more naturally interpreted as a plural form.

[44] For *xuga-*, to be extracted as such from the genitival adjectives Lyc. A *xugahi*, Lyc. B *xugasi*, see Chapter 3.

the paradigmatic dat.-loc.sg. ending of the common gender *a*-stems, whereas other stem types, including neuter *a*-stems, have the ending *-i* (e.g. HLuw. *ása-* c. ‘seat’, dat.-loc.sg. *ása*, but *parna-* n. ‘house’, dat.-loc.sg. *parni*).[45] Not only does this suggest that we should separate the common gender *a*-stems from the neuter *a*-stems – the ending *-a* of the common gender *a*-stems can also be identified specifically with the dat.-loc.sg. *-a* of the Lycian *a*-stems.[46] This can only mean that the Luwian common gender *a*-stems as a type continue PLuw. *ā*-stems rather than *o*-stems. Moreover, since the neuter *a*-stems, which clearly do continue *o*-stems (with *-an*(*-za*), *-a* < **-om*, **-eh₂*), must historically be separated from the common gender *a*-stems, the Luw. common gender *a*-stems do not have a neuter counterpart, exactly like the PIE *eh₂*-stems and their Lyc. descendants (a fact clearly related to the semantic value of the category – cf. the following section). The individual word and suffix equations mentioned above confirm the identification.

4.3.3.4 Mismatches: productivity of the Lyc. *a*-stems

When a lexeme appears as an *a*-stem in one of the two languages, but not in the other, the *a*-stem is always found in Lycian. In the cases that have clear historical interpretations, it is Lycian that innovated: *xawa-* ‘sheep’ continues a PAnat. *i*-stem **Houi-*, still preserved as an *i*-stem in Luwian *ḫāu̯i-* ‘sheep’. Lycian must therefore have replaced the *i*-stem inflection with *a*-stem inflection. As we have seen (4.3.1), common gender *C*-stem nouns and adjectives had become *i*-stems in Proto-Luwic; Luwian *u̯āu̯i-* ‘cow’ therefore shows the expected continuation of PAnat. **gʷou̯-* (see 4.3.2), whereas Lycian *wawa-* instead received an *a*-stem suffix. Similarly, the original *C*-stem meaning ‘daughter’ (PIE **dʰu*(*e*)*gh₂ter-*) was extended in Lycian with an *a*-stem suffix: *kbatr-a-*. The spelling of the Luwian cognate is ambiguous (HLuw. acc.sg. (FILIA)*tú-wa/i-tara/i-na*), but in light of the previous examples probably represents the historically

[45] For earlier claims to this effect see already Werner (1991: 27-28), more recently Yakubovich (2015: § 6.2); for a collection of the evidence see Norbruis & Sasseville (fthc.).

[46] On the secondary character of the coexisting Lyc. *a*-stem dat.-loc. *-i* and the distributions between the two see Chapter 2.

expected *i*-stem *tuwatri-*. Lyc. *xahba-* 'grandchild', whether it is an adaptation or a derivation of its *u*-stem base (see 4.3.2 n. 40), also shows the effects of the apparent productivity of the *a*-stems in Lycian. These cases indicate that in other cases of discrepancy but with no clear etymology to establish the original stem form, we had also best assume that the Lycian *a*-stem is secondary, for example in the cases of Luw. *atli-*, Lyc. *atla-* 'person, self' and Luw. *massani-*, Lyc. *mahana-* 'god'.

We can infer that the *a*-stems enjoyed some productivity in (pre-)Lycian, whereby words from all other stem classes were transferred to the *a*-stems. Because this happened to some, but certainly not all members of each class, the *a*-stems at least to some extent probably had a specific semantic value. Indeed, the words affected ('sheep', 'cow', 'daughter', 'grandchild', 'person, self', 'god') form a clear semantic category: that of animate beings.[47]

At the same time, the *i*-stems apparently did not have such specific semantics, and their inflection could easily be sacrificed. Indeed, the disposal of the *i*-stem morphemes, as opposed to, for example, the *u*-stem morphology on which *xahba-* is based, lends further probability to the synchronic analysis of these stems proposed in 3 n. 11 and 4.2.1.2.3 and further developed in 4.4.2.2, as *C*-stems with alternative endings rather than *i*-stems.[48] This allows us to analyze the transfer to the *a*-stems as due to suffixation, comparable to that seen in *xahba-*,[49] rather than as a replacement of *i*-stem inflection with *a*-stem inflection.

[47] The fact that we only find transfers from *i*-stems to *a*-stems, but not the other way around, shows that, at least for this semantic category, *a*-stems were more productive than the pervasive *i*-stems. Indeed, from the following it will become clear that the reason we have such a large body of *i*-stems is not so much the productivity of the *i*-stems (so e.g. Rieken 2005: 65), as the fact that most lexemes happened to be inflected according to one of the three collapsing stem types. In other words, the *i*-stems took over on the inflectional rather than the lexical level.

[48] On the choice to nevertheless use the label '*i*-stems' (along with the citation with *-i-*), see 3 n. 11.

[49] With the difference that *xahba-* 'grandchild' may also be a derivation of the *u*-stem base rather than the same lexeme which was suffixed with *-a-* without any semantic shift (see 4.3.2 n. 40).

4.3.3.5 *ā*-stems and *o*-stems: conclusion

With the disentanglement of the *ā*-stems and the *o*-stems that Lycian allows for, and the following identification of the Luwian *a*-stems with the Lycian *a*-stems, a clear picture emerges: pre-Proto-Luwic had a class of *ā*-stems which were never converted into *i*-stems, and a class of *o*-stems which were always, save perhaps a few exceptions (see 4.3.3.2), converted into *i*-stems. This is valid for common gender nouns and adjectives; all other parts of the nominal system did not take part in the conversion.

4.4 A scenario of the spread

4.4.1 A collapse of *i*-stems, *C*-stems and *o*-stems

From the previous analysis it has become clear that in the common gender of nouns and adjectives, all *i*-stems, all *C*-stems, and all (or perhaps virtually all) *o*-stems were turned into *i*-stems, whereas *ā*-stems and *u*-stems were not. In other words, the spread of the *i*-stems took place along paradigmatic lines. This suggests that we are dealing with a *paradigmatic collapse* of the three stem types involved.[50] As these paradigms are formally defined, we should look for formal factors that united these three, but were not present in *ā*-stems and *u*-stems.

For this we have to reconstruct the pre-Proto-Luwic paradigms.[51] The *ā*-stems can be directly reconstructed on the basis of Luwian and Lycian.[52] There are slight traces of PD ablaut in some of the few *u*-stems that

[50] For hints at a roughly similar analysis, cf. the descriptions of ‘*i*-mutation’ by Sasseville (2014/2015: 105) (“*i*-mutation refers to a nominal paradigm which appears to be a syncretism between the *i*-stems and the thematic *o*-stems”) and Yakubovich (2015: § 6.2) (“in practice we are dealing with the effective merger of *a*-stem[s], *i*-stems, and consonantal stems, which led to the complementary distribution of their endings across the paradigm.”).

[51] Note that some words must still have had mobile accent and will have featured long vowels in some endings. However, these must have been exceptions.

[52] Note that some details may therefore date to Proto-Luwic rather than pre-Proto-Luwic. For example, the reconstructable dat.-loc.sg. *-*ā* is probably secondary to the morphologically expected form *-*āi* (vel sim.), which it may still have been at this stage. Conversely, the length of the stem vowel is based only on etymological considerations, and may also be anachronistic. Its secure, and essential, feature is the *a*-quality.

survived in Luwian,[53] and so we may assume the existence of a PD ablauting *u*-stem paradigm, which probably existed next to a type with *-u-* throughout (cf. 4.3.2).[54] The *i*-stem paradigm is the one reconstructed in 4.2.1.2.4, after the loss of intervocalic **-i̯-* and contraction of the vowels. The *o*-stems and *C*-stems can be plausibly reconstructed combining the oblique cases, also found in the neuter counterparts, with the direct case endings we expect morphologically and comparatively.[55]

	o		***C***		***i***	
	sg.	pl.	sg.	pl.	sg.	pl.
nom.	**-os*	**-ontsi*	**-s*/**-∅*	**-ntsi*	**-is*	**-intsi*
acc.	**-on*	**-onts*	**-n*	**-nts*	**-in*	**-ints*
dat.-loc.	**-i*	**-os*	**-i*	**-os*	**-i*	**-os*
abl.	**-odi*		**-odi*		**-odi*	
gen.adj.	**-osso-*		**-osso-*		**-osso-*	

	ā		***u***	
	sg.	pl.	sg.	pl.
nom.	**-ās*	**-āntsi*	**-us*	**-(V)untsi*
acc.	**-ān*	**-ānts*	**-un*	**-(V)unts*
dat.-loc.	**-ā(i)*	**-ās*	**-(V)ui*	**-(V)uos*
abl.	**-ādi*		**-(V)uodi*	
gen.adj.	**-āsso-*		**-(V)uosso-*	

From this overview, a clear formal overlap between the *i*-stems, *C*-stems and *o*-stems that is not shared with the *ā*-stems and *u*-stems presents itself: in *i*-stems, *C*-stems and *o*-stems, the oblique cases are identical; in *ā*-stems

[53] A trace of PD inflection is the adjective *mannu-* '?', whose dat.pl. is attested as *ma-an-na-u-u̯a-an-za*. Another trace may be *mi-i-i̯a-u̯i*$_5$*-en-zi* '?', but as this is the only attested form of this lexeme, the exact stem class cannot be determined.

[54] As with the *i*-stems, the ablaut vowel will originally have been **-e-*, but it is quite possible that *e-* and *o*-vocalism had already merged at this point, in which case one should read **-o-*, the notation used here for the merged vowel (for more discussion see 4.2.1.2.1). In any case, the quality of this vowel is not relevant for current purposes. Both possibilities are encapsulated in the notation *V*.

[55] The *o*-stem dative **-i* can be securely reconstructed on the basis of the neuter. One could analyze this as having developed by sound law from **-ōi* < **-o-ei*, but since Hittite has the same ending *-i*, it is more probable that the Luwic ending was inherited as such from PAnat.

and *u*-stems, on the other hand, the oblique cases distinctly feature the respective stem vowels, which sets them firmly apart. The oblique cases are therefore a probable point of departure for the formal collapse of *o*-stems, *C*-stems and *i*-stems. The scenario that emerges is one of analogical generalization of the direct cases of the common gender *i*-stems among all common gender stem types that shared the same oblique cases.

4.4.2 Why *i*-stems? An initial collapse of *i*-stems and *C*-stems

Why would the *i*-stem direct cases have been generalized rather than those of the *o*-stems or *C*-stems? A more fine-grained look at the collapse can shed some light on this matter. There is some evidence to suggest that *i*-stems and *C*-stems were the first to merge.

4.4.2.1 The evidence

First, *C*-stem nouns and adjectives were converted into *i*-stems without exception. The few Lycian common gender *e*-stem nouns may be real exceptions to the conversion; if so, *C*-stems were converted more thoroughly. Second, former *i*-stem adjectives whose neuter is attested – so far only adjectives in *-il(i)-* < **-ili-* – feature a consonantal neuter. For example, *ḫantil(i)-* ‘first’ (nom.sg.c. *ḫa-an-te-li-eš*) has a nom.-acc.sg.n. *ḫantil-za*. Similarly, *puu̯atil(i)-* ‘past’ has a neuter *puu̯atil*(*-za*). Apparently, at least these *i*-stem adjectives replaced their old *i*-stem neuter with a consonantal neuter (**-ili* >> **-il*). This would only make sense if the common gender of these adjectival types was already the same, i.e. if the common gender *C*-stem paradigm had already been transformed into an *i*-stem paradigm. The development would then be understandable as an expansion of the *C*-stem neuter type – probably the most common of the two – at the expense of the original *i*-stem neuter type (the direct counterpart of Hitt. *šalli*) in adjectives with an *i*-stem common gender. In practice, this meant an analogical replacement in the original *i*-stem adjectives of the nom.-acc.sg.n. **-i* with **-∅*. The *o*-stems apparently did not take part in this development. Synchronically in the Luwic languages, however, and so probably also in Proto-Luwic, *V/i*-stem adjectives were by far the most common type. This suggests that at the stage of the spread of *C*-stem neuters at the expense of *i*-stem neuters in adjectives with an *i*-

stem common gender, the *o*-stems were probably still a separate category. As this suggests an earlier merger of common gender *C*-stems and *i*-stems, the implication is that common gender *C*-stems and *i*-stems were the first paradigms to merge.

4.4.2.2 Motivation and scenario

What could be the motivation for the common gender *C*-stems and *i*-stems in particular to merge? I suggest that two factors played a role in this merger.

The first concerns the *C*-stem direct case endings, which probably had the following shapes (cf. the table in 4.4.1): **-s*/*-∅*, **-n*, **-ntsi*, **-nts*. These endings differ from those of all other stem types in that they do not have a stem vowel before them. This makes the phonological sequences in which they occur structurally quite different: where all other stems have **-Vs*, **-Vn*, **-Vntsi*, **-Vnts*, here we have **-Cs*, **-Cn*, **-Cntsi*, **-Cnts*. Moreover, the direct collision with the stem-final consonant may have been considered inconvenient. In the nom.sg. there was the additional aberrancy of a zero ending. These features increase the likelihood of the endings falling prey to analogical adaptation.[56]

The other factor concerns the nature of the *i*-stem paradigm. As was pointed out in 4.2.1.2.3, it is probable that ablauting *u*-stems had declined to such a degree that they could not provide the analogical force needed to inspire restoration of the suffix in the oblique cases, as did happen in Hittite. Instead, the paradigm that had emerged by sound law was taken at face value: **-is*, **-in*, **-intsi*, **-ints* in the direct cases, **-i*, **-os*, **-odi*, **-osso-* in the oblique cases. With the suffix effectively removed by sound law in the oblique cases, only the endings remained, which were also found as such in most other stem classes, and so **-is*, **-in*, **-intsi*, **-ints* could within the paradigm only be interpreted on the same level, i.e. as endings. In other words, the type could be interpreted as *C*-stems with alternative

[56] For other IE languages, similar considerations have been put forward to motivate thematicization. For analogical adaptation of the nom.sg. zero ending, cf. also Hitt. sigmaticization (e.g. *ḫašterza* 'star' < **$h_2$stēr* + **-s*, *ḫāraš* 'eagle' < **$h_3$er-ōn* + **-s*).

direct case endings.[57] This contrasts with the *o*-stems, which had *-*o*- throughout the paradigm (except in the dat.sg.), still inviting the original analysis as a more separate class of *o*-stems, rather than as *C*-stems with alternative endings.

We arrive at a perfect match: the *C*-stems had aberrant, possibly inconvenient direct case endings, the *i*-stems offered the same paradigm, but with alternative, systematically more compliant direct endings. This may well explain the spread of the direct cases of the *i*-stems to the *C*-stems, effectuating their merger.

Incidentally, this proposed motivation also helps understand the different behavior of the common and neuter genders: the neuter *C*-stem direct case endings were sg. *-∅ and pl. *-*a*, neither of which led to inconvenient collisions with stem-final consonants or aberrancies compared to most other stem types. As the inconveniences were restricted to the common gender, it is understandable that the remedy likewise remained restricted to the common gender.

4.4.3 Further spread to the *o*-stems

The spread of the common gender *i*-stems also included the absorption of their *o*-stem counterparts. After the initial incorporation of all common gender *C*-stems, the common gender *i*-stem inflection had become home to a large body of lexemes, quite possibly larger than that of the common gender *o*-stems. It is therefore not surprising that the *i*-stem type was the dominant party in the further collapse with the *o*-stems. Again, the main point of contact that induced the collapse must have been the identical oblique cases, and in this case the direct case endings were also identical except for the occurrence of *-*o*- for *-*i*-.

[57] See also the additional arguments for this analysis in 2.1.2 n. 8 (*-iš* as the added element in *ĭššariš* rather than -*i*-), 4.3.2 n. 37 (the spread of *-*intsi* to the *u*-stems) and 4.3.3.4 (the disposal of *i*-stem morphemes when suffixed). Cf. also 3 n. 11.

5 Conclusion

The presented analysis suggests the following scenario.

1. The *i*-stems, which at some point in the process generalized the PD type in nouns and adjectives, effectively lost the oblique suffix *-*ei*- by sound law. By this time, ablauting *u*-stems had declined in number to such a degree that they did not provide an incentive for analogical restoration.
2. After this, the *i*-stems became analyzable as *C*-stems with alternative direct case endings. The common gender *C*-stems took over these alternative direct endings, removing their original inconvenient direct case endings, effectively merging the two stem types. (The consonantal part of the *u*-stem paradigm, i.e. the forms with the full grade suffix *-*V̂u̯*-, behaved similarly, leading to the adoption of the nom.pl. ending *-*intsi*.) The neuter did not have such inconvenient endings and was therefore not affected.
3. The type that resulted from former *C*-stems in adjectives, a combination of an *i*-stem common gender and a *C*-stem neuter, expanded at the expense of the original *i*-stem type, which also had an *i*-stem neuter (concretely an analogical replacement in the neuter of the nom.-acc.sg. *-*i* with *-∅).
4. The now large category of the common gender *i*-stems further collapsed with the common gender *o*-stems, which again had the same oblique cases, and acquired the same direct cases.

The *ā*-stems and – apart from the nom.(-acc.)pl. – *u*-stems did not take part in the collapse because their paradigms were formally distinct, featuring the stem vowel throughout. This clearly separated them from the paradigms that did collapse, which instead shared the same oblique cases.

An advantage of this scenario is that all steps are understandable as simplifications. Accordingly, all analogies have clear and simple motivations.

As far as terminology and notation is concerned, I have proposed to abandon the term '*i*-mutation' for synchronic matters. There is no

synchronic process at work which ‘inserts an *-i-* between stem and ending’. Rather, we are simply dealing with an inflectional paradigm. The distinction between former *o*-stems (noted *-V/i-*) and *C*-stems (noted *-(i)-*) in nouns does not make sense synchronically, and should rather be abandoned in favor of a unified designation for the one synchronic type, here termed *i*-stems (noted *-i-*). The adjectives that combine a common gender *i*-stem with a neuter *o*-stem or *C*-stem can still be effectively noted with *-V/i-* and *-C(i)-*, respectively. To the *V/i*-adjectives also belong the *i(i̯V)*-adjectives, which can therefore more morphologically transparently be denoted as *-ii̯V/i-*. The term ‘*i*-mutation’ may still conveniently refer to the prehistoric process of the conversion of *C*-stems and *o*-stems into *i*-stems.

As the Luwian common gender ‘non-mutated *a*-stems’ have nothing to do with the *i*-stems, they can simply be termed ‘*a*-stems’. I have argued for their full identification with the Lycian *a*-stems, tracing both back to the Proto-Luwic *ā*-stems.

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CHAPTER 2

The Luwic inflection of proper names, the Hittite dative-locative of *i*- and *iḭa*-stems, and the Proto-Anatolian allative

Abstract: The chapter establishes the inflection of proper names in Luwian and Lycian, which differs from appellative inflection in all oblique cases. It is argued that the locative, genitive and ablative were reshaped after the pattern of the *ā*-stems, which were the most frequent type in names. The dative, however, was generalized from the *i*-stems, which were more frequent in personal names, and were found only there after the proterodynamic *i*-stems had been generalized in the appellatives. The pattern of its characteristic dative *-*iḭo* was extended to the other types. Its origin in the *i*-stems appears from Hittite, where the same dative is found and can there be traced back to the allative, which was used to circumvent the unfortunate combination of a stem in *-*i*- with the dat.-loc. ending *-*i*. The Luwic data can be used to determine the character of the PAnat. allative, which must have been *-*o* on account of Lyc. -*e*. Since Anatolian shows a vigorous allative that is presupposed by petrified remnants such as **pr-o* 'forward' in other IE languages, the allative provides an additional argument for the Indo-Anatolian hypothesis.

1 Introduction

The main topic of this chapter is the inflection of proper names in Luwic, which has so far not received much scholarly attention. I will outline the paradigms and offer explanations for the deviations from the appellative paradigms. The dative of this paradigm requires a treatment of the second topic, the Hittite dative-locative of *i*- and *iḭa*-stems. Finally, these matters have some implications for the exact reconstruction of the Proto-Anatolian allative. In the process I will also make new proposals regarding the

aberrant forms in the paradigm of HLuw. *masani-* 'god',[1] the Luwian dative-locative of the genitival adjective *-an*, and the Lycian infinitive.

2 The Luwic inflection of proper names

While Luwic morphology has not received much attention in general, this is especially true for the inflection of proper names. The most comprehensive study so far is Meriggi (1980), which is restricted to synchronic Lycian. For Luwian, some details have occasionally been noted in passing, but the special status of the onomastic paradigms is not always recognized, the details remain fuzzy, and a dedicated treatment or even overview is lacking. Here I want to present the Luwian and Lycian onomastic stem types and their paradigms and compare them to the appellative paradigms (2.1-2.3), as well as to reconstruct their Proto-Luwic predecessors (2.4), providing explanations for their deviations from the appellative paradigms. The discussion of the origin of the dative will be concluded only after a treatment of the Hittite data that I propose to compare.

2.1 Personal names

2.1.1 Hieroglyphic Luwian

The most complete picture of Luwian onomastic declension is found in Hieroglyphic Luwian. I will first focus on the main inflection types of personal names, which are tabulated below. The paradigms are also exemplified with divine names and toponyms, inasmuch as their inflection corresponds to that of personal names; the slight differences that these categories present will be discussed in 2.2 and 2.3. Forms with a following

[1] In this chapter I will use the notation system proposed in Chapter 1: "*i*-mutation stems" are called (appellative) *i*-stems and are uniformly noted with *-i-*; the notations *-V/i-* and *-(i)-* are restricted to the adjectives and to be understood as a combination of the indicated stem types: *-i-* in the common gender and *-V-* (thematic) or zero (consonantal) in the neuter gender. The *i(i̯V)*-stems are noted as *-i̯V/i-*.

asterisk are not attested in any of these categories, but are expected on the basis of parallelism with the other stems.

	***a*-stems**	***i*-stems**	***u*-stems**
nom.	*-as*	*-is*	*-us*
acc.	*-an*	*-in*	*-un*
dat.	*-aya*	*-iya*	*-uya*
abl.	*-adi*	*-idi*(*)[2]	*-udi*
gen.	*-asa*, *-asi*	*-isa*, *-isi*	*-usa*, *-usi**
gen.adj.	*-asa/i-*	*-isa/i-*	*-usa/i-*

These paradigms can be illustrated with the following attestations.

nom.	(DEUS)*kar-hu-ha-sa*	[l]*ka-ma-ni-sa*	[[1]]*nu-nu-sa*
	ta-i-ta-sa		[l]*á-lá/í-mu-sá*
acc.	[(DEUS)*kar-hu*]*-ha-na*	[l]*ka-ma-ni-na*	(DEUS)*tá-sà-ku=ha*
dat.	(DEUS)*kar-hu-ha-ia*	[l]*ka-ma-ni-i-ia*	[l]*nu-nu-ia*
abl.	(DEUS)*kar-hu-ha-ti*	–	*za+ra/i-ha-nu-ri+i*(URBS)
gen.	(DEUS)*kar-hu-ha-sa*	[l]*ka-ma-ní-sa*	[l]*á-lá/í-mu-sá*
	[l]*ta-i-ta-si*	*ka-ma-ni-si*	
gen.adj.	(DEUS)*kar-hu-ha-sa/i*°	*ka-ma-ni-sa/i*°	[l]*á-sa-ti-wa/i-su-sá-na* (dat.)

The three paradigms all follow the same pattern, which is summarized in the following table, with *V* representing the respective stem vowels.

nom.	*-V-s*
acc.	*-V-n*
dat.	*-V-ya*
abl.	*-V-di*
gen.	*-V-sa*, *-V-si*
gen.adj.	*-V-sa/i-*

For contrastive purposes the corresponding regular appellative paradigms (restricted to the relevant common gender singular forms) are given below.[3] Diverging endings are given in bold.

[2] Not attested in names proper, but cf. the testimony of *masanidi* below.

[3] For *-a* as the regular dative-locative of *a*-stems, cf. already Werner (1991: 27), and more recently Yakubovich (2015: § 6.2).

	***a*-stems**	***i*-stems**	***u*-stems**
nom.	*-as*	*-is*	*-us*
acc.	*-an*	*-in*	*-un*
dat.-loc.	***-a***	***-i***	***-uwi, -u***
abl.	*-adi*	***-adi***	***-uwadi***
gen.	*-asa, -asi*	***-asa, -asi***	***-uwasa, -uwasi****
gen.adj.	*-asa/i-*	***-asa/i-***	***-uwasa/i-***

The dative is different in all stem types: for regular *-a*, *-i*, *-u*(*wi*) we normally find *-aya*, *-iya*, *-uya* in the onomastic paradigm. In the *a*-stems, the dative is the only case with a different form. In the *i*- and *u*-stems, the ablative and the genitival forms differ as well.

The onomastic *i*-stems are analyzed by Yakubovich (ACLT) not as *i*-stems, but as *i(ya)*-stems, i.e. *iya/i*-stems (cf. e.g. *tadiya/i-* 'of father').[4] The appellative *iya/i*-stems do have a similar inflection:

	***iya/i*-stems**
nom.	*-is*
acc.	*-in*
dat.	*-i*, (*-iya*)
abl.	*-iyadi*, (*-idi*)
gen.	*-iyasa*(*/i*), (*-isa*(*/i*))
gen.adj.	*-iyasa/i-*, (*-isa/i-*)

Crucially, however, their inflection differs in the oblique cases: here *iya/i*-stems normally have *-iya-* rather than *-i-*, whereas the onomastic *i*-stems never have forms with *-iya-*. Indeed, in the *iya/i*-stems, the forms with *-i-* for *-iya-* are restricted to the southern part of the HLuw. area, meaning that the two declension types are always distinct in the north.[5] In

[4] When only direct case forms are attested, however, they are analyzed as "*(i)*-stems", i.e. the appellative *i*-stem type. The confusion in stem type assignment disappears with the recognition that names have their own *i*-stem paradigm of the shape presented above: neither appellative type is applicable.

[5] Bauer (2014: 197) states about the forms of *ámi(ya)-* 'my' with *-i-* rather than *-iya-* that "attestations can be found in KULULU 3 in the north of Anatolia as well as in HAMA 4 in Syria and many locations between the two". This does not accurately represent the distribution: the forms with *-i-* are limited to the south, with the sole exception of the abl. that is read by Hawkins as *á-mi-ri+i* in KULULU 3 (§ 2). In this attestation, however, the last sign (*ri+i*, i.e. *i+ra/i*) has the beginnings of a slanting stroke at the

addition, in CLuw. the direct cases are also distinct: the *iya/i*-stems show plene spellings (°*Ci-i-iC*), whereas the onomastic *i*-stems do not (°*Ci-iC*). These differences show that we are dealing with two different types. This is also expected given the origin of the *iya/i*-stem type, viz. the *iy̯o*-stems (see Melchert 1990: 200, and Chapter 1),[6] whereas the onomastic *i*-stems are the onomastic counterpart of the appellative *i*-stems. Finally, there is also a genuine onomastic counterpart of the *iya/i*-stems in the form of *iya*-stems. These simply decline like *a*-stems, with *-iya-* throughout the paradigm, and a dative *-iyaya*:

	***iya*-stems**	
nom.	*-iyas*	*ku-pa-pi-ia-sa*, *su+ra/i-ia-sa=ha*(URBS)
acc.	*-iyan*	(DEUS.MONS)*ha+ra/i-ha+ra/i-ia-na*
dat.	*-iyaya*	[I]TONITRUS-*hu-ta-pi-ia-ia*, [I]*ha+ra/i-ha+ra/i-ia-ia*
abl.	*-iyadi*	*ku-rú-pi-ia+ra/i*(URBS)
gen.	*-iyasa*, *-iyasi*	[I]TONITRUS-*hu-pi-ia-sa*, [I]*447-*nu-wa/i-ia-si*

The recognition of a distinct onomastic declension of the shapes presented above can also help explain some forms that have so far been enigmatic. In the paradigm of the noun *masani-* 'god', which usually inflects like a regular appellative *i*-stem (*masan-is -in -i -adi -asa/i- -inzi -anz*), we also find the forms gen.adj. *masanisa/i-*, abl. *masanidi*, dat.pl. *masaninz*, with unexpected *-i-* for *-a-*. These forms do, however, conform to the *onomastic i*-stem inflection, which has *-i-* throughout. This suggests that *masani-* was also sometimes conceived of as a name ('the Gods'), effecting a shift to the onomastic variant of the *i*-stem inflection. Indeed, such shifts from the

bottom (in Hawkins' corpus:), of which there normally are two, effecting a change from *i* to *ia*. Indeed, from the pictures available to me, it seems that the stone is worn at the bottom of the sign. We are therefore probably simply dealing with *á-mi-ia+ra/i*, i.e. the expected form with *-iya-*. This means that the occurrences of *-i-* for expected *-iya-* are limited to the south.

[6] Rather than *a*-stems with frequent contraction of the sequence *-iya-* to *-i-* (thus Yakubovich 2015: § 6.2).

appellative variant to the onomastic counterpart of the stem class are the rule when a noun or adjective is used as a name. For example (cf. Chapter 1): adj. *ázama/i-* 'beloved', PN *ázami-* 'mr. Beloved' (gen.sg. ^{I}*á-za-mi-sá*), adj. *muwatala/i-* 'mighty', PN *muwatali-* 'mr. Mighty' (gen.sg. ^{I}*mu-wa/i-ta-li-si*). The noun *masani-* 'god' is also used as the personal name of an individual, showing the same shift: PN *masani-* 'mr. God' (dat.sg. ^{I}DEUS-*ni-ia*).

2.1.2 Cuneiform Luwian

Although the limited Cuneiform Luwian corpus allows us to discern only hints of its basic onomastic inflection, the forms it displays generally correspond to those of Hieroglyphic Luwian. Thus, the acc.sg. ^{d}*i̯a-ar-ri-in* is accompanied by a gen.adj.nom.sg.c. ^{d}*i̯a-ar-ri-iš-ši-iš*, pointing to ^{d}*i̯arri-* with onomastic *i*-stem inflection (*-i-* throughout). The nom.sg. *ḫa-ad-du-ša-aš* 'Ḫattuša' occurs next to a dative ^{URU}*ḫa-at-tu-ša-i̯a*,[7] with the dative ending *-ai̯a* characteristic of the onomastic *a*-stems. These snippets show that the defining peculiarities of HLuw. onomastic inflection go back at least to Proto-Luwian.

Due to the different nature of its corpus, CLuw. also has a few attestations of a case of which no certain instances are found in HLuw.: the vocative. An example of an *a*-stem vocative is ^{d}*kamrušepa*, which shows a form identical to the stem. One potential attestation in HLuw. is (DEUS)*ku*+AVIS-*pa-pa-a* (KARKAMIŠ A6 § 21), which would show the same ending, but it is not excluded that this is rather a dat.sg., with Yakubovich (ACLT).

2.1.3 Lycian

The Luwian state of affairs has a clear counterpart in Lycian, where we find the following main personal name paradigms.[8] In contrast with

[7] On this form and the slightly deviating inflection of toponyms in general, see 2.2.

[8] Two further types that are not so well attested should also be mentioned here. We have a few cases of nominatives ending in a nasalized vowel: *ati*[*bin*]*ẽ*, *xssbezẽ*, *xudalijẽ* (rendered in Greek as Κυδαλιη[ς]), and, with *-ã*, *ñturigaxã*. Only *xudalijẽ* also attests a genitive, *xudali*[*j*]*ẽh*◊. We further have a type with a nominative in *-ẽi*: *mutlẽi*, *pigrẽi*, *sbikezijẽi*, *tewinezẽi*, *uhetẽi*, *xerẽi*. In accusative function we find

Luwian, ablatives and genitival adjectives[9] are not normally used with personal names in Lycian. The genitive, on the other hand, is restricted to proper names. Of the allomorphs of the genitive, *-Vhe* is the oldest form, and *-Vh* and *-Vhñ* (no examples of the latter are included in the overviews below) are secondary forms created for nom.sg. and acc.sg. heads, respectively (see Adiego 2010, and 2.4.1 below).[10]

	***a*-stems**	***e*-stems**	***i*-stems**	***u*-stems**
nom.	*-a*	*-e*	*-i*	*-u*
acc.	*-ã*, *-u*	*-ẽ*(*)	*-i*(*)	*-u**
dat.	*-aje*	*-eje*	*-ije*(*), *-eje*	*-uje*
gen.	*-ah*(*e*)	*-eh*(*e*)	(*-ih*(*e*)), *-eh*(*e*)	*-uh*(*e*)

Illustrations:

	***a*-stems**	***e*-stems**
nom.	*xssẽñzija*, *erbbina*, *seimija*	*pigesere*, *perikle*
acc.	*erbbinã*, *eseimiju*	*tikeukẽprẽ*[11]
dat.	*xssẽñzijaje*, *eseimijaje*	*pigesereje*
gen.	*erbbinahe*, *xssẽñzijah*	*perikleh*(*e*)

huzetẽi, possibly also *xerẽi*. *pttlezẽi* and *xuñnijẽi* show the datives *pttlezeje* and *xuñnijeje*, respectively. The genitive is attested as *xerẽh* for *xerẽi*, and perhaps *mutleh* belongs to *mutlẽi*. It is not evident how we should interpret these types historically. In mechanical reconstruction, *-ẽ* and *-ẽi* point to PLuw. **-on* and **-ontsi*, respectively. Possibly they are to be analyzed as old *n*-stems, with the nom.sg. endings going back to **-ōn* and **-ōn+is* (Melchert 1994: 305).

[9] Save a handful of exceptions, which regarding their stem vocalism behave like the genitive.

[10] In a very small number of cases, the genitive appears without any ending (e.g. *epñxuxa tideimi*, *mrexisa tideimi*, *wazzije kbatra*). It has been speculated that these continue the old gen.sg. in **-s* (cf. Adiego 1994: 13, 2010: 5, Melchert 2012: 276-277, Kloekhorst 2013: 141). I would be more inclined to regard them, with Neumann (1970: 62), Hajnal (1994: 203) and Schürr (2010: 120-121), as secondary to *-h*, the regular nominative of the genitive, which resulted by analogy from *-he* < **-so* (see Adiego 2010). As a typologically weak sound, in absolute auslaut, phonologically isolated within Lycian, the occasional loss of *-h* would not be very surprising. The survival of the genitive **-s* would be.

[11] The acc.sg. ending *-ẽ* does not occur in any name that is attested in multiple cases, so it is strictly speaking not certain whether this example belongs to the *e*-stems or perhaps to one of the types mentioned in note 8. However, the acc.sg. of the *e*-stems will certainly have been *-ẽ*.

	***i*-stems**	***u*-stems**
nom.	*purihimeti, merehi, trbbẽnimi*	*weqa*[*d*]*etu*
acc.	*sxxutrazi, trbbẽnimi*(?)	–
dat.	*sxxulije*,[12] *m̃mije*,[12] *mereheje*	*metluje*
gen.	*purihimeteh*(*e*), *trbbẽnimeh*	*arppaxuh*(*e*), *kiruh*

The *a*-stems, *e*-stems and *u*-stems are completely parallel to each other.[13] Also note the existence of *ije*- and *ija*-stems corresponding to the Luwian *iya*-stems, inflecting like regular *a*- and *e*-stems, e.g. *xssẽñzija*, *xssẽñzijaje*, *xssẽñzijah*, and *wazzije*, *wazzijeje*. The only paradigm with deviant variants is that of the *i*-stems, which is clearly due to the encroachment on the onomastic *i*-stems of the appellative *i*-stem pattern, which has *-i* in the direct cases, but *-e*- rather than *-i*- in the oblique. Thus we find the old onomastic dat. *-ije* next to *-eje*, and in personal names the gen. *-ih*(*e*) has apparently completely given way to *-eh*(*e*). The original onomastic genitive is still regular in toponyms, however, e.g. *telebehihe* (*telebehi* 'Telmessos'), *xadawãtihe* (*xadawãti* 'Kadyanda'), *xãkbihe* (*xãkbi* 'Kandyba').

From these paradigms we can abstract the following pattern:

nom.	*-V*
acc.	*-Ṽ*
dat.	*-V-je*
gen.	*-V-h*(*e*)

We may again compare the relevant cases of the appellative inflection (different case forms again indicated in bold; the gen. may be compared to the gen.adj.).

[12] Unfortunately, we do not have any attestation of a direct case to verify that the datives *sxxulije* and *m̃mije* belong to *sxxuli*- and *m̃mi*-, but this is the only option if these forms follow the regular morphological pattern of datives, viz. stem + *-je*. There is also a possibility that they are datives in *-e*, like *uwiñte* and *tuhese* (cf. the following note), but given that this type is much rarer, this should not be our default assumption.

[13] A noteworthy deviation from the general pattern is that we occasionally also find datives of personal names without the characteristic *-je*; on these, see 2.5.2.

	***a*-stems**	***e*-stems**	***i*-stems**
nom.	*-a*	*-e*	*-i*
acc.	*-ã, -u*	*-ẽ*	*-i*
dat.	***-i, -a***	***-i***	***-i***
gen.adj.	*-ahe/i-*	*-ehe/i-**	***-ehe/i-***

A first thing to notice is that, unlike appellatives, the onomastic inflection also features *u*-stems. As far as case forms are concerned, we see that, like in Luwian, the one case that formally differs from its appellative counterpart in all paradigms is the dative. In addition, the *i*-stems (originally) differ from their appellative counterparts by having *-i-* throughout, rather than *-e-* in the oblique cases.

2.2 Toponyms

The inflection of toponyms is generally identical to that of personal names, with the exception of one prominent aspect: the additional locatival functions, not found with personal names, are expressed with a separate locative case, which is identical to the stem. The functions of this case are not completely lexically complementary with dativa l function: toponyms also occasionally occur in dativa l function. In such cases, Luwian uses the separate dative ending as found in personal names, whereas Lycian uses the locative for this purpose as well.

2.2.1 Hieroglyphic Luwian

The following HLuw. examples may illustrate the functional and formal distinction between datives and locatives (translations from or after Hawkins 2000):

Locative:

> *wa/i-ma-lá/í* |*zi-i-na* (“MÍ.REGIO”)*mi-za+ra/i*(URBS)
> |AUDIRE.MI-*ti-i-ta zi-pa-wa/i+ra/i* |*475-*la*(URBS)-*a*
> |AUDIRE+MI-*ti-i-ta*
> ‘and men heard [my name] for me on the one hand in Egypt (*Mizra*), and on the other hand they heard it (for me) in *Babylon*(?)’
> (KARKAMIŠ A6 § 4-5)

wa/i-mu-u <u>*kar-ka-mi-sà*(URBS)</u> SUPER+*ra/i-a*
PUGNUS(-)*la/i/u-mi* PUGNUS-*ri+i-i-ia-ha i-zi-ia-ta* DEUS-*ni-zi*
'Me the gods made strong and *exalted* over Karkamiša'
(KARKAMIŠ A15b § 2)

|NEG$_2$-*a-wa/i* |*tara/i-pa-i-mi-i-sa* |*za-na* |*a-pa-ha*
("PES$_2$")*a+ra/i-ta-a* |<u>*ka+ra/i-mi-sà*(URBS)</u>
'Did not Tarpamis come now and then to Kar(ka)miša?'
(ASSUR letter a § 6)

wa/i-mu <u>*pa+ra/i-za*$_x$*-ta*$_x$(URBS)</u> 8 REX-*ti-sa* … x[…?](-)||*sa-ta*$_x$
'Against me in the city Parz*u*ta eight kings … were *hostile*'
(TOPADA § 3)

Dative:

wa/i BOS(ANIMAL) 15 OVIS <u>*ka-na-pu-ia*(URBS)</u> …
DARE-*mi-na*
'an ox, 15 sheep to the city Kanapu … are to be given'
(CEKKE § 11)

wa/i-mu-u (DEUS)TONITRUS-*hu-za-sa* <u>*á-**429-*wa/i-*||*ia*(URBS)</u>
MATER-*na-tí-na tá-ti-ha i-zi-i-tà*
'Tarhunzas made me mother and father to Adanawa'
(KARATEPE 1 Hu. § III 12-17)

|*hwa/i-sa-pa-wa/i-ti-i* <u>*mu-ti-ia*</u> (DEUS)MONS-*ti* |*ha-*‹*zi*›*-ia-ni-sá-a*
|‹*i-zi*›*-ia-ti-i*
'(He) who shall make himself governor for the divine Mount Muti'
(BULGARMADEN § 10)

The *a*-stems are by far the most frequent stem type in Luwian toponyms. There are no certain attestations of a locative of an *i*-stem or a *u*-stem.

2.2.2 Cuneiform Luwian

The distinction can also be seen in CLuw., where *ḫattuša-* occurs in locatival function (at least in our best current understanding) as *ḫattuša* and in datival function as *ḫattušaḭa*:

> *a=ta* $^{\text{URU}}$*ḫattuša zappiḭalli zanta šatteš pa=ta aṵidu*
> "You let them go down to the *z.* city of Ḫattuša, let him come." (?)
> (KUB 35.133+ iii 15-16)

> $^{\text{URU}}$*ḫattušaḭa apparantien arin annarumāḫi ḫuitṵalāḫiša=ḫa úpa*
> "Grant to the city of Ḫattuša a future, strength and vigor."
> (KUB 35.133+ ii 29-30)

2.2.3 Lycian

The Luwian locative also has a counterpart in Lycian, which adds the information that the vowel color of the locative ending is usually identical to the stem vowel, i.e. *-a* in the *a*-stems and *-e* in the *e*-stems, and also *-i* in the less frequent *i*-stems. Both *-e* and *-a* occur in the following passage:

> *mukale : tewẽt*[*e*] *: sãma=ti*
> 'at Mukale, which faces (towards) Samos'
> (TL 44a, 53-54)

In Lycian, however, this case is not only used in locatival, but also in datival function; the PN dative case form *-Vje* is not used with toponyms. Cf. the following sequence:

> [*pijet*]*e=ñn=ẽ pixe*[*s*]*ere kat*[*amla*]*h arñna se tlawa se p*[*inale*] *se xadawãti*
> 'Pixesere son of Katamla gave it to Xanthos and Tlos and Pinaros and Kadyanda'
> (TL 45, 1-3)
> (= ἔδωκεν Πιξώδαρος Ἑκατόμ[νου Ξα]νθίοις Τλωίτοις Πιναρέοι[ς Κανδα]ϋδέοις)

Here, *arñna*, *tlawa*, *pinale* and *xadawãti* are clearly syntactically parallel, as is confirmed by the Greek version (which is phrased slightly differently in that the people of the cities rather than the cities themselves are mentioned). *xadawãti* therefore exemplifies the dat.-loc.sg. of a toponymic *i*-stem (cf. gen. *xadawãtihe*).

2.3 Divine names

The most striking deviations from the inflection as outlined above are found in divine names. Most deviating of all are the name of the Storm-god, Luw. *tarḫunt-*, Lyc. *trqqñt-*, and that of the Sun-god, Luw. *tiu̯ad-*. The deviant inflection of these names is related to the unique stem type they display, that of common gender consonant stems, which had been wiped out in appellatives due to a general conversion into *i*-stems. The type is clearly archaic. In the case of the Storm-god, we even find ablaut. We can establish the following paradigms:

	CLuw. *tarḫunt-*	**HLuw. *tarhunt-*, *tarhunza-***
nom.	^{d}IŠKUR/U-*an-za* (voc.), ^{d}*tar-ḫu-un-za*	(DEUS.TONITRUS)*tara/i-hu-za-sa*
acc.	–	(DEUS)TONITRUS-*hu-za-na*
dat.	^{d}IŠKUR-*u*[*n-t*]*i*	(DEUS)TONITRUS-*hu-ti*
abl.	–	(DEUS)TONITRUS-*hu-ta-ti*
g.(a.)	^{d}IŠKUR-*aš-ša-*°	(DEUS)TONITRUS-*hu-ta-sa*(-°)

	Lyc. *trqqñt-*
nom.	*trqqas* (A), *trqqiz* (B)
acc.	–
dat.	*trqqñti* (A, B)
abl.	–
gen.adj.	*trqqñtase/i-* (B)

The oblique stem can be reconstructed as **trHunt-* (**trH*^{w}*nt-*), and the dative ending is *-i*, as we would historically expect for consonant stems. In the nominative, the CLuw. form ^{d}IŠKUR/U-*anz* agrees with Lyc. A *trqqas*, pointing to PLuw. **trH*^{w}*ants*.[14] An innovated form *tarḫunz*, resulting from

[14] Lyc. B *trqqiz* is more difficult to assess. Mechanical reconstruction leads to **trH*^{w}*ints*.

leveling on the basis of the oblique stem *tarḫunt-*, was present already in CLuw., and is the basis for the HLuw. forms *tarhunzas* and *tarhunzan*. These forms show that the unique shapes of the direct cases were no longer understood, and were therefore adapted to agree with the most common onomastic type, that of the *a*-stems.

A name with a similar inflection is *tiu̯ad-*, the Sun-god. This lexeme is not found in our current Lycian corpus, but does survive in both versions of Luwian.

	CLuw. *tiu̯at-*	**HLuw. (DEUS)SOL-*wad-***
nom.	^{d}*ti-u̯a-az*	(DEUS)SOL-*wa/i-za-sa*, (DEUS)SOL-*ti-i-sa*
voc.	*ti-u̯a-az*, *ti-u̯a-ta*, ^{d}*ši-u̯a-ta*	–
acc.	^{d}UTU-*an*	(DEUS)SOL-*wa/i-ti-i-na*
dat.	^{d}UTU-*ti*, ^{d}UTU-*ti-i*	(DEUS)SOL-*ti*(-*i*)
abl.	–	(DEUS)SOL-*tà-ti-i=ha*
gen.adj.	^{d}*ti-u̯a-da-aš-ša-*°	–

The acc. ^{d}UTU-*an* is the only attestation of a consonant stem acc.sg.c. in all of Luwian. We further again find a dative in *-i*, and a remade nom. *-zas* in HLuw. on the basis of the older nom. in *-z*. In this case, we also find another strategy to regularize the paradigm in the direct cases: the introduction of *i*-stem inflection.[15] In vocatival function, next to use of the nominative form, *tiu̯ad-* also attests *ti-u̯a-ta* and ^{d}*ši-u̯a-ta*,[16] with an ending *-a* resulting from a reinterpretation of *-a* in the *a*-stems as an ending.

There may have been other remnants of this kind (cf. e.g. CLuw. dat. ^{d}*a-i̯a-an-ti-i*), but most other divine names inflect according to the more familiar vocalic stem types. But these, too, behave slightly differently from regular personal names: like the consonantal stem type, their dative often matches that of appellatives rather than that of personal names. Examples from HLuw.:

[15] This may have been catalyzed by the fact that the word for 'sun' was (probably) *tiwadi-*, of which *tiwad-* ((DEUS)SOL) was a personification.

[16] The latter form, with *š-*, apparently shows the effect of Hittite interference (Hitt. *šīu̯att-* 'day').

HLuw. *a*-stems, dative in *-a*

	átrisuha-	***santa-***	***saruma-***
nom.	(DEUS)*á-tara/i-su-ha-sa*	(DEUS)*sà-ta-sa*	(DEUS)*sa*$_5$*+ra/i-ru-ma-sá*
acc.	(DEUS)*á-tara/i-su-ha-na*	–	(DEUS)SARMA-*ma-na*
dat.	(DEUS)*á-tara/i-su-ha*	(DEUS)*sà-ta*	(DEUS)SARMA-*ma*
gen.	–	(DEUS)*sà-ta-sa*	(DEUS)SARMA-*ma-sa*$_6$
g.a.	–	(DEUS)*sà-ta-s°*	(DEUS)*sa*$_5$*+ra/i-ru-ma-s°*
abl.	–	(DEUS)*sà-ta-ti*$^{-i}$	–

HLuw. *u*-stems, dative in *-u*

	hibadu-	***sarku-***
nom.	(MAGNUS.DEUS)*hi-pa-tú-sa*$_5$	–
acc.	–	–
dat.	(DEUS)*hi-pa-tu*	(DEUS)*sa*$_4$*+ra/i-ku*
gen.	–	–

The ending *-ya* does sometimes occur as well, however, and both variants may be found with the same name.[17] The dative of *kubaba-* is attested both as (DEUS)*ku*+AVIS-*pa-pa* and as (DEUS)*ku*+AVIS-*pa-ia*, and likewise for *tasku-* we find both (DEUS)*ta-sà-ku* and (DEUS)*ta-sà-ku-ia*. The datives of *álanzuwa-*, *iya-*, *karhuha-*, *tagamana-*, and *pahalati-* are only attested with the ending *-ya* ((DEUS)*á-la-zú-wa/i-ia*, (DEUS)*i-ia-ia*, (DEUS)*kar-hu-ha-ia*, (DEUS)*tá-ka-ma-na-ia*, (DEUS)*pa-ha-la-ti-ia*).[18]

[17] Both endings may also occur next to each other in one inscription, cf. e.g. (DOMINUS)*na-ni*$^{-i}$ (DEUS)*kar-hu-ha-ia* (DEUS)*ku*+AVIS-*pa-ha kar-ka-mi-si-i-za*(URBS) (MAGNUS.DOMINA)*ha-su-sa*$_5$*+ra/i-*[*i*$^{?}$] 'to [my] lord Karhuhas and to Kubaba, Queen of Karkamiš' (KARKAMIŠ A25a § 6). Similarly (DEUS)CERVUS$_3$*+ra/i-hu-ha-ia* 1 BOS(ANIMAL)*-sa* OVIS-*sa-ha* (DEUS)*ku*+AVIS-*pa-pa* 1 BOS(ANIMAL)-*sa* 1 OVIS(ANIMAL)-*wa/i-sa-ha* (DEUS)*sa*$_5$*+ra/i-ku* OVIS-*wa/i-sa* ("*478")*ku-tú-pi-li-sa-ha* 'for Karhuhas, one ox and a sheep; for Kubaba one ox and one sheep; for the god Sarkus a sheep and a KUTUPILIS' (KARKAMIŠ A11b+c § 18b-d). But the same combination of names is found as (DEUS)*ka+ra/i-hu-ha-ia* (DEUS)*ku*+AVIS-*pa-ia-ha* 'to Karhuhas and Kubaba' in KARKAMIŠ A13d § 7.

[18] One complicated case is *runtiya-*, the Stag-god. Next to the dative (DEUS)CERVUS$_3$*-ia*, which represents either the form in *-a* (*runtiya*) or that in *-aya* (*runtiyaya*), we also find (DEUS)CERVUS$_3$(-)‹*ru*?›*-ti*$^{-i}$ and (DEUS)CERVUS$_3$*-ti=pa=wa/i=ta*$^{-a}$, with unexpected *-i*. A similar unexpected variation of the stem vowel is, however, seen in the nom.sg., where we also find (DEUS)CERVUS$_3$*-ti-sá*, an *i*-stem, and even (DEUS)CERVUS$_3$*-za-sá*, which reminds of the old consonant stems *tarhunzas* and *tiwazas*. Its stem and endings may have been influenced by the latter

The *-a* of the *a*-stems, to which the other forms without *-ya* are likely to be analogical (see 2.5.2), corresponds to the dative-locative also found in the appellative *a*-stems.

In CLuw., we find a peculiar dative of a unique shape: the dative of the deity *kamrušepa-* is attested as *ka-am-ru-še-pa-i*. This form does not have corresponding forms elsewhere in the nominal system: appellatives have *-a*, personal names *-aḭa*. Its ending is nevertheless morphologically transparent: it consists of the stem vowel *-a-* and the dative ending *-i*. It may in principle have been formed after other divine names (e.g. *tarḫunt-s* : *tarḫunt-i* = *kamrusepa-s* : X → *kamrusepa-i*), but the morphological deviations in divine names we have seen so far are archaic, and so the ending may also be an archaism.[19]

In Lycian, the attested datives of vocalic stem divine names appear not to correspond to the general pattern of personal names either. The dative of *malija-* 'Athena' is *mali*, with *-i* (i.e. **-iji*) as in the appellative *a*-stems rather than with *-aje* as in the personal name inflection. Similarly, the datives of *ertẽmi-* 'Artemis' and *natri-* 'Apollo' are *ertẽmi* and (B) *natri*, respectively, rather than forms in *-ije* or *-eje*.[20]

2.4 Proto-Luwic

2.4.1 Differences

The Luwian and Lycian onomastic paradigms are very well comparable, but also show some differences. One noticeable difference is due to the introduction of the appellative vowel pattern (dir. *i*, obl. *e*) in the Lycian *i-*

two lexemes, with which it occurs in collocations. Indeed, (DEUS)CERVUS$_3$(-)‹*ru*?›-*ti*$^{-i}$ is immediately preceded by ‹(DEUS)›TONITRUS-*hu-ti*$^{-i}$ ‹(DEUS)SOL›, and likewise (DEUS)CERVUS$_3$-*za-sá* is immediately preceded by (DEUS)TONITRUS-*hu-za-sá*.

[19] The same ending can be found in Hittite, e.g. ^{d}*ḫašgalāi* (*ḫašgalā-*), ^{d}*zinkuruu̯āi* (*zinkuruu̯ā-*). In this case, too, it is unclear whether this is an archaism or an innovation. The match between CLuw. and Hitt. may however be taken to suggest that we are dealing with archaisms.

[20] The appearance of the dative ending *-i* in *zeusi* 'Zeus' is probably rather related to the Greek origin of this name; cf. similarly e.g. *mlejeusi* (also probably with *-eus-* from Gr. -εύς, although the name is in this case (re)rendered in Greek as Μλααυσει), *ijeri* (*ijera-* ← Ἱέρων), and probably (B) *zrppeduni* (← Σαρπηδών).

stems. The more vestigial type which has *-i-* in the oblique cases as well corresponds neatly to the one *i*-stem type found in Luwian. Another difference is that Lycian still differentiates between *a*-stems (< *ā*-stems) and *e*-stems (< *o*-stems), which have merged into *a*-stems in Luwian as a result of sound law.

Next to these two clear innovations, one on the part of each Luwic branch, there is the further difference that Lycian genitives and genitival adjectives are, as a rule, distributed complementarily: genitives are used with names, genitival adjectives with nouns and adjectives. In Luwian there is no such distribution; CLuw., as far as we can tell, does not use the genitive,[21] and in HLuw. both forms occur with both types of lexeme. The existence of two morphologically different formations with the same function suggests the loss of an earlier distinction. Since Lycian shows a neat distinction by using the genitive with proper names and the genitival adjective with appellatives, I assume that this is the Proto-Luwic situation, and that this distribution became blurred in Luwian. HLuw. developed a tendency towards a new distribution by which the genitival adjective was preferred in the oblique cases (Yakubovich 2008). Since the direct cases can be seen as the default, operating in the core of the sentence, the desire to inflect the preceding genitival element to bring out its dependency on a functionally more marked form was naturally highest in the oblique cases. A similar situation may have triggered the eventual removal of the genitive in pre-CLuw.

The various allomorphs of the genitive can in both Lycian and Luwian be shown to go back to a single form that was reinterpreted as an inflected form, triggering the creation of other inflected forms to establish agreement with the head noun: in Lycian, the oldest form is *-Vhe* < **-Vsso*, on the basis of which the secondarily inflected forms nom. *-Vh* and

[21] I do not accept Yakubovich's (2008: 202-211) evidence for a CLuw. genitive *-aššа*. This evidence is restricted to cases of the gen.adj. in which we normally find *-aššan*, i.e. the nom.-acc.sg.n. and the dat.sg. This indicates that we are dealing with a secondary variant of *-aššan*. Similarly, we find *-aššа* for (even alternating with) *-aššin* (Yakubovich 2008: 210), and *-aššizi* for *-aššinzi* (*ḫi-iš-ḫi-ša-aš-ši-zi*, KUB 35.48 ii 12). Therefore, whatever the exact linguistic reality behind these forms (nasalized vowels?), the deviations are nothing more than secondary variants of expected forms with a syllable-final nasal. They are not independent genitives.

acc. *-Vhñ* (B *-Vs* and *-Vzñ*) were created (see Adiego 2010). In a similar vein, in HLuw. the oldest form is *-asa*, which below the Taurus mountains obtained a pendant *-asi* for agreement with common gender head nouns in analogy to the pattern of the gen.adj., c. *-asi-*, n. *-asa-* (see Palmér fthc.); in other words, *-asa* was adapted to *-asa/i* in analogy to *-asa/i-*. Note that this analogy proves that °*a-sa* spells *-asa* rather than **-*as*, as was already likely in view of Lyc. *-Vhe*.

2.4.2 Reconstruction of the paradigms

Apart from these differences, the paradigms match very closely. The overall pattern is completely parallel, and can therefore be straightforwardly reconstructed for Proto-Luwic.[22]

	Luwian	**Lycian**	**Proto-Luwic**
nom.	*-V-s*	*-V*	**-V-s*
acc.	*-V-n*	*-Ṽ*	**-V-n*
dat. (PN)	*-V-i̯a*	*-V-je*	**-V-i̯o*
dat.-loc.	*-V*	*-V*	**-V*
abl.	*-V-di*	*-V-di*	**-V-di*
gen.	*-V-sa*	*-V-he*	**-V-sso*

The individual Proto-Luwic onomastic paradigms can be reconstructed as follows.[23]

	***ā*-stems**	***o*-stems**	***i*-stems**	***u*-stems**
nom.	**-ās*	**-os*	**-is*	**-us*
acc.	**-ān*	**-on*	**-in*	**-un*
dat. (PN)	**-āi̯o*	**-oi̯o*	**-ii̯o*	**-ui̯o*
dat.-loc.	**-ā*	**-o*	**-i*	**-u*
abl.	**-ādi*	**-odi*	**-idi*	**-udi*
gen.	**-āsso*	**-osso*	**-isso*	**-usso*

[22] Note that I reconstruct the genitive with **-ss-* rather than with **-s-* only on the basis of the genitival adjective, which probably shares its ultimate origin with the genitive.
[23] The length in the *ā*-stems is based only on etymological considerations and may be anachronistic.

2.5 Pre-Proto-Luwic: prehistory of the case forms

The nom. and acc. are always identical to their appellative counterparts. In the following I will discuss the prehistories of the remaining cases, in increasing order of the length of the discussion: the genitive and the ablative (2.5.1), the locative (2.5.2) and the dative (2.5.3), the latter of which will turn out to require a more in-depth look at Hittite (3).

2.5.1 The genitive and the ablative

With the disconnection of the Luwian onomastic *i*-stems from the appellative *i̯a/i*-stems (2.1.1), and the concomitant rejection of contraction as an explanation for the appearance of *-i-*, which is once more confirmed by the corresponding paradigm in Lycian, the inflection of the onomastic *i*-stems and the parallel *u*-stems, in particular their failure to show the vowel historically inherent to the genitival forms and the ablative, requires a different historical explanation. Fortunately, it is not difficult to find such an explanation. The various onomastic paradigms are completely parallel. Of these paradigms, the one corresponding most closely to its appellative counterpart is that of the *ā*-stems, which show a difference only in the PN dative singular. Similarly, the *o*-stems only differ from their appellative counterpart in the PN dative singular and the locative. Incidentally, unlike in appellatives, in names the *ā*-stems are the most frequent stem class, followed by the *o*-stems, whose counterpart in appellatives was annihilated by the process of *i*-mutation (Chapter 1). These facts suggest that the onomastic *i*-stem and *u*-stem gen. and abl. were reshaped analogically after the *ā*-stems and the *o*-stems: **-i-osso*, **-i-odi* were replaced with **-i-sso*, **-i-di*, and likewise **-u-osso*, **-u-odi* with **-u-sso*, **-u-di*, after **-ā-sso*, **-ā-di* and **-o-sso*, **-o-di*.

2.5.2 The locative

The history of the locative is not as straightforward. One complicating factor is the mismatch with the state of affairs in appellatives. This, in turn, is complicated in itself because Luwian and Lycian do not match, and because Lycian appears to display a morphological asymmetry.

In Luwian appellatives, *i*-stems have a dat.-loc. *-i*, and *a*-stems have a dat.-loc. *-a*. In Lycian appellatives, the dat.-loc. of *i*-stems is *-i*, but that of the *a*-stems comes in two allomorphs: *-i* and *-a*. These seem to be lexically distributed; there are no lexemes that show both endings. The distribution is largely semantic: *-i* is used with animates (e.g. *hrppi ladi* 'to (/on) the wife'), *-a* with inanimates (e.g. *ebehi xupa* 'in this tomb', *ẽnẽ periklehe xñtawata* 'under the kingship of Pericles'), although there are also a few inanimates with *-i* (e.g. *prñnawi* 'in the grave', *ẽti sttali* 'on the stele', *sixli* 'for a shekel'). The main question is whether this allomorphy goes back to a Proto-Luwic distinction between dative and locative, which would suggest that the onomastic locative likewise goes back to a separate locative formation, or that it was innovated, through the introduction of a variant *-i*, from a situation like in Luwian, which only has the one dat.-loc. *-a* with *a*-stems.

In itself, the Lycian allomorphy lends itself well to being analyzed as a remnant of an earlier distinction between dative and locative: the form originally accompanying the most frequent function (the dative with animates, the locative with inanimates) would then also have come to be used in the less characteristic function, effectively merging the categories into a dative-locative with two allomorphs. We could therefore reconstruct a PLuw. dative **-i* (or perhaps **-āi*, in view of CLuw. ^{d}*kamrušepai*) next to a locative **-ā*.[24]

There are, however, several facts that speak against this scenario. Although it can explain the Lycian data, it creates additional assumptions for Luwian, which would then independently have merged the dative and locative into a dative-locative – and have chosen to generalize the locative ending *-a* rather than the dative **-i* or **-āi* for the designation of the merged case in the *ā*-stems (in analogy to the *i*-stem pattern?).

Moreover, the locative would have been a separate appellative case only in the *ā*-stems. There is no indication that there ever was a separate locative

[24] Thus e.g. Hajnal (1994: 156), who analyzes **-ā* < **-eh₂* as an endingless locative. In addition to the objections to the reconstruction of a separate locative **-ā* put forth in the following, the reconstruction of an endingless locative is improbable because the evidence of the other IE languages suggests that the locative of the *eh₂*-stems was **-eh₂i* rather than **-eh₂* (cf. e.g. Beekes 2011: 200).

in the *i*-stems. Even synchronically in Lycian, the *i*-stems do not have a separate locative, but only a unified dative-locative *-i* (cf. e.g. *ebehi xupa* 'in this tomb', not ***ebehe xupa*; *ẽtri ñtata* 'in the lower burial-chamber', not ***ẽtre ñtata*), and this agrees with the situation in Luwian and in Hittite.

In addition, Lyc. *-a* also occurs in dativa l function: in toponyms (*arñna* 'to Xanthos', *tlawa* 'to Tlos'), and occasionally in personal names, e.g. *xñtawati xbidẽñni sej arkkazuma xñtawati* = βασιλεῖ Καυνίωι καὶ Ἀρκεσιμαι 'to the king of Kaunos and to king Arkkazuma' (N320, 7-9), *hrppi prñnezi ehbi urebillaha* 'for his household member Urebillaha' (TL 11, 2), *epñnẽni ehbi hm̃prãma sej atli* 'for his younger brother Hm̃prãma and himself' (TL 37, 4-6). These forms bring Lycian closer to the situation in Luwian, and may be a testimony of a more archaic morphological state of affairs.

It can furthermore be understood why a unified dat.-loc. *-a* would have been in need of some degree of replacement or recharacterization in Lycian: the plural counterpart of this ending, **-ās* (which was created in analogy to the *o*-stem dat.-loc.pl. **-os*, Hitt. *-aš*), had lost its final **-s* by sound law, and had thus become identical to the singular (e.g. *hrppi lada epptehe* 'for their wives'). This may well have triggered an importation of the ending *-i* from the other stem types. There was no similar motivation in Luwian, which still had a distinct dat.-loc.pl. ending (*-anz*). The peculiar restriction of Lyc. *-i* to animates may perhaps be explained by the same factor: the desire to be able to distinguish number may have been more acute with animate referents. The lexemes with inanimate referents but with the ending *-i*, among which relatively recent loanwords like *sttala* 'stele' and *sixla* 'shekel', confirm that this was the more productive ending, and that *-a* may be a residue from an earlier stage. A replacement scenario (**-a* >> *-i*) can also straightforwardly explain the lack of a functional opposition, i.e. the fact that only one ending per lexeme is found.

Thus, the Lycian appellative *a*-stem (dative-)locative *-a* may well be a remnant of a Proto-Luwic dative-locative **-ā*, which was on the way to attested Lycian partly, namely in animates, replaced by the *-i* as found in the other stems. Similarly, the occasional Lycian dative *-a* in personal names and the Luwian dative *-a* found in divine names (e.g.

(DEUS)*ku*+AVIS-*pa*-*pa*) can be regarded as archaisms reflecting the stage before the pre-Proto-Luwic recharacterization of the dative of personal names through the addition of *-i̯o* (on which more below). The same can then be assumed for the locative of toponyms.

If we assume that the *ā*-stem locative *-*ā* is the old dative-locative, with the innovations of the PN dative *-*ā*-i̯o and later Lyc. -*i* leaving it mainly in locatival function, the main remaining explanandum is the shape of the Lyc. loc. ending -*e* (e.g. *mukale* 'at Mykale', *xbide* 'at Kaunos'), which, like -*a* in the *a*-stems, also occasionally occurs in dativ al function with personal names instead of the more common ending in -*je*, e.g. *hrppi ladi ehbi uwiñte xumetijeh zzimazi* (TL 120, 2), *hrppi ladi ehbi tuhese* (TL 113, 2). The dat.-loc. of *e*-stems is expected to be -*i* rather than -*e*, as indeed it is in appellatives (cf. e.g. *isbazi*, dat.-loc. of *isbazije*- n. 'bench, couch', *esedeñnewi*, dat.-loc. of *esedeñnewe*- c. 'offspring'). Since there appears to have been only one dat.-loc. case, and the ending -*i* corresponds to the Luwian and Hittite endings, the ending -*e* is likely to be the result of analogy. The most obvious source for analogy is the *a*-stem (dat.-)loc. -*a*: -*a* -*ã* -*ahe* -*adi* -*a* = -*e* -*ẽ* -*ehe* -*edi* X → -*e*. There are several factors that may have favored such an analogy. First, the *a*-stems were the most frequent onomastic stem type and were therefore a more logical source for analogy than they were in the appellatives; cf. the adaptation of the onomastic genitive and ablative (2.5.1). Second, common gender *e*-stems were all but restricted to names, and were therefore much more closely associated with the neighboring onomastic *a*-stems than with their almost non-existent appellative counterparts. The ending -*i* for the onomastic *e*-stems may well have felt out of place in comparison with the more frequent *a*-stem pattern in which the ending matched the stem, and have been adapted accordingly.

It is not surprising to find that the much less frequent toponymic *i*-stems follow the same pattern, at least in Lycian (-*i* -*i* -*ihe* -*idi* -X → -*i*). For Luwian we do not even have any certain attestations of an *i*-stem locative, but if the dative of divine names can indeed historically be equated with the locative, it suggests a loc. *-*u* for *u*-stems, and by extension *-*i* for *i*-stems. See the treatment of the dative of personal names below for the original shape of the dat.-loc. that this *-*i* probably replaced (*-*i*i̯o*).

A final difficulty is presented by the *s*-stems (e.g. nom. *trm̃mis*, acc. *trm̃misñ* 'Lycia'), which appear to show a dat.-loc. in *-e* (e.g. nom. *arñnas*, dat.-loc. *arñnase* 'Xanthos'). This is not the only difficulty of this type, whose entire prehistory is shrouded in uncertainty. There is no corresponding type in Luwian.[25] On account of the dat.-loc., Melchert (2004: xi) analyzes them as stems in *-*se*- with syncope of the *-e*-. Whatever the exact mechanism,[26] it is in any case probable that these stems have undergone some form of formal innovation, indeed perhaps with *-*se*- as a starting point. If it is rather the consonantal type of the direct cases that is original, the ending *-e* may have spread from the *e*-stems so as to avoid having an endingless form, which we would expect as a parallel to the other stems. The choice for the *e*-stem form may be related to the default status of the forms with *-e*- in the appellative system (e.g. *-ehe/i*-, *-edi* everywhere except in the *a*-stems).

In sum, we seem to be dealing with the following developments. Pre-PLuw. had a dat.-loc. *-*ā* in the *ā*-stems and a dat.-loc. *-*i* in the *o*-stems. In personal names, these endings were largely replaced with *-*ā-i̯o* and *-*o-i̯o*, respectively (see below). The older endings remained possible variants in names, but were now mainly restricted to locatival function (i.e. to toponyms). After the common gender *o*-stems had been annihilated in appellatives, the (dat.-)loc. *-*i* was in the onomastic *o*-stems adapted to *-*o* in analogy to the pattern of the more frequent *ā*-stems. In the Lycian appellative *a*-stems the dat.-loc.sg. and the dat.-loc.pl. had become homophonous (*-a*), and the singular was recharacterized with the ending *-i* from the other appellative types, with the older ending *-a* being left as a residue with inanimates.

[25] As far as the suffix -(*V*)*s*- is concerned, we may perhaps compare the Luwian suffix *-izz-a*- < PLuw. *-*itts-ā*- that creates ethnicon adjectives, e.g. CLuw. ^{URU}*taurišizzaš* (dat. ^{URU}*taurišizza*) 'from Tauris', HLuw. *karkamis-izas* (dat. *karkamis-iza*) 'from Karkamisa'. PLuw. *-*itts*(°)- may be related to PIE *-*isḱo*- or *-*iḱo*-.

[26] The type could in principle also be analogical after the genitive (nom. *-Vh*, acc. *-Vhñ*, dat.-loc. *-Vhe*) rather than the other way around (as proposed by Adiego 2010, cf. 6 below), but the morphology of the genitive seems to be too much in flux to be a good model.

2.5.3 The dative of personal names

This leaves the dative in *-i̯o, whose shape is completely unlike that of its appellative counterpart. There is only one possible comparandum within Luwic. The dative of the Luwian appellative *i̯a/i*-stems (as in *tadi̯a/i*- 'of father') usually has the morphologically expected shape -*i* (*tadi*), but possibly there also exists a variant -*i̯a* (*tadi̯a*, see 5). Yakubovich (2015: § 6.2), who was only aware of the onomastic ending -*i̯a* for *a*-stems, proposed that the onomastic ending might be analogical after this *i̯a/i*-stem dative variant -*i̯a*. The analogy would then have to be -*is* : -*in* : -*i̯a* = -*as* : -*an* : X → -*a i̯a*. Even if we adjust this by replacing -*a*- with -*V*- to include the other stems, in accordance with the paradigms as established above, this proposed analogy runs into various problems. First, within Luwic this is quite an obscure ending, restricted to the *i̯a/i*-stems, and all but ousted by the productive ending -*i* – indeed its very existence is not completely certain (see 5). It would in any case not have been a powerful model for an analogy. This is even more acute considering that it would have to have induced an apparently unmotivated analogy. Most poignantly, in this scenario it would not be understandable why the spread of the ending was restricted to personal names, whereas the appellative system, which even harbors the purported source of the analogy, remained unaffected. I therefore reject the (potential) *i̯a/i*-stem dative variant ending -*i̯a* as a possible source of the onomastic dative.

The lack of other comparanda within Luwic impels us to look beyond its borders. In Hittite, the inflected shapes of names are often concealed due to the common practice of akkadographic writing, which amounts to writing only the bare stem, in the dative typically preceded by *ANA*, rather than the full form. There are exceptions, however, which allow us to discern the following paradigm (exemplified with ^{d}*ḫalki*-, ^{d}*impaluri*-, *kešši*- and ^{d}*kumarbi*-).[27]

[27] For these and other names, see the overviews of Laroche (1966) and Van Gessel (1998).

nom.	*-iš*	^{d}*ḫalkiš*	^{d}*impaluriš*	*keššiš*	^{d}*kumarbiš*
acc.	*-in*	^{d}*ḫalkin*	^{d}*impalurin*	*keššin*	^{d}*kumarbin*
dat.	*-i̯a*	^{d}*ḫalki̯a*	^{d}*impaluri̯a*	*keššii̯a*	^{d}*kumarbi̯a*
gen.	*-i̯aš*	^{d}*ḫalki̯aš*	^{d}*impaluri̯aš*	*kiššii̯aš*	^{d}*kumarbi̯aš*

Some examples of the dative (for ^{d}*ḫalki-* see n. 30):

> [(*nu arunaš* ^{d}*impaluri̯*)]*a* EGIR-*pa memiškeuu̯an daiš*
> "The sea started again to speak to Impaluri:"
> (KUB 33.96+ ii 15)[28]

> DINGIR^{MEŠ}*-eš=kan* ^{l}*keššii̯a išpanduzzi šer kar*[*tim*]*mi̯au̯anteš*
> "The gods were angry at Kessi for the (lack of) libation"
> (KUB 33.121+ ii 12-13)

> ^{d}*kumarbi̯a kiššarazza=šit=ašta arḫa ḫuiellāet*
> "He slipped away from Kumarbi's hand" (lit. "To Kumarbi he slipped away from his hand")
> (KUB 33.120+ i 21)

> *nu* ^{d}*kumarbi̯a memiškeuan dāiš*
> "He began to speak to Kumarbi:"
> (KUB 33.120+ ii 58)

The inflection of these *i*-stem names is strikingly similar to that of the Luwic onomastic *i*-stems (**-is*, **-in*, **-i̯o*, **-is*° << **-i̯os*°), likewise featuring *-i-* throughout, and, promisingly, a dative of the exact same shape. I therefore propose to equate the two paradigms, including their peculiar datives, historically. Fortunately, within Hittite, this dative ending is not isolated, and we can put it into context and trace its origin. This is what I will do in the next section.

[28] Alternating with *ANA* ^{d}*impaluri* in duplicate KUB 33.102+ ii 4.

3 The Hittite dative-locative of *i*-stems and *iya*-stems

In Hittite, unlike in Luwic, names and appellatives have similar inflections. The reason we find the ending *-iya* in the paradigms of the names tabulated above is that these are non-ablauting *i*-stems. The non-ablauting *i*-stems are among the main loci of the ending *-iya*, together with *ai/i*-stems and *iya*-stems. The paradigms of these types (restricted to the singular) are given below. I also include the *i/ai*-stems, a similar stem type in which the dat.-loc. in *-iya* is conspicuously absent (more on this in 3.2). The ending is used both in dativa l and in locativa l functions.

	***i*-stems**	***ai/i*-stems**	***iya*-stems**	***i/ai*-stems**
nom.	*-iš*	*-aiš*	*-iyaš*	*-iš*
acc.	*-in*	*-ain*	*-iyan*	*-in*
dat.-loc.	*-iya, -ī, -i*	*-iya, -ī, -i*	*-iya, -ī, -i*	*-ai*
all.	*-iya*	*-iya*	*-iya*	*-a, -aya*
abl.	*-iyaz*	*-iyaz*	*-iyaz*	*-az, -ayaz*
gen.	*-iyaš*	*-iyaš*	*-iyaš*	*-aš, -ayaš*
instr.	*-it*	*-it*	*-it*	*-it*

It is apparent from the overview that the dat.-loc. *-iya* is in all stem types in which it occurs in competition with *-ī* and *-i*, which are morphologically transparent: they result from the combination of the *-i-* of the stem and the dat.-loc. ending *-i*. We also notice that the alternative dat.-loc. ending *-iya* is identical to the allative ending. For the allative, the form *-iya* is morphologically expected: it results from a combination of the *-i-* of the stem and the allative ending *-a*. This suggests, as is also commonly thought, that the dat.-loc. ending variant *-iya* is originally the allative ending, whose function was extended to the domain of the dative-locative at the expense of the dat.-loc. ending *-i* (cf. Laroche 1970: 33). A reason for this replacement that has been put forward is that the latter ending had become blurred due to its identical shape to the preceding stem vowel. This scenario has recently been contested by Frantíková (2016). Also, the exact distribution of the various forms has been the subject of some confusion. These issues will be discussed in the following sections.

3.1 The distribution of the dat.-loc. *-i̯a*

In their grammar of Hittite, Hoffner & Melchert (2008: 87) state about *i*-stem nouns: "The allative of the *i*-stems ends in *-iya*, and the sg. d.-l. ends in *-ī* or *-i*. Forms with the ending *-iya* also occasionally appear in post-OS texts in a dative-locative function." This statement implies that the emergence of the dat.-loc. function of *-i̯a* is a post-OS phenomenon.

This is contradicted by OS examples of the dat.-loc. *-i̯a*, which are listed by Hoffner & Melchert (2008: 69 n. 24, 87 n. 52) themselves. They mention the following examples: ^{d}*ḫalki̯a* 'for Ḫalki' (^{d}*ḫalki-*), *luli̯a* 'in a vat' (*lūli-*), *luttii̯a* 'at the window' (*luttai-*), *šanii̯a* 'in/on the same (year/day)' (*šani-*), *takīi̯a* 'in another (city)' (*taki-*). Frantíková (2016: 188-191) adds: *ubatii̯a* 'on the land' (*ubati-*), *utnii̯a* 'in the country' (*utne-*), *ḫuu̯ašii̯a* 'at the *ḫ*.-pillar' (*ḫuu̯aši-*).[29] Frantíková (2016: 188f.) concludes that "the locatival *-a* is found in a number of instances" in OH. The impression remains that this is a marginal phenomenon. Indeed, Frantíková (2016: 193) explicitly states that "the *-a* ending is used only in a few dozen *i*-stem lexemes (the overall number of *i*-stem nouns and adjectives exceeds a thousand)". She also speaks of "the scarcity of its occurrences and its even distribution throughout the recorded history of Hittite" (Frantíková 2016: 195).

A more systematic approach leads to a different picture. The following is intended to be an exhaustive collection of attested dat.-loc.sg. forms (NB not including *-i̯a* in *allatival* function) of the relevant stem types in OS and OH/MS, whether of the shape *-i̯a*, *-ī* or *-i*.

[29] She also includes ^{GIŠ}*ḫulukanni̯a* 'in the carriage' (KBo 17.15 obv. 20, OS, KBo 20.18+ v 7, OS), and, for OH/MS, ^{GIŠ}*zaḫurti̯a* 'on the chair' (KUB 20.11 ii 9, OH/MS, Frantíková 2016: 194 n. 4), but these attestations should be left out. ^{GIŠ}*ḫulukanni̯a eša* does not mean 'is seated in the carriage', but 'sits down in the carriage': it is an allative rather than a dative-locative. The same goes for ^{GIŠ}*zaḫurti̯a eša* 'sits down on the chair'. A locatival instance of *ḫulukanni-* can however be found in MH: *nu* ^{GIŠ}*ḫuluganni̯a peran* GAL $^{LÚ.MEŠ}$*šālašḫaš ḫui̯anza* 'the chief of the grooms is marching in front of the coach' (IBoT 1.36 ii 22, MH/MS).

Attested OS and OH/MS dative-locatives of *i*-stems and *iia*-stems

stem	**lexeme**	**dat.-loc.**			
		-iia		***-i***	
-i-	(d)*ḫalki*- ‘Grain-god’	(d)*ḫalkiia*	OS[30]		
	NA4*ḫuuaši*- ‘pillar’	NA4*ḫuuašiia*	OS[31]		
	lūli- ‘pond, vat’	*luliia*	OS[32]		
	šani- ‘same’	*šaniia*	OS[33]		
	taki- ‘other’	*takīia*	OS[34]		
	ubati- ‘land’	*ubatiia*	OS[35]		
	GIŠ*ḫalpūti*-, cult-object			GIŠ*ḫalpūti*	OS[36]
	GIŠ*zaḫurti*- ‘chair’			(GIŠ)*zaḫurti*	OS[37]

[30] *mān ANA ḫalkiia ḫuekzi* LÚGUDU$_{12}$-*š=a memai* ‘when he calls upon the Grain-god, the anointed says:’ (KUB 28.75 iii 25, OS; this seems to be a hybrid between akkadographic *ANA ḫalki* and phonetic *ḫalkiia*); URU*ankuuaš* dLAMMA-*r*[*i*] d*ḫalkiia* d*zinkuruuāi=ia parsiia* ‘the city of Ankuua breaks (bread) for L., Ḫ. and Z.’ (KUB 41.10+ rev. 6, OH/MS).

[31] *mān* DUMU-*aš INA* URU*kākšat ḫuuašiia ANA* dUTU *ḫuekzi* ‘when the son slaughters in Kāksat at the *ḫ*.-pillar for the Sun-god’ (KUB 28.75 iii 19, OS). Possibly]*a-si* in KBo 20.11+ iii 8, OS (]*a-si* 1 UDU *QA-TAM-MA* ‘… one sheep likewise …’) has to be restored as [NA4*ḫuu*]*āši* ‘at the *ḫ*.-pillar’, but this is not certain. Note that NA4*ḫuuāšiia āri* ‘he arrives at the *ḫ*.-pillar’ (ii 4 and iii 4 of the same text) has to be regarded as an instance of the allative; *ār-*^{i} is in OH constructed with the allative (cf. e.g. HW^{2}: s.v., II2). For the same reason, *ḫatantiia* ‘at dry land’ (*nu* GIŠMÁ *māḫḫan kuitman ḫatantiia ārḫi* ‘until I arrive at dry land like a ship’, KUB 36.75+ iii 22, OH/MS, KUB 31.130+ rev. 6, OH/MS) is not included in the overview.

[32] [*takku*] LÚ.U$_{19}$.LU-*aš* DUGÚTUL-*i našma luliia paprezzi* ‘if a person is impure in a pot or in a vat/pool’ (KBo 6.2+ i 56, OS). Note the parallelism with the dat.-loc. DUGÚTUL-*i*.

[33] *šaniia uitti* ‘in the same year’ (KBo 3.22:10, OS), *šaniia šiuat* ‘on the same day’ (KBo 3.22:60, OS).

[34] *takīia* URU-*ri* ‘in another city’ (KBo 6.2+ i 7, OS).

[35] *nu* ÉRINMEŠ-*an takkaliet kuupit ubatiia* 20 ÉRINMEŠ *kuupit ubatiia* 30 ÉRINMEŠ *ā*[*šše*r?] ‘he surrounded the troops; here on the *u*. 20 men, there on the *u*. 30 men (stayed?)’ (KUB 36.100+ rev. 7, OS). The interpretation is not completely clear; for this interpretation cf. HEG (s.v.).

[36] *mān* DUMU-*aš* URU-*ri=pat* GIŠ*ḫalpūti* x[‘when the son in the city at(?) the *ḫ*. (…)’ (KUB 28.75 ii 1, OS).

[37] GIŠ*zaḫurti=šši kitta* ‘lies on his chair’ (KUB 36.104 rev. 5, OS); *zaḫurti* (KBo 38.12+ iii 9, OS, broken context). For GIŠ*zaḫurtiia* (OH/MS) as an allative rather than a dat.-loc., see n. 29.

Attested OS and OH/MS dative-locatives of *i*-stems and *iya*-stems (cont.)

stem	**lexeme**	**dat.-loc.**	
		-iya	***-i***
-ai/i-	*luttai-* 'window'	*luttiya*	OS[38]
	zašḫai- 'dream'	*zašḫeya*	OH/MS[39]
-ē/i-	*utnē-* 'land'	*utniya*	OS[40]
-iya-	*ḫantezziya-* 'first'	*ḫantezziya*	OS[41]

This overview reveals that *-iya* is the normal dat.-loc. ending of the relevant stem types in OS and OH/MS texts. The list of OS dative-locatives essentially consists of the examples of *-iya* mentioned by Hoffner & Melchert and Frantíková, which therefore do not constitute exceptional cases – on the contrary, clearly *-iya* was *the* dat.-loc. ending of these stems in OH times.[42] It may further be noted that the two lexemes showing the exceptional dat.-loc. *-i*, ^{GIŠ}*ḫalpūti-* and ^{GIŠ}*zaḫurti-*, are both generally regarded as loanwords (for ^{GIŠ}*ḫalpūti-* the source is also identifiable as Hattic).

All other instances of *-ī̆* are from a later period. This suggests that the ending *-iya* received some competition from the paradigmatically expected form *-ī̆* in later Hittite, when the lack of an overt ending was apparently

[38] [*ḫalmaššui*(*tti* 1-*iš* *lu*)]*ttiya* 1-*iš* *ḫattaluaš* GIŠ-*i* 1-*iš* [*luttiya*(*aš tapušza* 1-*i*)]*š šipānt*[*i*] 'he libates once at the throne, once at the window, once at the wood of the doorbolt, once next to the window' (KBo 17.11+ iv 32, OS, with OH/MS duplicate KBo 17.74+). Note the parallelism with the dative-locatives *ḫalmašuitti* and *ḫattaluaš* GIŠ-*i*. Five more occurrences of *luttiya* in identical or similar sequences are found in KBo 17.74 ii 5, 11, 23, iii 5, iv 39 (OH/MS).

[39] *naššu=mu* DINGIR-*YA* *zašḫeya* *mēmau* 'or let my god speak to me in a dream' (KUB 30.10 obv. 25, OH/MS).

[40] [*tak*]*ku* *utniya*=*ma uemiezzi* 'but if he finds it in the country' (KBo 6.2+ iii 59, OS).

[41] [*ḫantezziya*]*a* *šīyat* 'on the first day' (KBo 25.17 i 1, OS). For the restoration see Neu (1980: 50 n. 172), who adduces other instances of this collocation, e.g. [*ḫan*]*tezziya* *šīyat* (KUB 20.4 vi 1, OH/NS), *ḫantezziya* UD-*at* (KBo 21.33+ iv 16, 30, MH/MS).

[42] Cf. Neu (1974: 60-61) on the OH Anitta text: "(…) die alte Direktivendung *-a*, die jedoch bei den *ai*- (und *i*-)Stämmen zur "normalen" Dativendung geworden ist."

less universally regarded as problematic.[43] The fact that there are many *i*-stem lexemes that do not exhibit the ending *-i̯a* is, then, not because of lexical restrictions, but due to the limitations of our corpus: the overview suggests that these *i*-stems, too, had (or would have had) a dat.-loc. *-i̯a* in OH.

3.2 The origin of the dat.-loc. *-i̯a*

The origin of the dat.-loc. *-i̯a* is transparent. As was mentioned above (3), the dat.-loc. ending *-i̯a* is identical to the allative, *-i̯a*, where this shape is morphologically expected. The straightforward scenario is therefore that the allative form was in the relevant stem types used instead of the expected dative-locative form to express the dative-locative function. This is semantically unproblematic, as the domains of the allative and the dative-locative are very close. The motivation for this slight semantic stretch of the allative is also clear. The use of the allative form in dative-locative function is restricted to stems in *-i-*, *-ai/i-*, *-ē/i-* and *-i̯a-*. These share the formal feature that the oblique case endings attach immediately to a stem-inherent *-i-*. This formal distribution shows that the motivation behind the existence of the dat.-loc. *-i̯a* must be related to this formal feature, and it is not difficult to find it: the morphologically expected combination of the stem-inherent *-i-* and the dative-locative ending *-i* leads to a clash of identical phonemes. This was apparently so undesired that speakers preferred an alternative, which they found in the semantically close allative. This analysis is confirmed by the fact that the use of the allative form to express dat.-loc. function is conspicuously absent from the *i/ai*-stems (see 3): the oblique stem of this type does not have *-i-*, but *-a(i̯)-*, and thus it features a characterized dat.-loc. *-ai*.

[43] Frantíková (2016: 193) already noticed this trend for *utnē-* 'land', and there are several other lexemes in which both *-i̯a* and *-ī̆* can be found at later stages, e.g. *zašḫai-* 'dream', whose dat.-loc. *zašḫi̯a* varies with *zašḫī* in NH.

Frantíková's objections to such a scenario and her consequent aporia about the origin of the dat.-loc. *-i̯a* are unwarranted. She predicts that if the motivation behind the use of *-i̯a* instead of *-i* was to disambiguate, neuters should exhibit *-i̯a* more often, because they also have an identical nom.-acc.sg. in *-i* which adds to the ambiguity. However, in the scenario above, the only ambiguity that is being removed by the use of the allative form is that resulting from the clash of a stem vowel *-i-* with the dative-locative ending *-i*. The allative is used in order to have a dative-locative marker at all, rather than one that has disappeared due to the previous vowel. No disambiguation with other forms in the paradigm is implied in this explanation, so Frantíková's expectation that neuters would have shown the ending *-i̯a* more often does not apply. Neither is it a counterargument that OH already has examples of *-i̯a* in dat.-loc. function. Indeed, the allative could only be extended in function at a point in which it was still alive. Finally, the supposition that the dat.-loc. ending *-a* would have spread to other stems (Frantíková 2016: 191) is not justified, because these did not have the same formal problem which this form was created to solve.

The use of the dat.-loc. in *-i̯a* is at its peak in the oldest stage of Hittite, and only decreases with time. This means that the functional extension of the allative by which it arose must be placed in prehistory: in pre-Hittite.

4 The origin of the Luwic onomastic dative

From the investigation into the status of the Hittite dat.-loc. ending *-i̯a* in the previous section it is apparent that this ending must have come into being before our earliest records, meaning that it may be compared with Luwic data to see if it may be of Proto-Anatolian date. Since the *i*-stem type corresponding to the Hittite *i/ai*-stems was generalized in the Luwic appellative system, the main Luwic comparandum for the Hittite stems with *-i-* in the oblique stem, the locus of the dative-locative in *-i̯a*, are the onomastic *i*-stems. This leads us back to the identification in 2.4. The fact that we find exactly the ending **-i̯o* (Luwian *-i̯a*, Lycian *-ije*) shows that it was there already in Proto-Anatolian.

	PAnat.	**Hitt.**	**PLuw.**	**Luw.**	**Lyc.**
nom.	*-*is*	-*iš*	*-*is*	-*is*	-*i*
acc.	*-*im*	-*in*	*-*in*	-*in*	-*i*
dat.	*-*io*	-*i̯a*	*-*î̯o*	-*î̯a*	-*ije*
gen.	*-*ios*(°)	-*i̯aš*	*-*isso* << *-*î̯osso*	-*issa*	-*ihe*

For Luwic, the identification suggests that the dative of the personal name declension was inherited as such in the *i*-stems.[44] On the basis of Hittite (3.2), we now know that it was originally restricted to the *i*-stems, where it was borrowed from the semantically neighboring allative to remedy the clash of the -*i*- of the stem and the normal dative-locative ending -*i*. This suggests that the other Luwic onomastic stems received the ending *-*î̯o* analogically. Specifically, *-*is* : *-*in* : *-*isso* : *-*î̯o* = *-*Vs* : *-*Vn* : *-*Vsso* : X, which resolves into the reconstructable forms *-*āî̯o*, *-*oî̯o* and *-*uî̯o*. After the generalization of the ablauting *i*-stems in nouns and adjectives, the non-ablauting *i*-stems survived only in the onomastic system, especially personal names, and their isolated dative in *-*î̯o* had become one of their characteristics. Its spread to the other PN stem types, showing the embracement of this characteristic, created parallelism in what had probably been a mixed bag of forms (*-*ā*, *-*i*, *-*î̯o*, *-*ui*), leading to the unification of the PN declension pattern, which was realized in conjunction with the generalization of the *ā*- and *o*-stem pattern in the other oblique cases (2.4). That *-*î̯o* became characteristic of personal names, but not of toponyms, which would originally have had the same dat.-loc., may be understood from the much higher frequency of *i*-stems in personal names. In toponyms, *-*î̯o* was itself replaced with the *ā*-stem pattern, leading to *-*i*.

Of course, the morphological analysis had originally been *-*i*-*o*, with *-*î̯*- appearing only as an automatic glide, resulting in *-*î̯o*. The analogy suggests that this was reanalyzed as *-*i*-*î̯o*.[45] This reanalysis could easily happen in Luwic, where the form was no longer associated with an allative, causing the morphological boundary to become opaque. The analogy

[44] Cf. in essence already Laroche (1970: 32), Hajnal (1995: 93-94).

[45] For such a reanalysis cf. e.g. the Spanish 1-3sg.poss.pron. *mío*, *tuyo*, *suyo*, and similarly Neapolitan *mio*, *tuio*, *suio*, from an ancestral state as still found in Italian *mio*, *tuo*, *suo*, with generalization of the automatic glide after *i* in *mio*.

neatly explains the exceptional occurrence of intervocalic *-*i̯*- after other vowels than *-*i*-. It suggests that the **i̯* was phonemic, unlike in Proto-Anatolian. For Proto-Luwic, we can indeed reconstruct a contrast between **i* and **i̯*.[46] For example, the dative ending *-*Vi̯o* contrasts with *-*Vii̯o*-, which resulted from the addition of the appurtenance suffix *-*ii̯o/i*- to vocalic bases, as for example in Lyc. *adaije*- (to *ade*-, a unit of money), contrasting with the onomastic *a*-stem dative -*aje*. The **i̯* had probably been phonemicized through the development *$\acute{g}^{(h)}$ > **i̯* (> ∅), e.g. *$\acute{g}^{h}$*es-r*- 'hand' (Hitt. *keššar*) > CLuw. *i-iš-sa-ri*- (does *i*- still spell *i̯*-?), HLuw. *istri*-, Lyc. *izri*-.[47]

5 The Luwic dat.-loc. of *ii̯o/i*-stems

One other place in which we could potentially still find traces of the ending *-*ii̯o* in Luwic are the appellative *ii̯a/i*-stems (~ Hitt. *ii̯a*-stems). In Luwian, the usual dat.-loc. ending of *ii̯a/i*-stems is -*i* (e.g. HLuw. *tadi* 'to father's'), but it is often thought that there also was a variant -*ii̯a* (e.g. HLuw. *tadiya*). If this is correct, this variant could hardly be anything else than a direct cognate of the Hittite *ii̯a*-stem dat.-loc. ending -*ii̯a* (e.g. *ḫantezzii̯a*).[48] Its existence is not beyond doubt, however. The morphologically expected ending -*i* is by far the most frequent one in Luwian,[49] and similarly in Lycian the dat.-loc.sg. ending of *ije/i*-stems is -*i* rather than **-*ije* (e.g.

[46] Contra Kloekhorst's (2008b: 123-124) analysis of Lycian *j* as an allophone of *i*.

[47] Cf. also CLuw. *ku-um-ma-i-in-zi* = *kummai̯inzi*. Sequences of the shape **Vii̯V* seem to have been simplified to **Vi̯V* in Luwian. Cf. Lyc. *ebeija* (virtual *h_1ob^ho-ii̯eh_2*) vs. HLuw. *ápaya* (and likewise *zaya* < *$\acute{k}o$-ii̯eh_2*).

[48] Yakubovich (2015: § 6.2) analyzes the *ii̯a/i*-stems as partly contracting *a*-stems, and accordingly, the dative -*ii̯a* as containing the *a*-stem dative ending -*a*. This is certainly not correct: the *a*-stems (< **ā*-stems, Lyc. *a*-stems) should be kept separate from the *ii̯a/i*-stems (< **ii̯o/i*-stems, Lyc. *ije/i*-stems).

[49] The regular ending -*i* is sometimes seen as a contraction of -*ii̯a* (Hawkins 2000: 120, Yakubovich 2015: § 6.2). However, it can hardly be a coincidence that -*i* is also the morphologically expected form, resulting from a combination of the stem -*i*(*i̯*)- and the normal dat.-loc. ending -*i*. Indeed, the CLuw. spelling °*Ci-i* points directly to a preform *-*ii̯i*. The ending -*i* therefore rather results from morphological regularization: like in Hittite, the use of the morphologically aberrant form *-*ii̯o* was at some point no longer preferred over the use of the morphologically expected form.

ehbi, dat.-loc. of *ehbije/i-* ‘his, her’). We should therefore probably reconstruct this ending for Proto-Luwic. This renders the claim of a sporadic survival of *-*iḭo* in (late) Luwian *a priori* doubtful. Nevertheless, there are one or two quite plausible examples. One of the best candidates is *hudarliya* (*hudarliya/i-* ‘slave’s’) in *wa/i-t*[*a*$^{-a}$] |*z*[*a-ti*] *á-mi* ^{I}*á-lá/í-ia-za-sa-na HÁ+LI-sa-na* SERVUS-*la/i-ia* STATUA-*ru-ti*$^{-i}$ OVIS(ANIMAL)-*ti* PRAE-*i* (“*69”)*sa-sa-tu*$^{-u}$ ‘let them *present* to this my statue, (that) of Atayazas, servant of Hattusilis, with a sheep,’ (MALPINAR § 5; 8th c.; translation Hawkins 2000: 341): here *HÁ+LI-san* SERVUS-*liya* ‘Hattusili’s (dat.) servant’s (dat.)’ depends on and agrees with STATUA-*ruti* ‘statue (dat.)’. Another candidate is *tadiya* in *wa/i-ti*$^{-a}$ *pa-sa*$^{-a}$ *tá-ti-ia* DOMUS-*ni* |BONUS-*ia-ta* ‘She was good to/for/in her paternal house’ (KARKAMIŠ A23 § 11; 10th or early 9th c.; Hawkins 2000: 119, 120). If the interpretation of these forms is correct, they may indicate that Proto-Luwic still had *-*iḭo* (alongside innovative *-*iḭi*?).

6 The Luwian dat.-loc. of the genitival adjective

With the identification of the Hittite and Luwic *i*-stem paradigms above, the practice of using the allative ending in dative-locative function in stems in *-i-* reveals itself to be Proto-Anatolian. One unexpected side-effect of this is that it provides us with an explanation for the enigmatic Luwian dative of the genitival adjective.

c.	sg.	pl.
nom.	*-ass-is*	*-ass-inzi*
acc.	*-ass-in*	*-ass-inz*
dat.-loc.	*-ass-**an***	*-ass-anz*
abl.	*-ass-adi*	

The Luwian genitival adjective suffix *-assa/i-* is a regular *a/i*-stem in all respects except the dat.-loc. singular, which has the completely unexpected shape *-an* rather than *-i*. It was explained by Morpurgo Davies (1980: 135-137) as resulting from an analogy with the accusative and the plural: *-*ass-inz* : *-*ass-in* = *-*ass-anz* : X → *-*ass-an*. While this is plausible in

itself, it remains unclear why this analogy happened only in the genitival adjective, and not also in all other (*a/*)*i*-stems, and what triggered the analogy. Morpurgo Davies' assumption that it disambiguated the dat.sg. of the gen.adj. from the genitive in *-asi* can no longer be upheld in view of the secondary, dialectal character of *-asi* (Palmér fthc.), whereas *-an* goes back to Proto-Luwian.

A consensus is emerging that the only formally and etymologically plausible reconstruction of the genitival adjective is **-osio-*, an inflecting pendant to the IE gen. **-osio* (see e.g. Kloekhorst 2008a: s.v. *-aššа-*, Melchert 2012: 282, Sasseville 2018: 315). If we reconstruct the expected Proto-Anatolian paradigm of this suffix, crucially with a dative-locative **-o* after **-i-* in line with the analysis above, we end up with the following.

nom.	**-osios*
acc.	**-osiom*
dat.-loc.	**-osio*
abl.	**-osiodi*

After **-si-* > **-ss-* and the spread of the *i*-stem direct case endings, we get the following picture.

nom.	**-ossis*
acc.	**-ossin*
dat.-loc.	**-osso*
abl.	**-ossodi*

At this point, the **-i-* had been swallowed by the preceding **-s-*, leaving the remaining dative-locative ending **-o* isolated. Now the analogy proposed by Morpurgo Davies can be understood as an attempt to make sense of this **-o*. The dat.-loc. **-osso* was partly identical to its plural counterpart **-ossonts* (a Luwian adaptation of **-ossos*), but missed a final **-n* in comparison to the similar accusative pair **-ossin* : **-ossints*, which followed a familiar pattern. This scenario provides a motivation for the analogy, and explains its restriction to just this suffix. If the connection between the Luwian ending *-an* and the alternative dative-locative ending

*-*o* is accepted, its implication of a preceding *-*i*- definitively settles the reconstruction of the suffix on *-*osio*-.[50]

7 The Proto-Anatolian allative

The analysis above does not only shed light on the origins of the Luwic dative-locative in the onomastic inflection and in the appellative suffixes *-*i̯o/i*- and *-*osso/i*-, but also has consequences for our reconstruction of Proto-Anatolian, specifically for the reconstruction of the allative. Hitt. -*i̯a*, Luw. -*iya*, Lyc. -*ije* point to Proto-Anatolian *-*i-o* (*-*i̯o*), with -*o* on account of Lycian -*e*. Since this is originally the allative of stems in *-*i*-, it follows that the Proto-Anatolian allative ending was *-*o*.

Reconstructions of the allative have taken all shapes that Hittite -*a*, -*ā* could theoretically go back to (and even some to which it could not), most notably *-*o*, *-*eh₂* and *-*h₂e*, all of which still feature prominently in the literature, with *-*eh₂* topping the list. The most recent cases were made by Melchert (2017, for *-*eh₂*), and Villanueva Svensson (2018, for *-*h₂e*). Both regard the Lycian infinitive as the only inner-Anatolian evidence that has any bearing on the vowel quality of the allative, which they identify as *a* (Melchert 2017: 535, Villanueva Svensson 2018: 147).

Unfortunately, the infinitive ending cannot carry the weight it has been given. Problematically, according to the current communis opinio, this ending comes in no less than three shapes: -*ne*, -*na* and -*ni*, in decreasing order of frequency (for an overview see Serangeli 2019: 227-250). Although it is indeed quite likely that the allative ending is continued in

[50] In Lycian, the dat.-loc. *-*osio* > **-*Vhe* was simply replaced by the morphologically expected form, -*Vhi*. In this context, it is interesting to note that the secondarily inflected genitive has a paradigm nom. -*Vh*, acc. -*Vhñ*, dat.-loc. -*Vhe*. However, it is hardly possible for this to reflect the old dat.-loc. *-*osio*, since the nom. and acc. are analogical creations, and originally also had the shape *-*osio*. The reinterpretation of *-*osio* as a dat.-loc. that this presupposes may, however, suggest that there was a dat.-loc. *-*o* around – perhaps *-*osio* still existed in the gen.adj. at this point? Adiego (2010) rather proposes the *s*-stems as the model, which follow the same pattern (see 2.5.2).

the vowel of one of these formations,[51] it is on the basis of the infinitive data alone absolutely unclear whether it should be the one in *-ne* or the one in *-na*. Melchert (2017: 535; cf. already 1994: 325) speculates that *-na* continues the 'genuine' consonant stem ending, i.e. **-eh₂*, while *-e* was reshaped after the supposed *o*-stem ending, **-o-h₂*. This scenario is extremely problematic. Since the grammaticalization into an infinitive must have happened before Proto-Luwic, we expect it to have been chrystalized as such by Lycian times, and not to undergo any analogy on the basis of a continued analysis as an allative. Indeed, since Proto-Luwic, never mind Lycian, no longer featured the allative case, an innovation based on the allative is quite impossible at these stages. If the spread is supposed to have happened in pre-Proto-Luwic, some two millennia later we should expect any free variation to have been ironed out.

A priori, a much more likely scenario is that *-ne* and *-na* were made with different morphemes. This idea is strengthened by the existence of *-ni*, which clearly contains the dat.-loc. ending. It is further confirmed by the remarkable fact that almost all attestations of *-na* occur beside an occurrence of *-ne* in the same inscription, which strongly suggests that there was a synchronic distribution. Since there does not seem to be a phonetic distribution, it is likely that this distribution was functional. Unfortunately, our scarce data do not allow us to grasp the syntactic and semantic details. We cannot pretend to understand all details of TL 44a, which contains all cases of *-na* in unbroken context. At most, the restricted distribution of *-na* is itself noteworthy. Six out of seven attestations of *-na* occur in only two inscriptions, TL 44a (4x) and TL 29 (2x), which are also exceptional for containing a (military) narrative. This may not be coincidental. The function of *-na* may have been more in the realm of a participle or a verbal noun, perhaps comparable to the English *ing*-forms. This would make sense for a formation in *-a*, a suffix which among other

[51] The Luwic infinitive is based on the Proto-Anatolian verbal noun suffix continued in Hitt. *-u̯ar*, *-u̯aš* < **-ur*, **-uen-s*; in Luwian it has the shape *-una*, e.g. CLuw. *karš-una* 'to cut', HLuw. *ád-una* 'to eat'. On the basis of the parallel that Hittite offers (inf. *-anna* < **-ot-n-* + all., based on the verbal noun suffix *-ātar*, *-annaš* < **-ót-r*, **-ot-n-os*), and the general typological likelihood of the development of an infinitive from a form with allatival function (cf. e.g. Eng. *to* ...; see Heine & Kuteva 2002: 38, 247-248), an analysis as **-un-* plus the allative ending is quite plausible.

things is used to make abstract nouns, cf. e.g. *xñtawati-* 'king' ~ *xñtawata-* 'kingship'.[52] I would therefore tentatively interpret *-na* historically as *-*un*- plus the suffix *-*eh*$_2$-, used in the dative-locative ('in (the process of) …-ing'). Perhaps the form in *-a* was even directly based on the infinitive.

The upshot is that one simply cannot use *-na* to infer that the allative had *a*-character. If anything, the regular infinitive is that in *-ne*, which points to *o*-character. More importantly, however, since the morphological and syntactic details behind the variation in the shape of the infinitive are essentially unclear, both synchronically and certainly diachronically, we should let any conclusion based on the infinitive be overruled by the unambiguous evidence for the shape *-*o* provided by the onomastic dative. Indeed, we may use this evidence to conclude that the infinitive in *-ne* is the one that goes back to the allative.

The situation with the alleged extra-Anatolian comparanda is comparable. Many mutually exclusive putative remnants have been identified in other Indo-European branches. They cannot all be correct. The analysis above is clear evidence that the reconstruction must be *-*o*, and that reconstructions with *a*-character are incorrect. Villanueva Svensson's (2018: 148) assertion that "potential extra-Anatolian cognates come as "*-*ai*" (…), "*-*a*" (…), and "*-*ō*" (…)" which "seems to rule out reconstructions involving only *-*o* (…) or only *-*a* (…)" is a *non sequitur*: this would only be the case if the extra-Anatolian cognates pointing to *a*-character were compelling rather than only potential, and if better available evidence, namely in favor of *-*o*, which is somehow left out of the equation here, were not incompatible with *a*-character.

I will briefly discuss some of the main motivations for reconstructing *a*-character for the Proto-Anatolian allative. One of the most popular is Gr. χαμαί 'on/to the ground' (cf. Melchert 2017: 535). This is clearly not a form in -η or -α, but in -αι, with an -ι that has been analyzed as an additional locative ending. While the assumed accumulation of endings is not obvious to begin with, more importantly, this analysis means that the locatival

[52] Outside Anatolian, too, the suffix was used to create action nouns, cf. e.g. *b^h*ug-eh*$_2$- 'a fleeing, flight' (Gr. φυγή, Lat. *fuga*), derived from *b^h*eug-* 'to flee' (Gr. φεύγω, Lat. *fugiō*). Cf. also the Gr. infinitive in -να-ι < *-*neh*$_2$-*i* (cf. below and Rix 1992: 238).

semantics could be entirely due to the added -ι.[53] The same is true for the Greek infinitive in -ναι, which must also contain the locative ending -ι, attached to an ā-stem abstract noun (see Rix 1992: 238). Greek adverbs in -α such as ἀνά 'up along', ἅμα 'together', ἄντα 'over against, face to face', ἔνθα 'there', κατά 'down(wards) from', παρά 'from the side of',[54] etc., not only often do not have allatival meaning at all, but can also not be formally united with the Anatolian allative: in terms of reconstructions with *h_2, Gr. -α could only go back to *-h_2 or *-h_2e, whereas Hitt. -*a*, -*ā* would require *-eh_2 or *-oh_2. This can hardly be justified morphologically.[55] Moreover, a more straightforward and plausible interpretation is that Gr. -α goes back to the accusative ending *-*m̥* (cf. e.g. ἄντα 'over against' ~ ἔναντα 'opposite, over against', ἄντην 'against, over against'; κατά 'downwards' ~ Hitt. *kattan* 'downwards' < *$k̑mt$-*m*). Even more tenuous is the contention that the allative can be distilled from Hitt. *menaḫḫanda* 'against, opposite, before, facing' "< **menaḫ anda* 'in(to) the face'" and Lith. *žmogùs* 'man' "< *$d^hǵ^hm$-eh_2-g^w(h_2)*u*- 'one who walks on the earth'" (Kim 2012: 122-123 with lit.), or < "*$d^hǵ^hm$-oh_2a-g^wh_2u-" (Villanueva Svensson 2017: 135). The implied univerbation with an intact case form is

[53] It is in fact quite possible that the whole sequence -αι in χαμαί is analogical. An unexpected -α- also shows up in χαμᾶζε 'to the ground', the actual functional equivalent of the allative. The allative in -δε is normally built to the accusative, with -ζε resulting from the combination with the -ς of the accusative plural. However, an acc.pl. **χαμᾰ́ς does not exist. It is therefore likely that the element -αζε was taken over in its entirety from a source in which it was at home, such as the type of θύραζε and Ἀθήναζε (Chantraine 2009: s.v. χαμαί, Beekes 2010: s.v. χαμαί), or the other archaic word for 'earth', which made it to the historical period chiefly in the shape of the petrified allative ἔραζε 'to the ground'. The expected locative of the latter lexeme is *ἔραι, which may similarly have contributed to the creation of χαμαί. Whatever the correct scenario, it is clear that no sound argument regarding the allative can be based on χαμαί.

[54] Specifically, in order of frequency, '(+ gen.) from (the side of); (+ dat.) by the side of, at; (+ acc.) beside, along, past' (see LSJ: s.v.). Note that the meaning is not allatival.

[55] Note that the idea that Hitt. -*ā* would represent an *o*-stem variant "*-oh_2" is furthermore contradicted by the data: we only find -*ā* in *consonant* stems, whereas the *o*-stems only attest -*a*. It is very unlikely that such archaic paradigms as that of *kešša*r 'hand' (allative *kišrā*) and *tēkan* 'earth' (allative *taknā*), much less petrified allatives such as *parā* 'forward', took their allative endings from the *o*-stems (and this idea is indeed shown to be incorrect by the clear correspondences of *parā* < **pró*).

a rarely seen process, and more straightforward explanations should be preferred. Hitt. *menaḫḫanda* is rather to be analyzed as a compound of *mēna-* 'face' and *ḫant-* 'face, forehead' (see Kloekhorst 2008a: s.v., for *ḫanda* cf. also Kloekhorst 2010: 223-225). The formation of Lith. *žmogùs* 'man' is unclear, and even in the unlikely univerbation scenario the *-o-* element does not have an allatival meaning. The *-o-* also occurs in *žmónės* 'people', and may have a completely different origin (see Derksen 2014: s.vv.).

That the alternative analyses are to be preferred becomes even more evident in view of the positive evidence for **-o*. There is one relevant equation that all participants in the discussion (e.g. Melchert 2017: 530, Villanueva Svensson 2018: 139-140) regard as completely obvious: Hitt. *parā* ~ Gr. πρό ~ Skt. *prá* < PIE **pró* 'forward'. This is universally analyzed as the adverbial root **pr-* (also seen in Gr. περί, etc.) plus an element **-o*. This element is identified as the allative ending by Dunkel (1994, 2014 I: 154-161), followed by Kloekhorst (2008a: s.v. *-a*, *-ā*). Within Hittite, *parā* is indeed very clearly the allative of the adverbial stem *per-* / *pr-*, which is also found in Hitt. *per-an* 'before' (acc.), *par-za* '…-wards' (abl.), and in Luwic in Luw. *parī* 'forward', Lyc. *pri* 'forth, in front' (dat.-loc.).[56] In view of the obviousness of this example, it is unclear to me why anyone would prefer to dismiss it in favor of the uncompelling evidence for *a*-character.

Next to **pr-o*, more indications about the identity of the PAnat. allative can be found in other similarly adverbialized allatives, such as Hitt. *āppa* 'behind, afterwards, back, again, after' (other case forms in Hitt., CLuw. *āppan* 'behind, afterwards' = Lyc. *epñ* 'afterwards', HLuw. *ápi* 'back, again'), which cannot be separated from Gr. ἀπό 'away from' (cf. also ἄψ

[56] Similar complexes are found in a whole range of other inflected adverbial stems, for example **ser-* / **sr-* (Hitt. loc. *šēr* 'above', all. *šarā* 'upwards', dat.-loc. CLuw. *šarri* 'above', Lyc. *hri-* 'upper', instr.pl. Lyc. *hrppi* 'for'). Note that the anonymous reviewer *apud* Villanueva Svensson (2018: 148 n. 32) who suggested deriving "the hitherto unclear" CLuw. *šarra* 'up(on)' from **sér-h₂e* seems not to have consulted Kloekhorst 2008a (s.v. *šarā*), where the straightforward reconstruction **sér-o* is offered, with the geminate resulting from Čop's Law (cf. *šarri* 'above' < **sér-i*, from which the stem will have been taken analogically anyway, replacing older **sr-* as in Hitt. *šarā*).

'backwards, back again'), Skt. *ápa* 'away from' (cf. also *ápara-* 'posterior, later'), OHG *aba*, Goth. *af* '(away) from' (cf. also Goth. *aftra* 'again; back'), Lat. *ab* 'away from, since, after', PSlav. **po* 'after, by, at' < **h₂op-o* ~ **h₂ep-o* ~ **h₂p-o*. Another example is continued in Hitt. *anda* 'in(to), inwards', CLuw. *ānta* '(in)to', HLuw. *anta* '(with)in, in(to)', which directly match Lyc. *ñte* 'in(side)'. This again points unequivocally to PAnat. **-o*, which is further confirmed for PIE by OLat. *endo* 'in, on, to' < **h₁ndo*. An example of a petrified allatival adverb in **-o* that is not found in Anatolian is **up-o* (Greek ὑπό 'from under', Skt. *úpa* 'towards', OIr. *fo* 'under', Goth. *uf* 'under').[57]

Even on the basis of the extra-Anatolian comparanda alone, then, it was already likely that the allative was **-o*. The inner-Anatolian evidence now also clearly points to **-o*. The main piece of evidence is the testimony of the *i*-stem allative turned dative-locative **-i-o* (Hitt. *-iy̯a*, Luw. *-iy̯a*, Lyc. *-ije*). It is further confirmed by the allatival adverb Hitt. *anda*, CLuw. *ānta*, Lyc. *ñte* < **h₁ndo*, and by the regular Lyc. infinitive in *-ne* < **-un-o*.

Traditionally, the allative is not reconstructed for PIE, but this seems to be changing (cf. e.g. Fortson 2010: 117, Ringe 2017: 25-26, Kloekhorst & Pronk 2019: 4, Bauhaus 2019: 24-25). As an argument against an archaism one could object that the accusative seems to be an older device for expression allatival function, as in Lat. *eō domum* 'to go home', a construction that may well be taken to suggest that the accusative originated from the grammaticalization of an allative to a direct object marker (cf. Sp. *veo a Juan* 'I see Juan', with use of the allatival preposition *a* 'to'). However, this is not necessarily the right scenario. Although grammaticalization from an allative to a direct object marker is indeed a plausible development, the opposite is as well. The development from a direct object marker to an allatival marker is completely natural with verbs of going: as a direct object marker normally expresses what an action is directed towards, the combination with a verb of going naturally leads to a goal interpretation. Such a development happened for example in Modern Greek, cf. e.g. πάω σπίτι 'to go home', πάω Ελλάδα 'to go to Greece', πάω σουπερμάρκετ 'to go to the supermarket', etc. (see e.g. Holton et al. 2012:

[57] A curious further potential comparandum is Gr. δεῦρο 'hither', whose further etymology is, however, unclear.

335). Like in Greek, where direction is more usually expressed with the preposition σε 'to; in', the PIE accusative of direction, which is also marginally attested in Hittite (Hoffner & Melchert 2008: 248-249), may always have been a marginal phenomenon.[58]

In my view, the PIE formations with petrified allatives such as **pr-o*, **h_2p-o*, **up-o*, etc., can only have been formed when the creation of such allatives was productive. The state of affairs in non-Anatolian IE therefore already suggests that there once was a more vigorous allative. Since no non-Anatolian language shows any evidence for this case except for remnants in petrified adverbs, the stage in which the allative was a regular case must predate their common ancestor, in which it had been lost as such. The fact that we find a vigorous allative of exactly the right shape in Hittite can hardly be interpreted in any other way than that Anatolian descends from this earlier stage in which the allative still was a vigorous case. The allative is therefore an argument in favor of the Indo-Anatolian hypothesis.

8 Conclusions

We can draw the following conclusions. In Luwic, the inflection of proper names differs significantly from that of appellatives. In essence, this can be traced back to differences in the frequency of certain stem types, leading to different models for analogy in names and in appellatives. In names, the *ā*-stems were the most frequent type, followed by the *o*-stems. The genitives and ablatives of the less frequent *i*-stems and *u*-stems took on the pattern **-V-di* and **-V-sso* after **-ā-sso*, **-ā-di* and **-o-sso*, **-o-di*. Similarly, the *ā*-stem dative-locative **-ā* led to the creation of equivalents of the shapes **-o*, **-i* and **-u*. These endings remained mainly in locatival

[58] Another critical thought could be that spatial cases can easily be secondary, as for example in Baltic. While the allative could indeed in principle have been secondary, and must of course have come into being at some point in time, the remnants in non-Anatolian IE clearly favor a scenario in which the allative did already exist in PIE but was lost on the way to the common ancestor of non-Anatolian IE. Baltic also offers a parallel for the opposite development, by which an allative case was lost as such and only survived in scattered remnants. For example, the Old Lithuanian allative in *-p* survives only in a few petrified expressions in Modern Lithuanian, such as the adverb *vakarop* 'towards the evening'.

function, since personal names, in which the *i*-stem type was more frequent than in toponyms, generalized the pattern of the *i*-stem dative-locative *-*i̯o* to create *-*āi̯o*, *-*oi̯o* and *-*ui̯o*. This dative-locative had become a characteristic of names after the non-ablauting *i*-stem type was annihilated in appellatives due to the generalization of the proterodynamic *i*-stems. The *i*-stem dative *-*i̯o* has an exact counterpart in the Hittite *i*-stem dative-locative -*i̯a* (e.g. *kumarbi-*, dat. *kumarbi̯a*). Hittite reveals that this is originally the allative ending which was used to avoid the unfortunate combination of a stem formant -*i*- and the dative-locative ending -*i*, namely in non-ablauting *i*-stems, in *ai/i*-stems (*ē/i*-stems) and *i̯a*-stems (significantly not in *i/ai*-stems or any other type of stem). Traces of this process may further be found in the Luwian *i̯a/i*-stems (e.g. *tadiya* 'father's (dat.)'), and in the Luwian gen.adj.dat.-loc.sg. *-assan* << *-*assa* < *-*osio*. The fact that Lyc. -*Vje* < PLuw. *-*Vi̯o* can be traced back to the PAnat. *i*-stem allative *-*i-o* shows that the PAnat. allative was *-*o*. This confirms that the regular Lycian infinitive in *-ne* is the one corresponding to Luwian *-un-a* (< *-*un-o*); the formation in *-na* may rather belong to a verbal noun in *-*eh₂*-. The fact that the petrified remnants in other IE languages such as **pr-o* (Gr. πρό = Hitt. *parā*, etc.) presuppose that there once was a vigorous allative case in *-*o*, which was lost as such before their common ancestor, combined with the fact that we find a vigorous allative of exactly this shape in Anatolian, suggests that Anatolian split off at an earlier stage than the rest. The survival of the allative case in *-*o* is therefore an additional argument in favor of the Indo-Anatolian hypothesis.

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CHAPTER 3

The distribution of *-a-* and *-e-* in the Lycian genitival adjective suffix

Abstract: The Lycian genitival adjectival suffix A *-Vhe/i-*, B *-Vse/i-* is attested both with *-a-* and with *-e-*. The present treatment suggests that the main principle behind this variation is morphological, and tries to determine the default variant for each stem type, as well as to find explanations for the seeming exceptions. Lycian A and B are treated separately, but give comparable results. The ultimate origin of the suffix is argued to have been **-osio(-)*, which directly accounts for the variant with *-e-*. The variant with *-a-* is its counterpart in the *a*-stems. Some additional light is shed on the workings of Lycian vowel assimilation processes.[1]

1 Introduction

The normal way of expressing a genitival relationship between nouns[2] in Lycian is by means of a genitival adjective (gen.adj.), inflected to agree with the head noun, which is formed with a suffix of the shape *-ahe/i-* or *-ehe/i-* in Lycian A, and *-ase/i-* or *-ese/i-* in Lycian B.[3] For example, the

[1] I would like to thank Zsolt Simon, Alwin Kloekhorst, Kate Bellamy and Chams Bernard for their comments on earlier drafts of this paper.

[2] Proper names normally rather use a genitive. However, the declension of nouns and adjectives sometimes spills over to proper names, and I have included here the occurrences in which this is the case.

[3] In this chapter the notation *-e/i-* refers to the combination of a neuter gender *e*-stem paradigm and a common gender *i*-stem paradigm (more commonly called "*i*-mutation paradigm"), found in virtually all adjectives. This contrasts with the alternative combination of a neuter gender consonant stem paradigm and a common gender *i*-stem paradigm, noted *-C(i)-*, e.g. *km̃mẽt(i)-* 'how(ever) many' (c. *km̃mẽti-*, n. *km̃mẽ*) – although see 4.2.1 for a refinement of this statement. In nouns, common gender *i*-stems are here noted with *-i-* (e.g. *ẽni-* 'mother') rather than with *-e/i-* and *-(i)-*, as there is no difference between these types. For an elaboration on these choices see Chapter 1.

gen.adj. of Lyc. A *xssadrapa* 'satrap' is *xssadrapahe/i-* 'of the satrap'. The variation found in the suffix vowel, *-a-* or *-e-*, has so far not been well understood. This chapter will address this issue in detail.

2 Earlier interpretations

2.1 *-a-* and *-e-* as phonetic variants

The two variants of the suffix have sometimes been treated as phonetic variants without any further differentiation on a morphological level.[4] This is true for Lyc. *a* and *e* in general, which were not only until relatively recently assumed to go back to one Proto-Anatolian phoneme corresponding to Luwian and Hittite *a*, but have also for a long time been known to be subject to umlaut rules that cause some wavering between the two. Specifically, *a* > *e* before the front vowels *e* and *i* (*i*-umlaut), and *e* > *a* before the back vowels *a* and *u* (*a*-umlaut). For instance, the gen.adj. of *atla-* 'self' is attested both as *atlahi* and as *etlehi*. In the latter case, *i*-umlaut must have been active, affecting even the radical vowel *a*.

It has sometimes been assumed that *-a-* was the original vowel of the suffix. Initially this assumption was based only on the general correspondence of Lyc. *a* ~ *e* with Luw. and Hitt. *a*. In the case of the gen.adj. suffix, cf. the Luwian equivalent *-assa/i-* (CLuw. *-aššа/i-*, HLuw. *-asa/i-*).[5] But the original status of *-a-* has been defended even after it had become known that Lyc. *a* and *e* in principle continue different Proto-Anatolian phonemes (most relevantly **ă̆* and **ŏ̆*, respectively, see Melchert 1992). Melchert (1994: 77), for instance, used the supposed original *a*-vocalism of the suffix as an argument to uphold the suspected connection with the Latin suffix *-ārius*, explaining all forms with *-e-* as the result of *i*-umlaut, e.g. **ẽnahi* > *ẽnehi* 'of the mother (*ẽni-*)' (Melchert 1994: 296). Melchert (2012) retracted this in favor of a morphological

[4] Cf. e.g. Neumann (1969: 383-384).

[5] Cf. e.g. Houwink ten Cate's (1961: 55) citation of the suffix as *-ahi-*, after a comparison with the Luwian suffix.

distribution, but the idea that the distribution of *-a-* and *-e-* does not correlate with any morphological feature is still found today.[6]

2.2 *-a-* and *-e-* as morphological variants

Although umlaut undeniably plays a role in the variation between *-ahe/i-* and *-ehe/i-*, from early on it has also been stated that there is some correlation of these variants with the stem type of the base noun, viz. of *-ahe/i-* with *a*-stems and of *-ehe/i-* with *i*-stems. Meriggi (1928: 413-414), for instance, notes that "i temi in *-a* mantengono la vocale tematica ed hanno quindi più spesso la desinenza *-ahi*, mentre i temi in *-i* l'alterano in *e* ed hanno di regola la desinenza *-ehi*. Queste due desinenze *-ahi* ed *-ehi* si scambiano però di frequente, come in generale *e* ed *a*, oppure *ê* ed *â*, in licio." He attributes the interchange of *-a-* and *-e-* to *i*-umlaut on the one hand (*-ahi* > *-ehi*), and analogy on the other (*-ahi* with *i*-stems).

Hajnal (2000: 170-171) finds support for a general correlation with the stem type in a collection of relevant occurrences. Apart from *-a-* correlating with *a*-stems and *-e-* with *i*-stems, he also finds *-a-* with consonant stems and with some *i*-stems which were originally *o*-stems.[7] Recently, Sasseville (2018: 314-316) has proposed that *-ahe/i-* is used with *a*-stems and *i*-stems which were originally consonant stems, whereas *-ehe/i-* is used with *i*-stems which were originally *o*-stems, as well as with collectives.[8]

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[6] Cf. e.g. Neumann (2007: 17, s.v. *apuwazahi*): "Das Suffix *-ahi-* erlaubt keine Aussage, ob der Stammauslaut *-a-* oder *-i-* gewesen ist".

[7] Specifically, Hajnal offers the following analyses (notations his): *-a-* with consonant stems in *pddãtahi* (*pddãt-* 'place'), *xñtawatahi* (*xñtawat(i)-* 'king'), Lyc. B *Trqqñtasi* (*Trqqñt-* 'Storm-god'), *-a-* with *o*-stems in *Sppartalijahe* (*Sppartali(je)-* 'Spartan'), *uhahi* (*uhe/i-* 'year'), Lyc. B *Xbadasi* (*Xbade/i-* TN). All of these will be treated below, except *Sppartalijahe*, which is better analyzed as belonging to **Sppartalija-* 'land of Sparta' (Melchert (2004: 59) interprets it as a genitive; Sasseville (2018: 314 n. 34) as a dative-locative plural of **Sppartalijaha-*); its base is unattested in any case.

[8] Sasseville mentions for *i*-stems continuing *o*-stems (notations his): *ẽnehe/i-*/*ẽnese/i-* (*ẽne/i-* 'mother'), *esbehe/i-* (*esbe/i-* 'horse'), *xñtawatehe/i-* (*xñtawate/i-* 'king'), *prñnezijehe/i-* (*prñnezi(je)-* 'house servant'), *telẽzijehe/i-* (*telẽzije-* 'army'), *kbijehe/i-* (*kbi(je)-* 'another'); for *i*-stems continuing consonant stems: *pddãtahe/i-* (*pddãt(i)-* 'place'), *uhahe/i-* (*uh(i)-* 'year'), *xθθãnahe/i-* (*xθθan-* '?'), along with the preserved consonant stem *trqqñtase/i-* (*trqqñt-* 'Storm-god'). He uses this distribution to

Hajnal uses the occurrence of *-a-* in other types than *a*-stems as an argument in favor of the original status of *a*-vocalism for all stems, supporting the connection with Lat. *-āriu̯s*, with *-ehe/i-* or *-ese/i-* resulting from analogy after the stem vowel of the base. Kloekhorst (2008a: 216) and Yakubovich (2008: 195), however, note that if there is a correlation with the stem type, it could just as easily be attributed to the opposite analogy, in which **-eh₂-* or **-ă̆-* replaced **-o-* after the stem vowel of the base noun. Both favor a shared origin with a PIE *o*-stem genitive: Kloekhorst with **-osio* (Skt. *-asya*, Gr. *-o-jo*, -οιο, OLat. *-osio*, Arm. *-oy*), Yakubovich with **-oso* (Gr. -ου). Such an origin and analogy had already been proposed by Pedersen (1898-1899: 88).[9]

3 Outline

The distribution of *-a-* and *-e-* in the gen.adj. suffix is still quite unclear. First, not everyone seems to be convinced that there is any systematic distribution, the only factor at work allegedly being phonetic and haphazard in nature. This view can be abandoned right away in view of Hajnal's (2000) collection of forms, which shows that there is at least some relation to morphology, as had been claimed before. Additionally, the morphological significance of the vowel difference is confirmed by a minimal pair: *xñtawatehi* 'of the king' (to *xñtawati-*) and *xñtawatahi* 'of the kingship' (to *xñtawata-*). Those who do believe there is a pattern assume a general tendency for the vowel to correlate with the stem of the

interpret *xbad(i)-* 'river-valley' (gen.adj. *xbadase/i-*) and *al(i)-* '?' (gen.adj. *alase/i-*) as former consonant stems, and *-(w)ñne/i-* (ethnicon suffix, gen.adj. *-ñnehe/i-*) and *miñte/i-* (gen.adj. *miñtehe/i-*) as former *o*-stems. For *-ehe/i-* with collectives he mentions *uwehe/i-* (*uwa-* 'bulls, cattle') and *ehetehe/i-/esetese/i-* (*ahata-* 'peace'). All of these examples will be discussed below.

[9] He considered the gen.adj. to be a derivation of the genitive in *-h(e)*, about which he remarks: "Dette kan være den indoevr. Endelse for *o*-Stammerne *-sjo* … og endelig må Endelsen *-he*, *-h* fra *o*-Stammerne være overført til andre Stammer (f. Eks. *i*-Stammerne).", i.e. "This can be the IE *o*-stem ending *-sjo* … and finally the ending *-he*, *-h* may have been transferred from the *o*-stems to other stems (for example the *i*-stems).".

base noun, but the exact assumed correlations differ. It is the purpose of the remainder of this chapter to refine our understanding of these patterns.

The existing accounts can be improved upon in several respects. First, some new inscriptions and improved interpretations have become available since Hajnal's (2000) collection.[10] Moreover, rather than a treatment per suffix form, the course which has been taken so far, we would like to have synchronic rules indicating which stem in principle takes which form of the suffix, as well as systematic explanations of the exceptions to these rules. Furthermore, the historical split in *i*-stems that Hajnal and Sasseville observe is disconcerting and needs further scrutiny. Finally, Lycian A and B should be treated separately. Even though they are closely related, their synchronic rules cannot be assumed to have been the same.

In order to determine the relationship between the form of the gen.adj. and the stem form of the base as carefully as possible, it is necessary to take as a starting point those attestations of the gen.adj. whose bases have a stem type that can be determined with certainty or at least extreme likelihood on the basis of attestations. In what follows, I will therefore collect all forms of the gen.adj. suffix whose base is attested, ordering them according to the stem vowel of the base, and try to formulate rules. All apparent exceptions to these rules will be discussed. For determining the impact of umlaut it will be useful also to include the token frequency of the gen.adj. rather than type frequency only. After the assessment of the synchronic rules (4-6), I will also address the question of how we can best interpret the results historically (7).

[10] Most importantly, Hajnal's collection was based on Melchert 1994, of which an improved edition appeared in 2004. The most noticeable addition to the corpus is N337, which contains new instances of *xñnahi*, *teθθi*, and *ẽnehi*, as well as the first unambiguous Lyc. A instance of *xugahe/i*-, corresponding to Lyc. B *xugasi* (on which see 6).

4 Lycian A: attestations, rules and exceptions

4.1 Nouns

4.1.1 *a*-stems (c.)

The following attested *a*-stem nouns have attested gen.adj. forms.[11] Unless indicated otherwise, the listed gen.adj. forms are hapaxes. For the sake of completeness I also add nom.-acc.pl.n. forms in *-aha*, but in brackets, because these are not informative. There are no occurrences of **-*eha* in Lycian A, meaning that *a*-umlaut works without exception here, and the form always comes out as *-aha* irrespective of the stem vowel of the base noun.[12] The attestations are the following:[13]

	-ahe/i- (31)	***-ehe/i-*** (6/7)
	(19)	
arκκazuma- '(PN/title)'	*rκκazumahi*, (*rκκazumaha*)	
mahana- 'god'	*mahanahi*, (*mahãnaha*); *mahanahi* (subst.)	
pedrita- 'Aphrodite'	*padritahi* (subst.)	
qla- 'precinct(?)'	*qlahi* (13)	
xñtawata- 'kingship'	(*hri-*)*xñtawatahi*	
xssadrapa- 'satrap'	*xssadrapahi*	
	(12)	(2/3)
atla- 'self'	*atlahi* (7), *atlahe*	*etleh*[*i*]
malija- 'Athena'	*malijahi* (4)	*malijehi*, *malijehe*? (subst.?)
		(4)
wawa-, *uwa-* 'cow'		*uwehi* (4) (subst.?)

[11] For the places of attestation, as well as the exact determinations, as far as known, see Melchert 2004 and Neumann 2007.

[12] When *-aha* is the only form in which the gen.adj. is attested, I have not added the lexeme to the list. The forms thus excluded are *arñnaha* (*arñña-* 'Xanthos') and *zaxabaha* (*zagaba-* 'Lagbos').

[13] A third form of the suffix is found in *laθθi* 'in-law' (subst.), to *lada-* 'wife', syncopated from **ladVhi*. The quality of the vowel has been lost along with the vowel, and the word therefore cannot help us further here.

Out of nine attested lexemes, six show only *-ahe/i-* (with a total of 19 occurrences), two show both variants, and one consistently shows *-ehe/i-*. In the two lexemes that show both, the form with *-a-* is more frequent: in the case of *atla-* we find *-a-* eight times and *-e-* only once; for *malija-* we find *-a-* four times next to *-e-* twice. The clear preponderance of *-ahe/i-* indicates that this is the morphologically regular form for *a*-stems, and that the forms with *-ehe/i-* are exceptions. The rest of this section will be devoted to scrutinizing these exceptions.

For *etlehi*, an explanation of the occurrence of *-e-* readily presents itself (cf. 2.1), because this form also shows the change *a* > *e* in the vowel of the root. This can only be due to *i*-umlaut, meaning that the morphologically aberrant *-e-* of the suffix likewise has to be attributed to the same process.

For *malijVhe/i-*, Sasseville (2018: 315) assumes that the occurrence of the variant with *-e-* is related to substantivization and lexicalization, and posits a neuter noun *malijehe-* 'temple of Malija', comparing Gr. Ἀθήναιον 'temple of Athena'. This interpretation was also considered by Neumann (2007: 193), who compares *pttara malijehi* (TL 44a, 43) 'in Patara, in the Malija-temple(?)' with *padritahi arñna* (TL 44b, 53) 'in the Aphrodision, in Xanthos'.[14] Lexicalization would be a good explanation for a stronger resistance to analogical restoration of the stem vowel after it had been umlauted (see the discussion of *uwehi* below, and cf. perhaps *laθθi* in n. 13).[15]

This leaves *uwehi*, which stands out in not having a variant with *-a-*. Occurring four times, it rather seems that *-e-* was the inherent vowel of this word.[16] Sasseville (2018: 314) assumes that the suffix variant *-ehe/i-* is regular if the gen.adj. belongs to a collective, and so regards it as belonging specifically to the collective *uwa* 'cows' rather than to the basic lexeme *wawa-*/*uwa-* 'cow'. In my opinion, this is *a priori* unlikely given that the collective ends in *-a*. The contexts in which *uwehi* occurs also do not

[14] The appurtenance of *malijehe* (TL 26, 12) is unclear; it may belong here, or be the gen.sg. of *malija-*.
[15] Of course, not even lexicalizations are immune to analogical pressure, as *padritahi* and *mahanahi* exemplify.
[16] The form [*u*]*wahe* featuring in Hajnal 2000 is better interpreted as part of a gen. of a proper name, *pu*[*nam*‖*u*]*wahe* (see Melchert 2004: 102, Neumann 2007: 292).

necessarily point to this particular interpretation.[17] A closer look at the contexts rather suggests a different explanation. In TL 22, *uwehi* is part of the title(s?) of Hrixttbili, who was a *mahanahi uwehi*. In TL 92, we find a tomb made by [.]*urttija*, who is further designated as *mahanahidi axã*[*t*]*i uu̯ẹhi*.[18] The word also occurs twice in TL 29 (3, 4), in a much less clear context. But again, one instance is paired with *axãti* (here in the form *axuti*), which suggests that its use in this inscription is similar to that in the other two. Although its connection with *wawa-* 'cow' is not in question given the parallel *axãti : esbe*[*h*]*i* (TL 128, 1), which features the gen.adj. of *esbi-* 'horse',[19] the collocations in which it occurs, especially with the derivations of *mahana-* 'god', as well as its use in or as a title, suggest that *uwehi* was specialized as a priestly designation, or a part thereof. In its co-occurrence with 'priest' (*mahanahi*), Melchert (2004: 78) interprets it as an epithet meaning 'who oversees a cattle sacrifice'. Neumann (2007: 413) analyzes it as substantivized ('the one of the cattle herds', i.e. 'the one responsible for the cattle herds'). Its specialized, perhaps even substantivized, but at least probably lexicalized status may well explain its deviant vowel pattern. Because of their defining separation from the base paradigm, lexicalizations often contain forms that deviate from the synchronic rules, preserving the regular form of an older stage of the language. There are two ways in which this may be true in this case. The first possibility is that we are again, just like Sasseville (2018: 315) proposed for *malijehe-*, dealing with an unrestored umlauted variant. A second possibility is that it is a morphological archaism. From a historical point of view, the *a*-stem *wawa-* is secondary. PIE had a *u*-stem **$g^{w}eh_{3}$-u-* (Gr. βοῦς etc.), which survived as such in Proto-Anatolian (Hitt. GUD-*u*-), and then regularly became an *i*-stem in Proto-Luwic (still Luwian *wawi-*:

[17] For a discussion of the original argument to regard *-ehe/i-* as regular with collectives, see 4.4.

[18] Following Kalinka (1901: 71), the existing editions have *u*[*we*]*hi*, implying that *w* and *e* are completely illegible. If Kalinka's accompanying drawing is accurate, however, what little is left of the vowel leaves no doubt that the form is *uwehi* (*uu̯ẹhi*) and not ***uwahi*: .

[19] For this word and its stem formation, see 4.1.2 with footnote.

CLuw. GUD-*iš*, HLuw. (BOS.ANIMAL)*wa/i-wa/i-*).[20] It may therefore be the case that the lexicalization *uwehi* preserves the gen.adj. that belonged to the older form **wewi-* rather than to the innovative *a*-stem *wawa-*.

For *a*-stems we may safely conclude that *-ahe/i-* is the paradigmatic form of the suffix. While in general it may be said that *i*-umlaut can account for the occasional occurrences of the variant *-ehe/i-*, it should be specified that only one attestation of *-ehe/i-*, viz. *etlehi* (against eight attestations of expected *atlahe/i-*), clearly occurs in the inflectional gen.adj. function and can therefore be attributed to the synchronic workings of umlaut. In the two other lexemes with a variant *-ehe/i-*, we seem rather to be dealing with lexicalizations: *malijehe-* quite possibly designates the 'temple of Malija' and *uwehi-* is (part of) a priestly title. The occurrence of *-e-* specifically in lexicalizations suggests that it is an archaism which resisted later restructuring. For *uwehi-*, the gen.adj. of a former *i*-stem, we may either be dealing with a morphological archaism, or with preserved umlaut, and the latter is the most likely option for *malijehe-*. This suggests that *i*-umlaut used to be more pervasive, but was regularly restored in the inflectional gen.adj. to align the vowel with the *-a-* of the stem of the base.[21]

4.1.2 *i*-stems (c.)

The following attested *i*-stem nouns have attested gen.adj. forms. The same considerations and systematicity as for the *a*-stems above apply.[22]

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[20] On the regularity of the change from consonant stems to *i*-stems in (pre-)Proto-Luwic, and the fact that this word effectively belonged to this type due to its consistently consonantal **-u̯-*, as well as on the productivity of *a*-stems in Lycian, see Chapter 1.

[21] The analysis of the absence of *i*-umlaut as resulting from restoration leads to a reverse chronology compared to Hajnal's (2000: 170) claim to the effect that *a*-umlaut is older, and *i*-umlaut is still in development. Rather, apart from the occasional exception (*etlehi*, and cf. [*er*]*ewezijehed*[*i*] in n. 29), *i*-umlaut seems no longer to have been active and its effects were regularly restored, at least paradigm-internally, whereas *a*-umlaut was an active process, not allowing for restoration of *-aha* to morphologically expected **-eha*.

[22] Here, too, we find a syncopated form with *-θθ-*: *teθθi* (to *tedi-* 'father'). Excluded for only being attested in the nom.-acc.pl.n. is *ttaraha* (to *t*(*e*)*teri-* 'city').

	-ehe/i- (16)	***-ahe/i-*** (2)
ẽni- ‘mother’	*ẽnehi* (3)	
ertẽmi- ‘Artemis’	*ertemehi*	
esbi-[23] ‘horse’	*esbehi*; *esbehi* ‘(PN?)’	
miñti- ‘a supervisory authority’	*miñtehi* (2), (*miñtaha* (4))[24]	
prñneziji-[25] ‘household member’	*prñnezijehi* (6)	
xñtawati- ‘king’	*xñtawatehi* (2), (*xñtawataha*)	
uhi- ‘year’		*uhahi* (2)

With six out of seven lexemes consistently (in all 16 attestations) showing the variant *-ehe/i-*, we can safely conclude that *-ehe/i-* is the morphologically regular gen.adj. suffix variant for *i*-stems.

The one deviating lexeme, *uhi-* ‘year’, is also consistent, showing the variant *-ahe/i-* in both of its occurrences. It should be noted that it is not completely certain that this noun was an *i*-stem. The only form securely belonging here is *uhi*, probably a dat.-loc.sg., which does not exclude *a*-stem or (neuter) *e*-stem inflection. However, *i*-stem inflection is the most likely option in view of the Luwian equivalent *ussi-* (CLuw. *ušši-*, HLuw. (“ANNUS”)*usi-*). Lycian did transfer some nouns from the *i*-stems to the *a*-stems, but the only secure examples refer to animate beings (*xawa-* ‘sheep’, *wawa-* ‘cow’ and probably *kbatra-* ‘daughter’, *atla-* ‘person, self’, *mahana-* ‘god’, see Chapter 1), meaning that assuming a transfer in this case would also mean assuming a deviation from this pattern. If the form *uhe* (TL 65, 15) is to be identified as the dat.-loc.pl. of ‘year’, it would all but rule out an *a*-stem (cf. 4.4 on the isolation of *-e* for *a*-stems). A neuter *uhe-* would be an unexpected mismatch to Luwian *ussi-*. In the current state of attestation, the best assumption is therefore that the word was *uhi-*.

[23] The only attestation of the base (abl. *esbedi*) and the undoubtedly common gender leave *esbi-* as the only realistic stem formation. Other stem forms which are more often assumed, most prominently *esbe-* and *esb-*, do not correspond to regular Lycian common gender noun declension types (see Chapter 1).

[24] We also find two forms with contraction: *miñta*, whose preform must have been **miñtaha*, and *miñte*, probably from **miñtehe*.

[25] More commonly noted *prñnezi(je)-*, which more accurately represents the fact that the *-i-* of the direct cases merged with the preceding *-i(j)-* inherent to the suffix.

Sasseville (2018: 315) explains the occurrence of *-ahe/i-* as resulting from *uhi-*'s former status as a consonant stem (PIE **uet-es-*), comparing the supposed former *nt*-stem *pddãti-* 'place' (gen.adj. *pddãtahe/i-*). A distinction in the *i*-stems between former consonant stems and former *o*-stems would be highly remarkable. The merger that blurred this distinction took place in pre-Proto-Luwic, meaning that Lycian would have preserved an unmotivated distinction for at least 1500 years, from pre-Proto-Luwic onward, only in one grammatical category that is otherwise very productive and prone to analogy (cf. the near-absence of *i*-umlaut in *a*-stems). Indeed, I do not think the evidence can sustain the proposed rule. The word for 'place' suffers from the same defective state of attestation as does *uhi-*: the only securely attested case is the dat.-loc.sg. *pddãti*, meaning that the exact stem form cannot be determined. It is possible that the word was rather a neuter *nt*-stem (see 4.1.4). The rule would then rest only on *uhi-* → *uhahe/i-*. This example, however, contradicts the rule more than it supports it. PIE **uet-es-* cannot be the direct ancestor of PLuw. **ussi-*: even if we assume that **-ss-* can come from **-ts-*, PIE **uet-es-* is a neuter noun, PLuw. **ussi-* is not. The change of gender is probably to be attributed to suffixation. This is also favored by the stem form, which does not occur as such in the inflection of the *s*-stems. This suggests that the preform was rather **ut-s-o-* (for a similar process cf. Skt. *vatsará-* m. 'year').[26] I therefore conclude that the *a*-vocalism of *uhahi* has to be explained in another way.

The contexts in which *uhahi* occurs may provide further clues. In TL 43, it is part of the appositional titular string *trijatrbbahi pñnutahi uhahi*. As both other words are obscure, except for apparently also being genitival adjectives (so probably all of them are substantivized), so is *uhahi* in this context. In this case, it is not even clear that it refers to 'year', although it is formally probable. In TL 40c, 7-10, *uhahi* occurs in the context *erawazija ebe*[*ij*]*a m=e prñnawaxã 10 uhahi ḷiti ahãmadi arñṇadi* 'this

[26] Conversely, of the *i*-stems showing *-ehe/i-*, *miñti-* and *xñtawati-* are usually thought to go back to consonant stems, although admittedly neither really has a clear history. See also the provenance suffix *-ñne/i-*, which had a consonantal neuter in Proto-Anatolian and Proto-Luwic, but has a gen.adj. *-ñnehe/i-* in Lycian. In this case, however, the suffix seems to have been thematicized in pre-Lycian (see 4.2.1).

monument I built at/for a *hiti* of 10 years from/with the Xanthian *ahãma*'. Although not all aspects of this sentence are equally clear, what is clear is that *uhahi* is preceded by a plural numeral,[27] and must accordingly have a plural interpretation. The possibility arises, then, that this fact and the *a*-vocalism are related. The vocalism may stem from a collective, **uha*. Compare the collective *uwa* 'cows', both attestations of which occur after plural numerals (*ãm̃mãma kbisñtãta uwa* TL 111, 4, *nuñtãta am̃mãma uwa* TL 131, 3-4).[28]

4.1.3 *e*-stems (n.)

The following attested neuter *e*-stem also attests a gen.adj.:[29]

	-ehe/i- (2)
telẽzije- 'military camp/fort'	*telẽzijehi* (2)

We can assume from this that *e*-stems took the suffix form *-ehe/i-*.[30]

[27] Neumann (2007: 400) interprets this number as '21' rather than '10', but this reading is not normally accepted. His tentative translation of the first part of the sentence is "Diese *erawazija* nun habe ich erbaut (als) 21-jährig(er)", with *uhahi* as a substantivized gen.adj. meaning '(21-)year-old (man)'. It seems more probable to me that the time indication refers to years passed relative to an event (given the context, possibly military).

[28] If the occurrence as a title in TL 43 is regarded as the same lexeme, the fact that it has the exact same form may suggest that the *-a-* was inherent to the gen.adj. rather than dependent on number, although the word for 'year', as a unit of measurement, probably occurred in a plural interpretation relatively frequently. This characteristic may even have prompted a shift in stem type. Hopefully, future attestations will bring more clarity about the morphological details of this lexeme.

[29] In addition, the neuter plurale tantum *erawazija*, *arawazija* 'monument' (dat.-loc. *arawazije*, abl. [*araw*]*azijedi*) is probably the base of the gen.adj.abl. [*er*]*ewezijehed*[*i*]. If so, however, the occurrences of *-e-* for *-a-* show that the word has undergone *i*-umlaut, which, like in *etlehi*, affected the entire word. This has obscured any morphologically motivated vowel quality.

[30] See 4.4, however, for the possibility that the *-a* of the plural also sometimes triggered the variant *-ahe/i-*.

4.1.4 Consonant stems (n.)

No attested gen.adj. has a base that can be securely identified as a neuter consonant stem noun. The two best candidates are the following:

	-ahe/i- (3)
xθθan-(?) '?'	*xθθanahi* (2)
pddãt-(?) 'place'	*pddãtahi*

For *xθθan*-(?), the gender of the base lexeme is clear from the neuter plural *xθθãna*. The analysis of the stem type depends on the singular, which may be *xθθã* (TL 44b, 38, and cf. [*x*]*θθã* in N325, 7). If this is correct, then the base noun is a neuter *n*-stem.

Another possible neuter consonant stem is *pddãt*-(?). Since we only have the dat.-loc. *pddãti*, its stem class cannot be determined with certainty. We may, however, perhaps compare the suffix of the HLuw. neuter LOCUS-*la*(*n*)*t*- 'place', whatever the root of this word was.[31] For the implied form **pddã* cf. perhaps the PN *pddã-xñta*.

The gen.adj. of both potential neuter consonant stems is only attested with the suffix form -*ahe/i*-. Perhaps, then, this was the paradigmatic form for neuter consonant stems. The evidence, however, is rather flimsy.[32]

4.2 Adjectives

4.2.1 *e/i*-stems

The *i*-stem adjectives are normally divided into *e/i*-stems, which have a thematic neuter, and *(i)*-stems, which have a consonantal neuter. Of the adjectives that are attested in the gen.adj., there are five whose base can be categorized beyond doubt, since they have either the suffix -*ije/i*- or -*ñne/i*-. Since both paradigms that are combined in the *e/i*-stem type, *i*-stems (c.) and *e*-stems (n.), in nouns take the ending -*ehe/i*-,[33] this is the

[31] The gender of Hitt. *pēdant*- cannot be determined.

[32] See also 4.4 for the possibility that the variant -*ahe/i*- may sometimes have been triggered by the neuter nom.-acc.pl. ending -*a*.

[33] *prñneziji*- (*prñnezi(je)*-) 'household member' is even a substantivization of (the common gender of) an adjective formed with the suffix -*ije/i*-.

only ending we would now predict for the *e/i*-stem adjectives. We find the following attestations:

	-ehe/i- (19)
ebije/i- 'local, of this place'	*ebijehi* (13)
ehbije/i- 'his'	*ehbijehi* (2), *ehbiehi*
pñtreñne/i- 'from Pñtre'	*pñtreñnehi*
wedrẽñne/i- 'from Wedre'	*wedrẽñnehi*
xbidẽñne/i- 'from Kbide'	*xbidẽñnehi*, (*xbidãñnaha*)[34]

The expectation is borne out by the data: all 19 occurrences of the five lexemes in question have *-ehe/i-*.

The ethnicon or provenance suffix *-ñne/i-* may be discussed somewhat more elaborately. This suffix was consonantal in Proto-Anatolian (Hitt. *-um(e)n-* < **-Hu(e)n-*), and the neuter still was in Proto-Luwic (cf. the HLuw. nom.-acc.sg.n. *-wan-za* rather than ***-wanan-za*, e.g. *á-ta-na-wa/i-za-ha*(URBS), from *átanawan(i)-* 'of Adana'). However, a non-mutated pronominal version *-ñne-* is probably found in the Lyc. acc.sg.c. *ebẽñnẽ* 'this',[35] which suggests that the suffix was transferred to

[34] And one syncopated form, *xbidẽñhi*.

[35] For this identification see Kloekhorst (2008b: 135-137), and cf. already the refs. in Neumann (2007: 46). It is also possible that *-ẽñnẽ* somehow goes back to the acc.sg.c. ending, as is assumed by Eichner (2017: 282). The biggest advantage of this assumption is that it explains the suffix's restriction to the acc.sg.c. The historical explanation it requires is quite intricate, however. Eichner compares the 3sg.acc.sg.c. enclitic pronoun, which is attested in the forms *=ẽ*, *=ẽne* and *=ene*. Whereas the first neatly continues PLuw. **=on*, the latter two point to virtual **=on-o*, with an extension of some sort. According to Eichner, the original input of *-ẽñnẽ* was identical to the extended variant of the enclitic pronoun, and its ultimately diverging shape resulted from the addition of an extra accusative ending (**-ono+n*) – which is, however, not found in the enclitic pronoun itself – syncope (cf. *ebñnẽ* 'him'), and restoration. Although this is not inconceivable, the identification with the identical provenance suffix is formally more straightforward. Eichner's (2017: 282) criticism of this identification is mostly beside the mark. Indeed *ebẽñnẽ* seems to mean 'this' rather than 'belonging to this' (Eichner's points (a) and (e)), but this does not invalidate the historical morphological analysis (cf. the occurrence of the suffix *-ije/i-* in the same paradigm). The claim that the suffix only forms ethnic designations derived from toponyms (point (b)) is based on only a handful of examples. The Luwian and Hittite counterparts of the suffix are also mainly found in detoponymic designations, but we nevertheless find atypical uses such as CLuw. *ānna-u̯ann(i)-* 'stepmother' (*ānni-*

the normal *e/i*-stem type in Lycian. Such a transfer would not be unexpected. Even apart from the probably intolerable shape the consonantal neuter would have had (**-*ñn*), the *(i)*-stem type was moribund in general, the only rather secure surviving example being *km̃mẽt(i)-* 'how(ever) many', nom.-acc.sg.n. *km̃mẽ*, which may well be an archaism.[36]

4.3 Pronouns

4.3.1 *e*-stem(s)

For the pronoun *ebe-* 'this; he/she/it' we usually find an adjective based on the gen.adj., *ehb-ije/i-* 'his' (see 4.2.1), rather than a true gen.adj. Nevertheless, *ebe-* also attests a gen.adj. without the effects of syncope, metathesis and suffixation: *ebehe/i-*,[37] with consistent *-ehe/i-*:

'mother'), Hitt. *tame-umm-aḫḫ-* 'to make different' (*tamāi-* 'other'). The absence of *-w-* in Lyc. B [*e*/*ab*]*ạñṇụ* (TL 55, 1) as opposed to *xbidewñni-*, *tunewñni-*, *trelewñni-* (point (d)) is a good point, but hardly decisive. First, although probable, the word is not securely attested. Not only is it damaged, the form of the proposed restoration is also not found in the rest of the corpus. Second, if correctly restored, there are several factors that may be connected to the deviant shape of the suffix in this case, such as the fact that it occurs in a different inscription than the other examples, the fact that the suffix is part of a pronoun, and potential influence from Lycian A (cf. *uwedri-* ← Lyc. A *huwedri-* 'all'). In any case, caution about this form is due, and it is best not to base any argument on it. Eichner's explanation of the variant *ebẽñni* as developed from *ebẽñnẽ* with *-ẽ* > *-i* parallel to *-ã* > *-u* (point (c)) cannot be correct, because we do not find it in other cases of *-ẽ*. This form is also only combined with head nouns in *-ã* rather than *-u*. The *-i* in *ebẽñni* must therefore be the *i*-stem ending. This strengthens the proposed connection with the provenance suffix (Kloekhorst 2008b: 136-137). Cf. similarly *ebeis* next to *ebeijes*. It is not excluded, however, that these forms are the result of a secondary encroachment of the *i*-stem inflection on the pronominal system.

[36] I assume that its survival was favored by the fact that the nom.-acc.sg.n. happened to end in *-ẽ*. Similarly, the survival of *-wan-za* in HLuw., where we find a similar situation to that of Lycian, may have been favored by its ending in *-an-za*.

[37] Morphologically and functionally ('this here, of this place') comparable with *eb-ije/i-* 'local, of this place' and, probably, *ebe-ñnẽ* 'this'.

	-ehe/i- (15)
ebe- 'this; he/she/it'	*ebehi* (13), *ebbehi*, *ebehẽ*(?)[38]

Additionally, its dat.pl. *ebtte*, *ebette* was used as a base for the gen.adj. meaning 'their'.

	-ehe/i- (9)
ebtte, *ebette* 'to them'	*ebttehi* (4), [*eb*]*tte*[*his*]; *epttehi* (2), *epttehe*;[39] *ebettehi*

Since *ebette* ends in *-e*, the choice for *-ehe/i-* is unsurprising.

4.3.2 Non-ablauting *i*-stem(s)

Although the word meaning '(an)other', *kbi-*, declines very similarly to the *ije/i*-stems (and is analyzed as such by Melchert 2004), it may differ in one crucial point, namely the nom.-acc.sg.n., if this is how we should interpret *kbi* in TL 149, 15 (as opposed to otherwise expected ***kbijẽ*). If so, it would show that, rather than with the vowel-alternating *i*-stem paradigm known from nouns and adjectives, here we are dealing with a non-ablauting *i*-stem paradigm, featuring *-i-* throughout.[40] Nevertheless, as in the regular alternating *i*-stems and the adjectival *e/i*-stems, the gen.adj. is consistently *-ehe/i-*:

	-ehe/i- (8)
kbi- '(an)other'	*kbijehi* (6), *kbijehis*, *kbijehedi*

4.4 Attested but unclear bases

Some other gen.adj. forms have attested bases that can be interpreted in multiple ways: *ehetehe/i-*/*ahatahe/i-*, *exburahe/i-*, *adm̃mahe/i-*.

[38] With Neumann (2007: 46), I would take at least [*e*]*ḫehẽ* in TL 54, 1 as belonging here rather than as a gen.pl. (so Melchert 2004: 11). However, rather than as a nom.-acc.sg.n., in view of its head *tukedri* I would analyze it as an acc.sg.c. with lack of *i*-mutation in a pronominal form (cf. *ebeñnẽ*, *ebeijes*).
[39] And once *eptte*, probably for **epttehe*.
[40] For this type cf. Chapters 1 and 2.

The gen.adj. forms *ehetehe/i*- and *ahatahe/i*- are usually taken together with *ahata* '?'.[41] This complex is quite obscure. The noun *ahata* seems to be attested as such as an object (*sej ahata : astte* 'and made *a.*', TL 29, 4);[42] if this is the case, it has to be either a neuter plural or a collective. Since this is the only attested form, its stem form cannot be determined. If *ahata* is also correctly identified, with Schürr (1997: 65), in TL 44b, 47-49 (*ahata ha*‖[*dẽ*] *ẽnẽ* : *qla* (*e*)*bi* : *ehetehi* : *se mahãna* : *ehete*‖[*he*]),[43] its co-occurrence with the only two attestations of *ehetehe/i*- may indeed suggest that they belong together. Sasseville (2018: 314) bases a rule on these forms by which the collective in -*a* regularly takes the suffix variant -*ehe/i*-, which he also observes in *uwa* → *uwehe/i*-. In 4.1.1, I have interpreted *uwehi* differently, and in 4.1.2, I have proposed that we may rather see the influence of the collective ending -*a* in *uhahi*. As for *ahata*, its forms also fit the established pattern of neuter *e*-stems, and we may therefore simply assume that the noun was *ehete*- (n.). Cf. also the Lyc. B dat.-loc.sg. *eseti*, which perhaps belongs to the same noun (Melchert 2004: 115). In Lyc. B, too, we find the gen.adj. *esetese/i*- as a divine epithet (*trqq*[*i*]*z* : *esetesi*‖[*=k*]*e er*[*b*]*besi=ke*, TL 44d, 12-13). Since the gen.adj. in general almost never shows any effect of *i*-umlaut (see 4.1.1), it is unlikely that the underlying form is really **ahatahe/i*-/**asatase/i*-, and that all actual instances in both Lycian A and B are the result of *i*-umlaut (*pace* Hajnal 2000: 171). The attested hapax *ahatahi* is therefore best taken as a morphologically different form. Possibly, it belongs to an *a*-stem derivation **ahata*- (Sasseville 2018: 315). Alternatively, the two variants may be united by connecting the *a*-vocalism of *ahatahi* to the nom.-acc.pl.n. ending of *ahata*. Since both -*e*- and -*a*- occur prominently in the *e*-stem paradigm, the occurrence of both vowels in its associated genitival expression would not be all that surprising. We may especially expect *a*-vocalism to seep through to the gen.adj. when the referent has a plural interpretation (cf. *uhahi* in 4.1.2), or when the plural is generally

[41] Its meaning has been conjectured to be 'peace, rest' (Melchert 2004: 4). Neumann (2007: 5) opts for 'success, victory, fame'.
[42] But the case is considered unclear by Neumann (2007: 5).
[43] But Neumann (2007: 5) rather considers it part of a gen.adj.nom.-acc.pl.n. *ahataha* and reads *ahataha* ‖[*ñt*]*ẽnẽ* : *qlabi* : *ehetehi* (2007: 52).

prominent. This could indeed be the case for *ahata*, if this really has a singular meaning such as 'peace, rest' (cf. *erawazija* 'monument').

Possibly, we find the same phenomenon in the hapax *exburahi*. Its base (indicating some family-related concept) is attested as *ekebura* and [*ek*]*eb*[*u*]*re*, analyzed by Melchert (2004: 13) as nom.-acc.pl. and dat.-loc.pl., respectively, and as a plurale tantum. Since the context of *ekebura* does not permit a solid syntactic analysis, we might alternatively be dealing with an *a*-stem (so Sasseville 2018: 315). The Lycian B form *kaburã* suggests as much, at least for this dialect. However, in favor of Melchert's analysis it may be noted that the dat.pl. of *a*-stems in Lycian A is normally *-a* rather than *-e*; *-e* is attested only once, in *xahbe*, and even for this lexeme we find the expected form, *xahba*, twice.

In TL 44b, 9 we find the form *adm̃mahi*, whose base is probably attested three lines earlier as [*a*]*dm̃medi* '?'. The mismatch between *-a-* and *-e-* might again belong to a neuter. Alternatively, but less likely, the base is **adm̃ma-* and *adm̃medi* is an *i*-umlauted form. In its current state of attestation, we cannot determine the stem or gender of the lexeme on independent grounds, and so we cannot use it to infer any rules.

4.5 Lycian A: conclusions

We can posit the following morphological rules for the suffix form of the gen.adj. in Lycian A.

Nouns

1. *a*-stems (c.) take *-ahe/i-*. We find *-e-* as the result of active *i*-umlaut in only one attestation, *etlehi*, whose expected counterpart *atlahi* is much more frequent. In *malijehi* and *uwehi*, we are probably dealing with unrestored *i*-umlauted forms in lexicalizations, if not morphological archaism in the case of *uwehi*.
2. *i*-stems (c.) take *-ehe/i-*. The only potential exception, *uhahi*, may be due to its plural interpretation, with *-a-* stemming from the collective ending *-a*. *a*-umlaut further turns **-eha* into *-aha* without exception.

3. *e*-stems (n.) take *-ehe/i-*. There is a possibility that the nom.-acc.pl. *-a* could also trigger the variant *-ahe/i-*.
4. Consonant stems (n.) possibly take *-ahe/i-*, but the evidence is scarce.

Adjectives

5. *e/i*-stems take *-ehe/i-*.

Pronouns

6. The *e*-stem *ebe-* takes *-ehe/i-*, as does its dat.pl. *ebette*.
7. The non-ablauting *i*-stem *kbi-* takes *-ehe/i-* (resulting in *-ijehe/i-*).

5 Lycian B: attestations, rules and exceptions

For Lycian B, due to the poor state of attestation we have only little material to work from. Only a small number of lexemes are attested both in a base whose stem type can be determined and in the gen.adj. When the base is not attested in Lyc. B, but it is in Lyc. A, I have added the Lyc. A form (indicated as such).

5.1 Nouns

5.1.1 *a*-stems (c.)

The following attested *a*-stems are also attested in the gen.adj.:

	-ase/i- (4)
atla-[44] 'person, self'	*atlasi*
masa-[45] 'god'	*masasi*
pasba- '?'[46]	*pasbasi*
xñtaba- 'rule'	*xñtabasi*

[44] The stem type cannot strictly be determined on the basis of Lyc. B only, where we only have the dat.sg. *atli*, but an *a*-stem is probable on the basis of Lyc. A *atla-*.

[45] This word seems to have belonged to a subtype of *a*-stems with a nom.-acc.pl. in *-aiz* rather than in *-ãz*/*-az*. We also find this in *lijaiz* 'nymphs'. Although the exact prehistory of this ending is still unclear, its aberrancy is undoubtedly related to the fact that these words are *ana*-stems in Lycian A (*mahana-*, *elijãna-*).

[46] Often interpreted as 'sheep' or 'cattle' on the basis of a formally possible connection with PIE **pékᵘ-* 'cattle'.

The suffix form is consistently *-ase/i-*. This fits perfectly with what we would expect on the basis of Lyc. A (*-ahe/i-*).[47]

5.1.2 *i*-stems (c.)

We find the following combinations of an *i*-stem base and a gen.adj.:

	-ese/i- (3)	***-ase/i-*** (4)
erbbi-[48] 'battle'(?)	*erbbesi*	
ẽni- 'mother' (Lyc. A)	*ẽnesi*	
tedi- 'father' (Lyc. A)	*tedesi*	
ali-(?) '?'		*alasi*
xbadi- '(river) valley'(?)		*xbadasi, xbadasiz, xbadasadi,* (*xbadasa*)

Both variants of the gen.adj. occur. Three out of five lexemes show the expected variant *-ese/i-*.

The assessment of the stem class of *ali-*(?) depends on the analysis of *ali* in TL 44c, 55: if this is a nominative or accusative, the lexeme can only be an *i*-stem. If it is a dat.sg., however, the stem class cannot be determined. Although our current understanding of the context does not allow for a clear-cut decision, it is mostly assumed that this is a direct case. In any case, the lexeme *xbadi-* is very clearly an *i*-stem (nom.-acc.pl. *xbadiz*), and its gen.adj. with *a*-vocalism confirms the occurrence of this suffix variant for *i*-stems.

For *xbadase/i-*, the consistent *a*-vocalism suggests that this is the inherent quality of the suffix vowel for this word. There is no indication of an *a*-stem or collective form that could have exerted some influence. Given the other *i*-stems that take *-ese/i-*, the vocalism can also not depend on the stem type. I would like to propose a tentative solution based on all certain

[47] Perhaps the base of *xidrasadi* is found in the sequence *qi*[ ]*rasdditiu* (TL 44d, 18), from which an acc.pl. *qidras* is sometimes distilled. Both forms have also been emended to *qidrasadi*.

[48] The stem type is not identifiable as such in Lyc. B, where we only have the form *erbbi*, but Lyc. A has the same lexeme, whose forms *erbbi*, *erbbe* and *erbbedi* point to an *i*-stem or, less likely, a neuter *e*-stem. The gen.adj. in *-esi* is expected in either case.

or potential Lycian B gen.adj. forms. When we confront those featuring -*a*- (*atlasi*, *masasi*, *pasbasi*, *xñtabasi*, *alasi*, *xbadasi*, *trqqñtasi*, *xidrasadi*, *xinasi*, *xugasi*) with those featuring -*e*- (*erbbesi*, *ẽnesi*, *tedesi*, *plejerese*, *esetesi*, *ñtemlesi*, *kuprimesi*), we can discern the pattern that whenever the vowel preceding the suffix vowel is -*a*-, we find a gen.adj. suffix with *a*-vocalism, whereas all occurrences of -*e*- in this position are followed by a gen.adj. suffix with *e*-vocalism. This suggests that Lycian B had some form of *progressive vowel harmony*.[49] Vowel assimilation typically works regressively, as in Lycian A (e.g. *etlehi* < **atlahi*). However, if it only partly affects a paradigm there is always a morphological counter-pressure to restore the stem (cf. the normal Lycian A form *atlahi*), and if such restoration happens it may trigger vowel harmony in the opposite direction (not so in Lycian A, cf. *xñtawatehi*). I suggest that this is what happened in Lycian B, and explain the occurrences of morphologically unexpected *a*-vocalism in *xbadi-* → *xbadasi* and *ali-*(?) → *alasi* in this way, i.e. as triggered by the preceding -*a*-. This phenomenon may also underlie the occurrences of ablatives such as *xidrasadi*, *xbadasadi*, *km̃masadi*, whose desinential -*a*- is unexpected for an *e/i*-stem paradigm, although one could alternatively analyze these, with Sasseville (2018), as belonging to *a*-stems with a suffix -*asa*-. In general, however, the ablative shows the same distribution.[50]

5.1.3 Consonant stem(s) (c.)

The only clear-cut common gender consonant stem in Lycian is the name of the Storm-god, which is attested in the base in both Lycian A and Lycian B, and in the latter also in the gen.adj.:

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[49] For this phenomenon, cf. e.g. modern Turkish, in which the exact quality of the vowels in most suffixes and endings is determined by the preceding vowel (e.g. the plural suffix: *ev-ler* 'houses', *kitap-lar* 'books').

[50] We find *km̃masadi*, *laxadi*/*ulaxadi*, *luwadladi*, *sabadi*, *tuxaradi*, *xbadasadi*, *xidrasadi*, *waxs*(*s*)*adi* vs. *lelebedi*, *meredi*, *murẽnedi*, *tuwemedi*/[*tuw*]*ẽmedi*, *wesedi*, *zirememedi*. The only exception is *punãmadedi*. These are all the forms listed as abl.-inst. in Melchert 2004 in which the suffix is preceded by -*a*- or -*e*-. The only other form which could formally be analyzed as such, but is rather (tentatively) interpreted as a verb, is *sebedi*, which conforms to the same pattern.

	-ase/i- (1)
trqqñt- 'Storm-god'	*trqqñtasi*, (*trqqñtasa*)[51]

The *a*-vocalism may be compared with the potential *a*-vocalism of neuter consonant stems in Lycian A. It has to be borne in mind, however, that this lexeme is a proper name, which means that we cannot base a rule for consonant stems in general on it. This is especially true in view of the fact that the remaining consonant stems are all neuters. In proper names, *a*-stems are the most frequent type, and the choice for *a*-vocalism in *trqqñtase/i-* may well have been inspired by this.[52] I would therefore regard it, like its base inflection, as *sui generis*.

5.1.4 *e*-stems (n.)

The best candidate for being a neuter *e*-stem with an attested gen.adj. is the following:[53]

	-ese/i- (1)
plejere- '?'	*plejerese*

We find the expected suffix variant with *-e-*. It is also possible, however, that we are dealing with a common gender proper name and its genitive.

5.1.5 Attested but unclear base (n.)

One neuter noun of unclear meaning is attested in the nom.-acc.pl. as *xuzrñta*. Its stem form cannot be further identified. An extended form that could contextually well be genitival is found as *xuzrñtasi*‖*si*. Since Gusmani (1968: 16), this is usually emended to *xuzrñtasi*{*si*}, supposing dittography. However, it is quite bold to correct an inscription written in a

[51] In TL 55, if the readings are correct, we also find the odd forms *trqqñtạ*[*s*]*az* (2-3) and *trqqñtasati* (or °*zi*) (8). The first looks like a nom.-acc.pl. of an *a*-stem *trqqñtasa-* (cf. Sasseville 2018: 309), which would then have to be based on the gen.adj. The second seems to be a further derivation, apparently verbal.

[52] Cf. the adaptation of **tarhunz* to *tarhunzas* in HLuw.

[53] The assignment of the base noun to the neuter gender stems from the fact that it is an *e*-stem noun. For the near-absence of common gender *e*-stem nouns, see Chapter 1.

language we barely know, and it would be advisable not to correct more than the obvious. The form as it is looks most like a genitival formation to a non-ablauting *i*-stem *xuzrñtasi*-, which would then most probably be the onomastic counterpart of a gen.adj. In either case, however, the form presupposes a gen.adj. *xuzrñtase/i*-. Perhaps the -*a*- should be compared to the -*a*- of *xθθanahe/i*- and *pddãtahe/i*- in Lyc. A (4.1.4), both potentially belonging to neuter consonant stems. It may also not be a coincidence that the *a*-vocalism of this gen.adj. *xuzrñtase/i*- matches the ending of the only attestation of the base, *xuzrñta* (cf. 4.4). Given the uncertainties, however, we can hardly base any rule on this form.

5.2 Adjectives

5.2.1 *e/i*-stems

The best candidate for being an *e/i*-stem adjective is *kuprime/i*-, probably a participle in -*me/i*-, although formally it could also be a neuter *e*-stem:

	-ese/i- (1)
kuprime/i-(?) 'desired'(?)	*kuprimesi*

The evidence points to *e*-vocalism, as in Lycian A.

5.3 Lycian B: conclusions

For Lycian B, we can posit the following rules:

Nouns

1. *a*-stems (c.) take -*ase/i*-.
2. *i*-stems (c.) take -*ese/i*-, but a preceding -*a*- appears to trigger the variant -*ase/i*-.
3. The only clear-cut common gender consonant stem in Lycian, *trqqñt*- 'Storm-god', in Lycian B takes -*ase/i*-, probably after the most frequent vocalism in proper names.
4. *e*-stems (n.) take -*ese/i*-, if *plejere*- is not rather a proper name. Possibly neuters could also take -*ase/i*-, if *xuzrñtasisi*, whose base is probably attested as the nom.-acc.pl.n. *xuzrñta*, is any indication.

Adjectives

5. *e/i*-stems take *-ese/i-*.

The picture is very similar to that found for Lycian A (4.5).

6 Conclusions: synchronic rules

The findings show that the distribution of *-a-* and *-e-* in the gen.adj. suffix is in principle morphological in nature. The most frequent types naturally allow us to discern their rules most clearly: *a*-stems (c.) take the variant with *-a-*, *i*-stems (c.) take the variant with *-e-*. *e*-stems (n., and c. in the pronoun *ebe-* 'this') that are clearly attested as such in the singular take the variant with *-e-*. *e/i*-stem adjectives, which combine *i*-stem (c.) and *e*-stem (n.) inflection, also expectedly show *-e-*. Morphologically, these rules are completely within the lines of expectation. The gen.adj., although inflected itself, is part of the inflection of its base, whose oblique cases feature the same vowels as are found in the gen.adj. (e.g. abl. *a*-stems *-adi*, *i*-stems, *e*-stems, *e/i*-stems *-edi*). The only surviving common gender consonant stem in Lycian, *trqqñt-* 'Storm-god', takes *-ase/i-* in Lyc. B, probably after the most frequent vocalism in proper names, that of the *a*-stems.

A few other attestations of the gen.adj. showing *a*-vocalism belong to bases of uncertain stem type, but at least in some cases to neuters. Lyc. A *pddãtahe/i-* and *xθθanahe/i-* are the best candidates for having neuter consonant stem bases (*pddãt-*(?) 'place', *xθθan-*(?) '?'). We similarly find *a*-vocalism in Lyc. A *exburahe/i-* and Lyc. B *xuzrñtase/i-*(?), whose bases are morphologically unclear because they are only attested in the plural. Since neuter consonant stems do not have a stem vowel, their choice of *-a-* or *-e-* is somewhat arbitrary, and either choice, which appears to have fallen upon *-a-*, should not surprise us. For *ahata* ('peace, rest'?), formally a nom.-acc.pl.n., possibly of *ehete-*/*esete-* (Lyc. B dat.sg. *eseti*?), we may even find both variants, *ehetehe/i-*/*esetese/i-* and *ahatahe/i-*. One factor in the choice may have been the characteristic nom.-acc.pl.n. ending *-a*. Similarly, the collective ending *-a* may be responsible for the one (uncertain but probable) *i*-stem showing *-ahe/i-* in Lyc. A, *uhi-* 'year' →

uhahe/i-. In order to settle any of this with any certainty, we need more attestations.

The quality assigned by morphology is sometimes overruled by phonological factors. *a*-umlaut was apparently still an active process: any instance of morphologically expected ***-eha*, ***-esa* comes out as *-aha, -asa*. *i*-umlaut, on the other hand, was regularly overruled by morphology. In only one attestation do we find the opposite: Lyc. A *etlehi* for normal *atlahi* 'of himself'. Cf. also [*er*]*ewezijehed*[*i*] to *erawazija* 'monument'. Additionally, *malijehe-* 'temple of Malija' and *uwehi-*, a priestly designation referring to cows, probably show unrestored *i*-umlaut (if not morphological archaism, if *uwehi* was created to older **wewi-*) in lexicalizations: forms that had detached themselves from their bases and so could dodge their analogical force more easily. In Lyc. B, it appears that the restoration of root vowels affected by *i*-umlaut has triggered *progressive* vowel harmony: when the preceding vowel is *-a-*, the variant *-ase/i-* is found instead of morphologically expected *-ese/i-*.

One side-effect of these findings is that they allow us to determine the stem class of two kinship terms which are only attested in the gen.adj.: Lyc. A *xñnahi* (3), (*xñnaha*)[54] 'of grandmother' and Lyc. A *xugahi*, (*xugaha*), Lyc. B *xugasi* 'of grandfather'. Since their bases are certainly common gender nouns (and very unlikely to base their gen.adj. on a collective), these bases must be the *a*-stems *xñna-* 'grandmother' and *xuga-* 'grandfather', respectively.[55]

7 Historical interpretation

In view of the morphological distribution along the lines of synchronic stem types, sometimes overruled by sound changes, there is no need to assume a continued relevance for the *i*-stems of the former distinction between consonant stems and *o*-stems, the main donor categories of the *i-*

[54] Perhaps also Lyc. B *xinasi*.

[55] This is one more lexical link between the Lycian and Luwian *a*-stems ("without *i*-mutation"): Luwian has *huha-* (HLuw. (AVUS)-*ha-*, CLuw. abl. *ḫūḫati*). This link is elaborated upon in Chapter 1.

stems, which had already merged by Proto-Luwic. Projecting the main Lycian rules back to Proto-Luwic, we can posit the use of *-*osso/i*- with *i*-stems, *o*-stems and *o/i*-stems and of *-*āssa/i*- with *ā*-stems.[56]

Proto-Luwic *-*osso/i*- can hardly reflect anything else than *-*osio*-, an inflected form of the PIE genitive ending *-*osio*.[57] Additional evidence for this is the Luwian dat.-loc.sg. -*assan*. In Chapter 2, I propose that the unexpected dative ending -*an* was adapted from *-*a*, originally the allative ending, which I argue to have been used in Proto-Anatolian instead of the regular dative-locative ending *-*i* if the preceding element was *-*i*- as well. This implies that the preform indeed had an *-*i*-, leaving *-*osio*- as the only option.

Although its use as the main expression of a genitival relationship is clearly a Luwic innovation, the suffix has a cognate in Hittite (see Kloekhorst 2008a: 216, s.v. -*aššа*-), and will therefore be at least of PAnat.

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[56] Here I use *$*ā$*, the intermediate stage between attested *a* and original *$*eh_2$*, but quite possibly the vowel was already short in Proto-Luwic.

[57] Yakubovich's (2008: 208) proposal to reconstruct *-*osso* runs into various problems. First, it requires the assumption that PIE *-*oso* goes back to *-*osso*. According to Yakubovich, *-*ss*- was restored in Anatolian because it was (still) analyzed, in accordance with the origin of the suffix that Yakubovich supposes, as the gen.sg. *-*os* followed by a particle *-*so*, which he identifies with the Luwian neuter particle -*sa*. However, there is no evidence for this morphological analysis, and the original nature of the Luwian particle is obscure, meaning that this scenario has little chance of being correct (cf. for similar criticism Melchert 2012: 281). It could be improved by deriving non-Anatolian IE *-*oso* from PIE *-*osso*, assuming, with Kloekhorst (2016), that the sound law *ss* > *s* was a non-Anatolian IE development, but then we would still expect the geminate to undergo lenition in Anatolian. Second, the evidence for an *o*-stem genitive *-*oso* is very limited. It mainly consists of Greek -ου < *-οο and dialectal Germanic *-*as*, both of which are suspect of being secondary to *-*osio*, perhaps even by sound law (for Greek see Miller 2014: 338-339, for Germanic see Ringe 2017: 226-227). That Greek inherited *-*osio* is clear from the dialects (Myc. -*o-jo*, Hom. -οιο, Thess. -οι(ο)). The ending *-*osio* is widely found in the IE languages (see 2.2. above, and Fortson 2010: 127; for Hitt. -*aš* cf. the following note). The main reason for Yakubovich to prefer *-*oso* over *-*osio* as the origin of the Luwic gen.adj. is the idea that *-*osio* is instead the source of the HLuw. genitive ending -*asi*. It is not excluded, however, and indeed even likely, that both the genitive (whose original form is -*asa* rather than -*asi*, see Palmér fthc. and n. 59 below) and the genitival adjective reflect *-*osio*(-) (cf. Melchert 2012: 282-283). Finally, Yakubovich's proposal is contradicted by the positive evidence for *-*osio*- as the source of the gen.adj. adduced in the following.

date. There are also some potential comparanda in other IE languages (next to Lat. *-ārius* < **-eh₂sio-* we may consider e.g. Lat. *cuius -a -um*, Sab. *poii-* 'whose', perhaps < **kʷosio-*, and the ToB gen.adj. suffix *-ṣṣe* < **-sio-*). It is unclear whether these are the result of parallel developments, or that the suffix should be reconstructed for PIE. In any case, the related *o*-stem genitive ending **-osio* can be plausibly reconstructed for PIE,[58] since it is probably continued in the Luwic genitive **-V-s(s)o* (Lyc. *-ahe*, *-ehe*, HLuw. *-asa*).[59] In Luwic this ending is found with all stem types, with the distribution of Lyc. *-a-* and *-e-* matching that of the gen.adj. (e.g. *arttum̃para*, gen. *arttum̃parahe*; *perikle*, gen. *periklehe*). Since **-osio* was restricted to the *o*-stems in PIE, the Luwic *ā*-stem variant (Lyc. *-ahe*) must be analogical to the *o*-stem form (in PIE transposition **-eh₂-sio* after **-o-sio*). Similarly, the main shape of the PLuw. gen.adj. suffix was **-osso/i-* (< **-osio-*), and the *ā*-stem variant **-āsso/i-* (< **-eh₂-sio-*) must be analyzed as parallel to the *o*-stem form **-osso/i-* (< **-o-sio-*). This essentially corresponds to the accounts of Pedersen (1898-1899: 88), and later Kloekhorst (2008a: 216) and Yakubovich (2008: 195) (see 2.2).

[58] The *o*-stem genitive **-osio* is often suspected to be a secondary intrusion in nouns and adjectives, motivated by the fact that in the *o*-stems the regular genitive ending **-(V)s* was indistinguishable from the nominative ending. It is also typically thought that the corresponding Hitt. ending *-aš* still reflects the older situation (cf. e.g. Fortson 2010: 127). This may be correct, but unless one assumes that non-Anatolian **-osio* and the Luwic genitive developed independently from the genitival adjective, **-osio* must have been present in Proto-Anatolian in one grammatical category or another, and have been replaced there in Hittite. This category may have been a subset of the *o*-stems, for example in the pronominal system, but it is also in principle not excluded that **-osio* was the general *o*-stem ending after all, with Hittite (re)generalizing the ending *-aš* from the other stems. As Hittite shows, formal identity of the nom. and gen. sg. does not have to be regarded as a problem, whereas the oddity of a unique *o*-stem ending may have been.

[59] Like the genitival adjective, the genitive is normally inflected in Lycian, with the secondary case forms nom. *-Vh*, acc. *-Vhñ*. For these forms see Adiego 2010. Similarly, in dialectal HLuw. a specific common gender form *-asi* was innovated from *-asa* in analogy to the vocalism of the *a/i*-stem adjectives (see Palmér fthc.).

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Verbal Part

CHAPTER 4

From the Proto-Indo-European perfect to the Hittite *ḫi*-conjugation

Semantic and formal distributions between the *mi*- and *ḫi*-conjugations

Abstract: The chapter argues that the Hittite *ḫi*-conjugation developed from the PIE perfect through the development to a past tense – which crucially comes down to a shift from stative to eventive semantics – and the subsequent creation of a new present tense by the addition of *-*i* in imitation of the pattern of the *mi*-conjugation, after which the new conjugation absorbed all other formations with *o*-grade (notably *CoC-eie/o*-causative-iteratives and **molH*-type iteratives) as well as verbs and suffixes whose *e*-grade was colored by *h_2 or *h_3. The ultimate division between the *mi*- and *ḫi*-conjugations is traced back to the PIE state of affairs in which only verbs with a specific semantic frame allowed expression in the perfect.

1 Introduction

The Hittite verbal system famously has two conjugations in its active voice: the *mi*-conjugation and the *ḫi*-conjugation. Traces of this distinction are also found in the other Anatolian languages. The *mi*-conjugation is clearly the Anatolian equivalent of the PIE athematic present-aorist system, to which it is a perfect morphological match: its PAnat. 1-3sg. endings are pres. *-*mi* *-*si* *-*ti*, pret. *-*m* *-*s* *-*t* (*°*C-to*), and it shows *e*/∅-ablaut. The *ḫi*-conjugation is clearly related to the PIE perfect: it features the 1-3sg. endings *-*Ha* *-*ta* *-*e* < *-*h_2e* *-*th_2e* *-*e* and *o*/∅-ablaut.

There are, however, also some differences with the PIE state of affairs, especially regarding the *ḫi*-conjugation. The most important ones are the following four, two formal and two functional. First, the PIE perfect is usually reduplicated; the *ḫi*-conjugation is usually not. Second, the *ḫi*-conjugation has a tense opposition featuring a derived present tense; the

PIE perfect was typically a present tense and is in some branches accompanied by a derived past tense (pluperfect). Third, Anatolian verbs are either *mi*- or *ḫi*-conjugated; in PIE one verbal root could in principle (depending on semantics) inflect both as a present-aorist and as a perfect, with each inflection expressing a different aspect of the verbal semantics, e.g. pres.-aor. **h₁ger*- 'to wake up' (eventive), perf. **h₁ge-h₁gor*- 'to be awake' (stative(-resultative)). Fourth, related to this: in Anatolian there is no functional opposition between the *mi*- and *ḫi*-conjugations. The *ḫi*-conjugation does not have perfect (i.e. stative(-resultative)) semantics. Indeed, it has been noted that *ḫi*-verbs are in general eventive rather than stative.[1]

In recent times the idea has gained popularity that some of these differences hamper the identification with the perfect to such an extent that it is preferable to transpose the Anatolian *ḫi*-conjugation back to an otherwise unknown PIE "**h₂e*-conjugation". This idea originated with Jasanoff (most elaborately expounded in Jasanoff 2003) and has since made its way to mainstream thought to the point that in the recent Handbook of Comparative and Historical Indo-European Linguistics, Oettinger (2017: 266) can state: "The origin of the *ḫi*-conjugation is the *vexatissima quaestio* of Anatolian morphology. A systematic survey being impossible here, we can at any rate state that the traditional derivation of this conjugation from the late PIE perfect is no longer likely." Jasanoff (2003: 28) states that "[t]he traditional endings-based approach has been taken as far as it will go", before proceeding to develop the alternative idea of a PIE "**h₂e*-conjugation".

I wish to show that these thoughts of despair, and their result, the assumption of a "**h₂e*-conjugation", are unwarranted. There is no need to cut the morphologically obvious identification with the perfect and to resort to an otherwise unsupported back-projection of the *ḫi*-conjugation. This amounts to throwing out the baby with the bathwater, and multiplies rather than solves the difficulties. It is true that the existing accounts of the development from the perfect to the *ḫi*-conjugation are not yet wholly satisfactory, but they *can* be improved upon, and be brought to a

[1] The *ḫi*-conjugation and the perfect do not historically differ in ablaut, as has sometimes been claimed. See Kloekhorst (2012; 2014b; 2018: 90-91).

satisfactory level. I will show how from section 3 onwards. First, however, I will outline the most elaborate version of the scenario as laid out by Eichner (1975), as well as Jasanoff's (2003) attack of this scenario and Kloekhorst's (2018) defense and slight adaptation of it.

The issue of reduplication has little relevance here (cf. e.g. Cowgill 1974: 566). Suffice it to state for this moment that the existence of the obvious archaism **uoid-* / **uid-* 'to know', the perfect of **ueid-* 'to see', strongly suggests that the perfect was at some point unreduplicated.[2] The perfect inherited by Anatolian may therefore in principle still have been unreduplicated, or it may have undergone dereduplication, or a bit of both.[3] I will revisit this point in 6.3, where it will be argued that reduplication had hardly any chance to survive, meaning that Anatolian may just as well continue a stage in which the perfect was generally reduplicated.

2 Existing scenarios and criticism

The most elaborate scenario of the development from the perfect to the *ḫi*-conjugation is that of Eichner (1975). In this scenario, three categories of

[2] Jasanoff's (2003: 228-233) interpretation of **uoid-* as an innovation is not remotely credible. **uoid-* bears all the hallmarks of an archaism (cf. Sihler 1995: 568-569, Kümmel 2004: 149-150, Fortson 2010: 104, Kloekhorst 2018: 93-94, etc.): it must have been among the most frequent verbs, it shows archaic ablaut, and it has to some extent been lexicalized – a common pathway to becoming an archaism – by a semantic development (**uoid-* does not normally mean 'to have seen' anymore, but only 'to know'). Cf. also the daughter languages, where this verb often manages to survive with archaic traits that are otherwise lost, e.g. ablaut (Gr. οἶδα / ἴδμεν), endings (Gr. οἶσθα), present tense value (Goth. *wait*, Skt. *véda* (>> *védmi*)), and perfect morphology in general (OCS *vědě*). Since **uoid-* is, or at least clearly originated as, the perfect of the root **ueid-* (cf. Gr. οἶδα, ptc. εἰδώς, inf. εἰδέναι, subj. εἰδῶ), which also has eventive instantiations in the present-aorist system, notably the aorist **h₁e-uid-e-t* (Gr. εἶδε 'saw', Skt. *ávidat* 'found out', Arm. *egit* 'found'), and several presents (probably) of later date (Lat. *videō* 'to see', OCS *viděti* 'to see', Gr. εἴδομαι 'to be seen, appear'; cf. also εἶδος 'appearance, shape'), **uoid-* shows that non-reduplicated perfects did not belong to a different functional category.

[3] Kloekhorst (2018: 94) points to the two reconstructable variants of the perfect 3pl. ending, **-ēr* and **-r*, which can be compared to the variation of **-enti* and **-nti* in unreduplicated and reduplicated presents, respectively. This variation may indicate that PIE had both unreduplicated and reduplicated perfects.

verbs were input for the *ḫi*-conjugation. The oldest layer consists of perfects in their known function of indicating a state that is the result of a previous action (Eichner 1975: 85-87). Eichner's prime example is *šakk-* 'to know', which he traces back to **soh₂g-*, interpreting it as a perfect ('to have traced, know') to a root **seh₂g-* 'to trace' (Goth. *sokjan*, Gr. ἡγέομαι, Lat. *sāgīre*). The *ḫi*-conjugation took shape when these originally tenseless perfects received an explicit present tense counterpart created with the **-i* from the *mi*-conjugation. Since these perfects did not partake in the step that follows, they must have been lexicalized, and indeed as such have formed a small *ḫi*-conjugation. Other, later members of this conjugation, Eichner (1975: 88-89) reasons, can on semantic grounds hardly have existed as perfects in the proto-language. Rather, in his view, the only conceivable meaning of a perfect such as the one to **dʰeh₁-* 'to put' that should ultimately underlie Hitt. *dai-* 'to put', is one of a past tense. This would mean that the perfect was at some point interpreted as a past tense. When the new past tense had completely coincided in function with the old one, one of the two past tense stems was generalized, and if the chosen stem was that of the new past tense, the present tense assumed the same stem. In such cases the small existing *ḫi*-conjugation served as a model for the creation of new present tense forms. The third influx of verbs (Eichner 1975: 96-98) resulted from transfers to the new conjugation because of formal features, notably *o*-vocalism, e.g. *lāk-^{i}* 'to knock down, fell' < **logʰ-eie/o-* 'to make lie down', and reanalysis of 1sg.pret. forms such as **tr-n-eh₂-m* > *tarnaḫḫ-un* as *tarna-ḫḫun*, whence *tarnaḫḫi* instead of **tarnami* (etc.).

According to Jasanoff (2003: 10-15), "[v]irtually every step in this account is problematic." Against the first stage, Jasanoff objects that verbs in the *ḫi*-conjugation tend to have eventive meaning rather than stative, and that no stative *ḫi*-verb can plausibly be equated with a known perfect. He also finds the introduction of a tense distinction implausible, as he would reconstruct a PIE pluperfect, meaning that the perfect would already have had a tense opposition. Regarding the second stage, he dismisses the creation of a new present tense on the basis of a past tense as 'unnatural', and condemns the apparent lack of a principle behind the choice for either inflection. The transformation of *CoC-eie/o*-formations into ablauting *ḫi-*

verbs is denounced as a "bizarre remodeling", and the reinterpretation of *-*naḫḫ-un* as *-*na-ḫḫun* is regarded as impossible in view of the existence of 3sg.pres. forms in -*nai* in Luwian and Palaic, suggesting that the type was Proto-Anatolian, which still had *-*Ha*.

For Oettinger (2006: 37), the semantics of the *ḫi*-conjugation are the key argument for rejecting a direct connection with the perfect: "Entgegen der Opinio communis glaube ich (ebenso wie Cowgill und J[asanoff]) nicht mehr, daß die *hi*-Konjugation vom indogermanischen Perfekt abstammt. Würde sie nämlich aus ehemaligen Perfektstämmen bestehen, so würde man in ihr nicht Verben mit Bedeutungen wie 'schlürfen' erwarten, sondern mit überwiegend statischen Bedeutungen, wie z. B. in englisch *I can* aus Perfekt *$ǵe$-$ǵónh_3$-h_2a 'ich (habe erkannt und) weiß (jetzt)'." This sentiment is widely shared and can already be found, for example, in Couvreur (1936: 551-552).[4]

Eichner's scenario was defended and slightly adapted by Kloekhorst (2018). He subscribes to a tenseless PIE perfect and suggests merging Eichner's first two stages by assuming that the addition of *-*i* to create a present tense was simultaneous in stative perfects (such as *šakk*-) and action-focused perfects (such as *dai*-).

It is true that the envisaged scenario in its various incarnations is still not optimal as it stands. However, I will show that it has not 'been taken as far as it will go'. In the following I will present my own analysis of the data, in the process addressing the most important remaining objections to a direct connection of the *ḫi*-conjugation with the perfect, notably the deviating semantics, and the alleged random distribution of verbs and suffixes among the two conjugations. Sections 3, 4 and 5+6 respectively correspond in content to Eichner's first, second and third layers of *ḫi*-verbs.

[4] Cf. further e.g. Cowgill (1974: 566-569). Kuryłowicz (1979: 143) even speaks of "semantischen Schwierigkeiten, die eine Gleichsetzung der *ḫi*-Konjugation mit dem idg. Perfekt ausschließen". Similarly, Tischler (1982: 238) contends that "eine direkte Gleichsetzung bzw. Herleitung der hethit. -*ḫi*-Konjugation aus dem idg. Perfekt wegen der unüberwindlichen semantischen Probleme ausgeschlossen ist".

3 No stative perfects

The first improvement that can be made is the acknowledgment that there is no evidence for the survival of any stative perfect in the *ḫi*-conjugation, and that *ḫi*-verbs typically have eventive rather than stative meaning. Here the criticism is fully justified. Eichner's example *šakk-* 'to know' can because of the *-kk-* not be reconstructed as **sVh₂g-* and is therefore unrelated to PGm. **sōkjan-*, Gr. ἡγέομαι, Lat. *sāgīre* (see Kloekhorst 2008: s.v.).[5] Although it is still theoretically possible, perhaps even plausible,[6] that a few perfects were lexicalized and therefore escaped later developments, there are no plausible examples that survived until the historical period. If they existed at all, there is no reason to believe that they had any impact on the developments of the remaining group of non-lexicalized perfects. This means that the reality of Eichner's first stage of lexicalized perfects does not have any relevance here, and that it can be left out of consideration.

4 The perfect and tense

4.1 PIE and IE developments

No tense opposition can be reconstructed for the PIE perfect (and the related middle).[7] The perfect is found with various morphologically expressed tense oppositions in the daughter languages, none of whose formations match: we can only reconstruct the one perfect paradigm (cf. Beekes 2011: 265-266). It is therefore quite possible that PIE did not have

[5] The current derivation from **sekH-* 'to cut' does not necessarily imply preserved perfect semantics, as the parallel ToB *kərsa-*, ToA *kärsā-* 'to know' < **kers-* 'to cut' shows; indeed there is reason to believe that the meaning 'to know' developed metonymically from 'to distinguish, realize' at a rather late stage. See the treatment of this verb in 6.1.1.2.

[6] Cf. note 11.

[7] For the present(-aorist) system, however, this is not true. I do not follow Kloekhorst (2018) (and cf. Lazzeroni 2012: 59) in equating the creation of the *ḫi*-conjugation present tense with that of the *mi*-conjugation present tense.

a formally distinct pluperfect.[8] But the existence or absence of a formally expressed pluperfect is a moot point. What is important is that not all tense interpretations of the reconstructable perfect paradigm were equal in PIE. In all languages in which a morphological tense distinction is found, the perfect paradigm emerges as a present tense, and a new preterite was created: in Greek (based on the augmented perfect stem + -ε-, e.g. ἐτεθνήκεε 'was dead'), Sanskrit (augmented perfect stem + secondary *mi*-endings, e.g. *ájagan* 'had gone'), Germanic (weak preterite endings, e.g. Goth. *wissa* 'knew'), Latin (*-*is*-*ā*- + secondary endings, e.g. *nōverat* 'knew'), Slavic (regular preterite endings, e.g. **věděxъ* 'knew'). The most primary, default tense interpretation of the indicative perfect paradigm must, then, have been the present tense. This is also expected given the inherently imperfective aspect of the perfect. Latin and Slavic reinforced the present interpretation with the present tense marker *-*i* in analogy to the present(-aorist)-system (Lat. 1sg. *-ī*, 2sg. *-istī*, 3sg. *-īt*, 3pl. *-ēre* < *-*h*$_2$*e*-*i*, *(-*is*)-*th*$_2$*e*-*i*, *-*e*-*i*(-*ti*), *-*ēr*-*i*; OCS *vědě* < **uoid*-*h*$_2$*e*-*i*).[9]

[8] It is relatively common to reconstruct a distinct pluperfect with secondary present-aorist endings, *-*m*, *-*s*, *-*t*. There is, however, no comparative evidence to support this; only Indo-Iranian features this kind of formation. The Greek forms adduced by Jasanoff (2003: 36) as a justification for pushing this reconstruction back to PIE (e.g. 3du. ἐίκτην, to ἔοικε; 1pl. ἐπέπιθμεν, to πέποιθα) do not in fact show that the Greek pluperfect also used to have present-aorist endings, since these forms feature endings that are found both in the present-aorist and in the perfect. The Greek 1-3sg.plupf. endings -εα -εας -εε are certainly secondary, but we cannot be sure what they are secondary to.

[9] Although the Latin addition of *-*i* is often loosely considered parallel to the one in Anatolian (cf. e.g. Eichner 1975: 87, Weiss 2009: 392 n. 56), the two developments are not the same. In Latin, the *-*i* was added to the perfect paradigm itself as a reinforcement when it still had present tense value (cf. still the 'praeterito-presents' of the type *meminī* 'I remember', *nōvī* 'I know', *stetī* 'I stand'), perhaps at the time already accompanied by the secondary preterite, the later pluperfect (*memineram* 'I remembered', *dīxeram* 'I had said'). The addition of *-*i* was not part of the creation of a secondary present tense *on the basis of* the perfect paradigm, itself surfacing in the past tense, as in Anatolian, which, as I argue below, would suggest an earlier development of the perfect to a past tense. In Latin, this development ostensibly only took place *after* the perfect endings had been extended with the present tense marker *-*i*. A second reinterpretation is impossible given the shift from stative to eventive that comes with such a reinterpretation. This means that the Latin development was not parallel to the Anatolian one as argued for below, even though the morphological result, a set of perfect endings extended with *-*i*, is the same.

Although the indicative of the perfect was typically a present tense, it also often entailed a preterite element ('is in a state (resulting from a previous action)').[10] This explains why in most languages the perfect was reinterpreted as a present perfect or anterior ('is in a state (resulting from having done something)' > 'has done'), and often further developed into a simple past ('did'). We can even neatly observe this process in the course of attested Greek, where the perfect is gradually shifting from a present to a past tense (e.g. τέθνηκε 'is dead' > 'has died' > 'died') from late classical times onward, eventually being outcompeted by the aorist. The same shift happened in Tocharian, Germanic, Italic, Celtic, Sanskrit and Albanian, where the perfect generally functions as a past tense (e.g. Goth. *bītan* 'to bite', *bait* 'bit' < *b^heid-e/o-*, *b^hoid-e*). The languages differ in the way in which they dealt with the new past tense: we find the perfect merging functionally with the aorist creating a morphologically diverse category (e.g. Latin), a general replacement of all other old past tenses (e.g. Germanic), and extinction of the perfect after having become functionally redundant and been outcompeted by more original past tenses (e.g. Greek, Sanskrit).[11]

4.2 Anatolian: development to a preterite

For Anatolian, Eichner assumed that the perfect likewise developed to a past tense for his second wave of lexemes into the *ḫi*-conjugation, but only loosely justified this assumption by pointing out that a preterite interpretation could better account for the existence of *ḫi*-conjugation lexemes that did not feature a perfect in PIE (e.g. 'to put'). This may at most be seen as a hint, but not as compelling evidence for such a change.[12]

[10] For a more detailed treatment of the semantics of the perfect see 7.

[11] Next to the effects of the general development to a past tense, several relics of the older present-tense status are found; cf. e.g. Skt. *jāgā́ra* 'is awake' < *$h_1$ge-$h_1$gor-e* (Gr. ἐγρήγορε 'is awake'), Lat. *meminit* 'remembers' < *me-mon-e+* (Gr. μέμονε 'is minded, eager to'), and the Germanic praeterito-presents, e.g. Goth. *mag* 'can' < *mog^h-e*. Cf. also lexicalized participles such as Goth. *berusjos* 'parents' < perf.ptc.f. in *-*us-ieh*$_2$- to *b^her-* 'to carry'.

[12] Indeed I do not agree with such an interpretation for the main example Eichner provides, *dai-* 'to put'. For my analysis, see 6.2.3.

In this section I will argue on the basis of different arguments that the PIE perfect developed to a past tense in Anatolian.

4.2.1 *A priori*: predisposition

Given that we find the development from present result state to simple past in virtually all other branches (Greek, Tocharian, Germanic, Italic, Celtic, Sanskrit and Albanian), the perfect clearly had a predisposition to go down this pathway. The germ of this development must have been a feature of PIE already (cf. 7). This makes it *a priori* likely, almost expected, that the development happened in Anatolian as well. It would be remarkable if Anatolian had *not* undergone this change, if of course by no means impossible.

4.2.2 Perfect endings emerge as preterite endings

One Anatolian feature, however, strongly suggests that the perfect indeed developed to a past tense in this branch as well: the fact that the basic *ḫi*-conjugation endings corresponding to those of the PIE perfect are those of the preterite rather than those of the present tense (cf. already Kuryłowicz 1958: 236-237, Risch 1975: 252). As we saw in 4.1, the default interpretation of the perfect indicative was a present tense, and in secondarily created tense distinctions the preterite rather than the present is secondary. Only in those cases in which a semantic shift to a past tense has taken place do the basic perfect endings surface as such in the past tense.[13] The fact that the basic paradigm surfaces as the preterite in Anatolian strongly suggests a shift in the default interpretation of the perfect indicative from a present to a past tense.

[13] This makes it unlikely that there was a development as envisaged in Eichner's (1975) first step, maintained by Kloekhorst (2018: 97) (and cf. Lazzeroni 2012: 59), by which the original perfect inflection was 'pushed into' preterite interpretation because of the creation of a new present. The parallel with the *mi*-conjugation does not hold, as this conjugation was the default inflection for all verbs, most of which were telic and therefore predominantly occurring in preterite interpretation (cf. the ratio of root presents vs. root aorists in Greek, see e.g. Risch 1974: 233). The present tense was therefore a marked interpretation and hence came to be the one to be marked morphologically.

4.2.3 Eventive semantics

The typically eventive semantics of *ḫi*-conjugated verbs that have featured as a major argument for disconnection of the *ḫi*-conjugation from the perfect are in fact exactly what we would expect from a perfect that has made the shift to a simple past. The development from a result state to a simple past is in essence a *shift of focus from the resulting state of an event to the event itself*, e.g. 'is dead' > 'died'. This is exemplified by all branches in which this development happened (cf. 4.1 above), most notably by Greek, in which it took place in historical times (e.g. τέθνηκε 'is dead' > 'died').[14] The eventive semantics of the *ḫi*-conjugation thus receive a straightforward explanation, and are, moreover, rather another argument *in favor* of a direct derivation of the *ḫi*-conjugation from the perfect, through a simple past.

4.2.4 Syncretism with the *s*-aorist

It is clear that the 3sg.pret. ending *-š* is a secondary intrusion into the *ḫi*-conjugation, replacing older **-e*. The older ending can still be seen in the present ending that was built on it: **-e-i* > Hitt. *-e* (>> *-i*). The replacement is neatly motivated by the fact that the original ending **-e* would not have survived in Hittite (Kloekhorst 2008: 97 n. 214 and s.v. *-š*). It is usually held that the source category of this ending *-š* was the *s*-aorist, with **-s* coming to serve as an ending after the loss of **-t* in **-s-t*.

The replacement of 3sg. **-e* must have happened after the creation of the present tense. However, another ending that is specific to the *ḫi*-conjugation, as Kloekhorst (2007a) has shown, is the 2pl. ending pres. *-šteni*, pret. *-šten*. Here the present ending does equal the preterite ending plus *-i*, and so it is quite possible that this ending already was a feature of the *ḫi*-conjugation before the creation of the secondary present tense. Kloekhorst (2007a, 2008: s.v. *-šten(i)*) connects the ToAB 2pl. pret. ending *-s* and proposes to trace both back to a PIE 2pl. perfect ending **-su*. Such a reconstruction, however, is difficult to reconcile with the 2pl. perfect ending we find in Sanskrit, *-á* < **-é*. Since the latter can hardly be secondary, the communis opinio is that this was the PIE 2pl. perfect ending

[14] For this development see e.g. Allan (2016: § 3) with refs.

(cf. Fortson 2010: 103-104, Beekes 2011: 265). The Hittite ending *-šten*, on the other hand, can easily be secondary, since a likely source quickly presents itself. Given the 2pl. *mi*-conjugation ending *-ten*, the analysis of the ending must be *-š-ten*, with a suffix *-*s*-. This suggests even more directly than in the case of the 3sg. that the source of this ending was the *s*-aorist.[15] Of course, if the 3sg. *-*e* was a problem, this may also have been the case for the 2pl. *-*é* – although in this case, it was at least originally accented. But even before the workings of sound law, the identity of these two endings must have been quite inconvenient, and it is no surprise to find that the 2pl., the less frequent of the two, was replaced in virtually all daughter languages. This suggests that Anatolian inherited the 2pl. ending *-*é* and at some point replaced it with the *s*-aorist ending *-*s*-*te*°.

These apparent intrusions of *s*-aorist endings to repair the inherited inconveniences of the perfect endings suggest not only that the *s*-aorist existed in pre-Hittite,[16] but also that it was semantically close if not

[15] Peyrot (2013: 418) similarly traces the Tocharian ending back to the *s*-aorist.

[16] Since the Anatolian *s*-aorist did not survive as such into the historic period, its original distribution is largely beyond our reach. However, it is likely to have been less prominent than, for example, in Greek, whose recessive category of (active) athematic presents, morphologically corresponding to the default shape of Hittite verbs (another clear testimony to Hittite's archaicity), the *mi*-conjugation, systematically lacks an *s*-aorist (e.g. εἰμί 'to be', εἶμι 'to go', ἔδμεναι 'to eat', φημί 'to say', ἄημι 'to blow'). The *s*-aorist is naturally also secondary to root aorists, with which *s*-aorists sometimes coexist with a functional difference: intransitive athematic aorists may be accompanied by an *s*-aorist counterpart with causative value, e.g. ἔστη 'stood up', ἔστησε 'made stand up, set up', ὦρτο 'rose', ὦρσε 'made arise'. This means that the *s*-aorist does not seem to be 'native' to the core of the verbal system, and it is likely originally to have had a more restricted, secondary, perhaps semantically fuller function, and to have gradually grammaticalized into a marker of perfective aspect functioning more in the core of the verbal system only later. The *s*-aorist is still spreading at the cost of less characterized aorists even in attested Greek, e.g. ἔλιπον >> ἔλειψα 'left', ἔδωκα >> MoGr. έδωσα 'gave'. These facts should, however, not be exaggerated. Even if the full grammaticalization of the *s*-aorist may have been a relatively late development, it is still *a priori* likely that the *s*-aorist existed before this development at least as a morphological category, and that its function was at this point not too distant from the attested one, since it was apparently this category that was best suited to become an aorist marker.

The idea that the non-Anatolian *s*-aorist grew out of the 3sg. ending of a preterite category corresponding to the preterite of the *ḫi*-conjugation in which it had itself been an intrusion (cf. most recently Jasanoff 2019) is, to say the least, a suboptimal solution. It is much more natural to simply identify the *s*-aorist as the source of the *s*-intrusions

identical to the perfect at the time of the spread of these endings. Semantic identity may also well be the reason for the eventual disappearance of the *s*-aorist.[17] This again favors the assumption of a shift in the interpretation of the perfect from a present result state to a past event. The Hittite situation fits in well with the competition between, and mergers of, perfect and aorist that we find in other languages that went through such a development.

4.3 The creation of a new present tense

Clearly, at some point, a new present tense was created by the addition of *-*i*. This creation finds a plausible motivation in the development of the perfect to a simple past which then overshadowed the old preterite(s) of the verbs involved. This had created two categories of verbs: those whose preterite went back to the imperfect and those whose preterite went back to the perfect. The two conjugations had effectively already been formed. But since the original *mi*-verb was at this point still the only formation that could express present tense, one was morphologically imbalanced.

into the *ḫi*-conjugation. The derision of the idea that the *s*-aorist was both the donor of the *s*-morphemes in the perfect and eventually ousted by the perfect (Jasanoff 2003: 177) is the unfortunate result of confusion: the *s*-morphemes served to repair the problematic endings of the perfect *within the paradigm*; this does not at all exclude that the perfect as a *category* was the more dominant of the two. Finally, the comparison with the Tocharian *s*-preterite (Jasanoff 2003: 175-177; 2019: 39), which should prove that the Hittite situation of a 3sg. *-*s* among perfect endings is of PIE date, is a mirage. Tocharian simplified *CsC*-clusters on a large scale (cf. e.g. the origin of the *tk*-presents in *°*t-sk*), naturally affecting much of the original *s*-aorist paradigm, but not the 3sg. in *-*sa* << *-*s* < *-*s-t* (see e.g. Peyrot 2013: 503-507). The occurrence of perfect endings in the paradigm is due to the development of the perfect to a preterite, and the subsequent spread of its endings to other preterites (see e.g. Peyrot 2013: 417-419, 421-422).

[17] For one of many parallels cf. e.g. the heavy encroachment of the Italian present perfect (e.g. *ha fatto* 'has done') on the domain of the old simple past (i.e. the continuation of the old perfect, called the *passato remoto*, e.g. *fece* 'did'), to the point of complete ousting in the daily speech of most northern Italians.

	pret. < impf.	**pret. < perf.**	
pres.	**g^{wh}en-m-i*	**Heḱ-m-i*	>> **Hoḱ-Ha-i*
	**g^{wh}en-s-i*	**Heḱ-s-i*	>> **Hoḱ-ta-i*
	**g^{wh}en-t-i*	**Heḱ-t-i*	>> **Hoḱ-e-i*
	**g^{wh}n-uen-i*	**Hḱ-uen-i*	
	**g^{wh}n-ten-i*	**Hḱ-ten-i*	>> **Hḱ-sten-i*
	**g^{wh}n-ent-i*	**Hḱ-ent-i*	
pret.	**g^{wh}en-m*	**Hoḱ-Ha*	
	**g^{wh}en-s*	**Hoḱ-ta*	
	**g^{wh}en-t*	**Hoḱ-e*	
	**g^{wh}n-uen*	**Hḱ-uen*	
	**g^{wh}n-ten*	**Hḱ-sten*	
	**g^{wh}n-ent*	**Hḱ-ēr*	

While the *m*-preterite was accompanied by a present tense which differed from it only through an additional **-i*, the *Ha*-preterite and its present tense were in most forms a mismatch of ablaut and endings, which was all the more prominent due to the presence of **-i* which in the other category was the only difference between present and preterite. The analogical replacement of the mismatching present forms resolved this morphological imbalance: now in this category of verbs, too, the main distinction between the two tenses was the additional **-i* of the present.[18] In essence, we are dealing with a straightforward case of analogy, with a simple motivation and a clear model. Contra Jasanoff (2003: 12-13), then, there is nothing spectacular or problematic about such a development.[19]

Neither is it surprising that the preterite was taken as a basis for the innovation rather than the present. The perfect was typically used with verbs whose present-aorist counterpart indicated a change of state, with the

[18] It is possible that the *ḫi*-conjugation 3pl. pres. *-anzi* directly stems from the earlier *mi*-present rather than being a recent replacement of a hypothetical **-ēr-i* which itself replaced **-enti*. The existence of **-enti* next to pret. **-ēr* was conceivably tolerated because the *mi*-conjugation had the same endings after **-ēr* replaced **-ent* > **-an*, which had become too opaque due to the workings of sound law (cf. Cowgill 1974: 564, Risch 1975: 252).

[19] And *pace* Cowgill (1979: 28-32), whose criticism is (likewise) too much fueled by the typological comparison with the non-Anatolian IE languages, in which the morphological situation is crucially different.

perfect expressing the subsequent state (more on the semantics of the PIE perfect in 7). Verbs with such a semantic frame usually occur much more frequently in the preterite than in the present.[20] For verbs like **Heḱ-* 'to die' and **ues-* 'to buy', the preterite ('died', 'bought') will therefore have been much more common than the present ('dies, is dying', 'buys, is buying').[21] Many such lexemes may not even have had a preexisting present at all, a state of affairs comparable to Greek lexemes lacking a present aspect such as δει- aor. 'to get scared', perf. 'to be scared' (more on this in 7). The creation of a present tense on the basis of the preterite (**Hoḱ-e* 'died' → **Hoḱ-e-i* 'dies, is dying', **uos-e* 'bought' → **uos-e-i* 'buys, is buying') is therefore completely understandable.[22]

[20] For the term 'semantic frame' see 7.

[21] Cf. the lack of a present stem to the Greek aor. πρίατο 'bought' (in later Greek suppletively expressed with ὠνέομαι).

[22] It is not difficult to find present tense formations based on preterites in other IE languages, cf. e.g. MoGr. πεθαίνει 'dies', based on the aor. πέθανε < ἀπέθανε. Note that in this case, too, there already was an earlier 'serviceable present' (one of Jasanoff's (2003: 13) objections), ἀποθνήσκω, which was nevertheless replaced in order to morphologically (re)align present and aorist. Of course, since Greek operates with an aspectual system, examples like this show the creation of a new imperfective stem beside a perfective stem rather than just a present tense beside a past tense. Anatolian crucially does not work like that, but rather only has a tense distinction expressed by the absence or presence of **-i*. Since there is no other IE language that functions like this, one can hardly expect to find a perfect parallel in any of them. Despite the necessary difference of morphological mechanism, however, it is not difficult to grasp the typological relatedness of these developments.

One Greek lexeme that did happen to parallel the Anatolian development more closely is the following. The main expression of 'to stand' in Ancient Greek was with the perf. ἕστηκε 'stands' (to the eventive pres. ἵσταται 'goes and stands', aor. ἔστη 'stood up/still'). This verb was lexicalized to some extent, and therefore, like e.g. οἶδα, missed the general development of the perfect to a preterite. Nevertheless, the shape of ἕστηκε, which not only had the endings of the new preterite, but could also, after psilosis, be interpreted as having an augment, suggested that it should be a past tense, and hence it came to mean 'stood' rather than 'stands'. Some of its forms allowed for a reinterpretation as a thematic imperfect, which led to the creation of a new present tense στήκει 'stands' (στήκω), e.g. τῷ ἰδίῳ κυρίῳ στήκει ἢ πίπτει 'to his own master he stands or falls' (NT *Rom.* 14:4). Modern Greek still has στέκω ~ στέκομαι 'I stand', pret. (impf.) έστεκα ~ στεκόμουν 'I stood'.

5 Conjugation assignment I

5.1 Is there a principle?

Although the origin of the *ḫi*-conjugation in a development of the perfect to a preterite to which a new present was created by the addition of **-i* is clearly suggested by the overall characteristics of the category, what remains to be inspected is the individual, lexical level. Is there a principle behind the assignment of verbs to the *mi*-conjugation or the *ḫi*-conjugation?

According to most, there is no such principle.[23] Jasanoff (2003: 13) supports his subscription to this opinion by pointing to the different conjugation assignments of the (near-)synonyms *-šš(a)-*^{i} and *-ške/a-*^{zi} (imperfective suffixes), and *-aḫḫ-*^{i} (factitive suffix) and *-nu-*^{zi} (causative suffix).

Jasanoff criticizes Eichner's "ad hoc explanation" of a layer of verbs transferred based on formal characteristics. The idea that some *ḫi*-verbs go back to the PIE *CoC-eie/o*-type (main example: *lāk-*^{i} < **log*^{h}*-eie/o-*) which were transferred on the basis of their *o*-vocalism is in Jasanoff's view "literally incredible" and "beyond belief", because he "know[s] of no other case in an IE language in which the root vocalism of a morphological class was sufficient to trigger a wholesale switch in inflection and stem structure", which is further characterized as a "bizarre remodelling".[24] He

[23] Kortlandt (2010) explores the possibility that the members of the *ḫi*-conjugation are perfects that came to denote the imperfective rather than the stative-resultative aspect, comparing Slavic formations in *-ěti*, which generally match the PIE perfect semantically, but can also be used for creating imperfectives denoting continuous action, and then occasionally develop secondary transitivity (e.g. Cz. *vidět* 'to see'). Accordingly, Kortlandt tries to find a lexical semantic principle behind membership of the *ḫi*-conjugation. This scenario has become superfluous with the recognition that a development to a past tense, which Kortlandt (2019: 106) now also assumes, is a transition from stative to eventive (4.2.3), and that transitive verbs (and indeed *ḫi*-verbs in general) are typically formal transfers (as will become apparent in the following).

[24] True falsification, in Jasanoff's (2003: 14) view, is *u̯aššе/a-*^{zi} 'to put on (a piece of clothing); clothe', for which he follows the old reconstruction **uos-eie/o-*. This reconstruction is impossible, however, because of the geminate *-šš-* (Melchert 1984: 31-32 n. 64, Kloekhorst 2008: s.v. *u̯ešš-*^{tta}; *u̯aššе/a-*^{zi}): intervocalic **-s-* gives Hitt. *-š-*. Melchert (1984: 31-32 n. 64; 1994: 152) tried to save the reconstruction **uos-eie/o-*

is certainly correct in objecting to Eichner's assumption of metanalysis of *-naḫḫun* as the source of the type in *-nai* that this 3sg. must be reconstructed for Proto-Anatolian when the 1sg.pret. ending was still **-Ha*.

Willi (2018: 42 n. 18) is also skeptical and only devotes one rhetorical question in a footnote to the idea: "In Eichner's (1975) model, these formations belong to a 'tertiary group' of *ḫi*-verbs, whose transfer from the *mi*-conjugation was due to superficial features such as radical *a*-vocalism (…); but are such motivations sufficient?".

Kloekhorst (2018), on the other hand, does follow Eichner and provides other examples of transfers between morphological categories on the basis of formal similarity, such as the fate of the laryngeal-final nasal presents in Greek (*-*n*-*eh*$_2$- > -νη/να-, but *-*n*-*eh*$_1$- >> -νε/ο-, *-*n*-*eh*$_3$- >> -νυ-) and the transfers of some originally weak Germanic verbs with *-*ī*-, Dutch -*ij*-, to the first class of the strong verbs.[25] He further points out that there are many word equations between *ḫi*-verbs and present-aorist forms in other languages. He provides the following examples.

- Stem formations with **ĕh*$_3$: *dā-*^{i} 'to take' ~ PIE root aorist **deh*$_3$- 'to give'[26] and *pāš-*^{i} 'to swallow' ~ PIE *s*-aorist **pēh*$_3$-*s*- (?).

by assuming that -*šš*- was introduced from *ueššⁿ-*^{tta} 'to wear', but -*šš*- cannot have come about by sound law in this lexeme either; Melchert's (1994: 152) rule by which *-*s*- became -*šš*- "in non-alternating verbal stems in final /-s/" is implausible, and superior explanations are available for his three examples *kišš*-, *lišš*- and *ueššⁿ*- (cf. e.g. Kloekhorst 2008: s.vv.). Since there is no plausible analogical source for the geminate -*šš*- in *u̯ašše/a-*^{zi}, it must have come about in this verb by sound law. Kloekhorst's (2008: s.v. *u̯ešš-*^{tta}; *u̯ašše/a-*^{zi}) reconstruction of *u̯ašše/a-*^{zi} as **us*-*ie/o*-, with -*šš*- from *-*si̯*-, neatly fits this conclusion. As Kloekhorst points out, it also makes the pair *ueššⁿ-*^{tta} 'to wear' and *u̯ašše/a-*^{zi} 'to put on' neatly fit the established pattern of a middle root formation next to an active *i̯e/a*-formation (e.g. med. *ḫuett-*$^{tta(ri)}$, act. *ḫuttii̯e/a-*^{zi} 'to draw, pull').

[25] The examples can easily be multiplied. For example, in Germanic, we find transfers from weak to strong not only with radical *-*ī*- to the first class (an English example is *dived* >> *dove*), but also, for example, with radical *-*a*- to the sixth class, e.g. Dutch *jagen* 'to hunt', pret. *jaagde* >> *joeg*.

[26] For *dā-*^{i}, Eichner (1975: 93-94) had created an ad hoc scenario by which the *ḫi*-endings in this case went back to middle endings. This formally untenable idea (cf. Kloekhorst 2008: s.v.) arose only to explain the meaning 'to take' ("to give to

- *CoC-eie/o*-formations: *lāk-*^{i} ‘to knock out (a tooth)’, *kānk-*^{i} ‘to hang (tr.)’, *u̯āk-*^{i} ‘to break (tr.)’, which on account of their causative meanings vis-à-vis the basic verbs in other branches may be traced back to the PIE causatives **log*^{h}*-eie/o-* ‘to make lie down’, **ḱonk-eie/o-* ‘to hang (tr.)’, **uoh*$_{2}$*ǵ-eie/o-* ‘to break (tr.)’.
- “*molō*-presents”, which occur with both *o*-grades and *e*-grades in the other branches: *mall-*^{i} ‘to grind’ (**molH-*), *padda-*^{i} ‘to dig’ (**b*^{h}*od*^{h}*h*$_{2}$*-*), *mald-*^{i} ‘to recite, make a vow’ (**mold*^{h}*-*); possibly also *ueu̯akk-*^{i} ‘to wish, ask for’ < **ue-uoḱ-*, an intensive to **ueḱ-* ‘to want’.
- The type in °*na-*^{i} (*tarna-*^{i} ‘to let (go)’, *šunna-*^{i} ‘to fill’) could go back to *°*neh*$_{3}$*-* (with *°*noʔ-ti* >> *°*noʔ-ei* rather than through a reinterpretation of the 1sg.pret. °*aḫḫ-un* as °*a-ḫḫun*), although there is no independent proof for the color of the laryngeal.
- The imperfective suffix *-šša-*^{i} could go back to **-seh*$_{3}$*-* / **-sh*$_{3}$*-*, which may ultimately be the same as **-ske/o-* < **-sk*^{w}*-e/o-*(?) with **h*$_{3}$ ~ **k*^{w} as in *=*k*^{w}*e* ~ *=*h*$_{3}$*e* ‘and’ (see 6.2.3).

5.2 In defense of formal transfers

The idea of formal transfers has to be taken much more seriously. If there were formal transfers, they have to be filtered out in order to reach the original input of the *ḫi*-conjugation.

The kind of stupefaction and skepticism the idea of formal transfers has met with is out of place. It is really not outrageous or even peculiar: with partial identity leading to full identity, it is quite an ordinary form of analogy. Categories merge on the basis of formal overlap all the time.

Especially in Anatolian, the ablaut vowel, along with the endings, was the main distinctive characteristic between the two conjugations, and it is not surprising to find that vowel color took a leading role in conjugation assignment, and that mismatches were transferred.

And not only are such transfers *a priori* perfectly possible, there are several facts that directly suggest that they did indeed happen.

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oneself”). However, we do not need the middle to explain the meaning; see Chapter 7.

A strong indication are the distributions that will become apparent from section 6. Roots in which the ablaut vowel was flanked by *h_2 or *h_3 are almost exclusively found in the *ḫi*-conjugation. This distribution cannot be related to any functional parameter, but can only be explained by the assumption that the *ḫi*-conjugation attracted these roots on purely formal grounds.

The correctness of this analysis is underlined by Hittite verbs starting with *ḫ-* < *$h_{2/3}$-. As we will see below, these regularly ended up in the *ḫi*-conjugation. However, if they had originally started with *$h_{2/3}o$-, the laryngeal would most probably not have come out as *ḫ-*, but it would have been lost (cf. Kortlandt 2003-2004, Kloekhorst 2006b). This is suggested, for instance, by *au-*^{i} 'to see', which goes back to *h_2ou-. The original zero grade, rather than analogical *u-*, is probably preserved in the lexicalized imperfect *ḫu-ške/a-* 'to wait for' < *h_2u-*ske/o-* (Kloekhorst 2008: s.v.).[27] A similar effect is probably seen in the doublet *ānš-*^{i} 'to wipe (off)' ~ *ḫane/išš-*^{zi} 'to plaster, wipe',[28] which seems to have resulted from a paradigm split of an ablauting verb *h_2*ómh*$_1$*-s-* / *h_2*mh*$_1$*-s-* (Kloekhorst 2008: s.vv.). Therefore, all *ḫi*-verbs showing *ḫa-* in principle go back to *$h_{2/3}e$-, with *e*-grade, which directly implies original *mi*-inflection. Restoration of a preform *$h_{2/3}o$- on the basis of the zero grade is unlikely: as verbs like *au-*^{i} / *u-* 'to see' show, the analogical leveling rather proceeded in the opposite direction, i.e. from the strong to the weak stem.

[27] For the semantic development, cf. e.g. It. *aspettare* 'to wait (for); expect' < Lat. *a*(*d*)*spectāre* 'to watch (for)'. An alternative proposal connects *ḫuške/a-* with *ḫuiš-*^{zi} 'to live', through the meanings 'to dwell; to remain, stay', which are also attested in the cognates (thus e.g. Puhvel 1991: s.v. *hues-*). Against this proposal it may be objected that *ḫuiš-* only means 'to live, be alive, survive, recover', with derivations meaning 'raw' and 'wild beast; game' – very similar to *$g^{w}ieh_3$- in the rest of Indo-European. There is no indication that the Anatolian verb ever meant 'to dwell, stay', which may have been a post-Anatolian innovation (cf. PGm. **libēn-* 'to be alive' > Eng. *live* 'to be alive; to dwell' – although **libēn-* itself shows the opposite development from PIE *lik^{w}-eh_1- 'to be left, to remain'). It is quite a stretch to assume a development 'to live' > 'to dwell' > 'to stay' > 'to wait' > 'to wait for', and only in the imperfective. A development *h_2u-*ske/o-* 'to watch (for)' > *ḫuške/a-* 'to wait (for)' is much more straightforward.

[28] The semantic closeness of these verbs is borne out, for example, by the fact that both can be used with *išḫaḫru* to express 'to wipe (away) tears' (cf. HED 3: 86-87).

More evidence comes from affixes. For example, the other IE languages show that PIE nasal infix formations only had *e*-grade. In Hittite, we find two types of continuation of this infix, *-ni*(*n*)(*C*)-^{zi} and *-na-*^{i}. It is telling that formations going back to **-ne-K-* are only found *mi*-conjugated, and it will be argued below that the remaining formations in **-ne-H-* are distributed according to the color of the laryngeal: **-ne-h₁-* comes out as *mi*-conjugated, whereas **-ne-h₂-* and **-ne-h₃-* are the sources of the type in *-na-*^{i}. Significantly, there is no type in ***-na-*^{zi}. Another clear case is *-aḫḫ-*^{i}, whose reconstruction as **-eh₂-* is not in doubt (cf. e.g. Lat. *novāre* 'to renew', Hitt. *neu̯aḫḫ-* 'to renew' < **neu-eh₂-*).

In addition, some undeniable word equations suggest that the Hittite verbs go back to a different morphological category, with an accordingly differently shaped preform. The semantics of *lāk-*^{i} (< virtual **log*^{h}*-ei*), for example, directly point to the PIE causative **log*^{h}*-eie/o-*, to which it is formally extremely close, and whose morphological type does not survive in Hittite in any other way. We will see more examples below, such as the striking pair *dākk-*^{i} 'to resemble' ~ Gr. δοκέω 'to resemble' < **doḱ-éie/o-*, originally the causative of **deḱ-* 'to receive'.

Jasanoff's perplexity especially regards this *CoC-eie/o*-type, of which he does not believe that it could lose its stem suffix and become an ablauting athematic verb. To be sure, such a development may seem odd from the perspective of other Indo-European languages. In the context of Hittite, however, it is completely understandable. First of all, since intervocalic **-i̯-* does not survive in Hittite, sound law took care of the destruction of the suffix. Compare, for instance, the PD *i*-stems, whose OH oblique cases in *-a-* < **-eio-*, e.g. gen. *-aš* < **-eios*, show that we should expect there to be nothing left of a prevocalic sequence **-ei-*. The ensuing verbal type, whose approximate shape must have been **CoC-ē-ti* (*-di*) / **CoC-onti*, had characteristics both of the *ḫi*-conjugation (**-o-* in the root) and of the *mi*-conjugation (**-ē-*^{ti}), and was subsequently dehybridized into one of the two more familiar types. Clearly, of these characteristics, the defining *o*-vocalism was the dominant feature, which induced a transfer to the *ḫi*-conjugation.[29] The fact that it became ablauting is not at all

[29] Since the *CoC-eie/o*-type was clearly pushed into the mold of the perfect/*ḫi*-conjugation pattern in pre-Hittite, it does not seem advisable to me to adapt the

surprising. While ablaut was on its way out in the other IE languages, it was still thriving in Hittite. Here it rather was the pattern with *-*o*- throughout the paradigm that was abnormal, and its adaptation therefore does not have to surprise us.

In the case of other formations, not discussed by Jasanoff, the transfer was even simpler, and only entailed a switch in the endings that differ between the two conjugations, e.g. **dō-m* >> **dō-Ha*.

The same goes for formations with *o*-grade of the type **molH-* 'to grind' (cf. Goth. *malan* 'to grind', Lith. *málti* 'to grind, mill'). These sometimes have cognates with *e*-grade (e.g. OIr. *meilid* 'grinds', OCS *meljǫ* 'to grind, mill'). For Jasanoff, this category of verbs constitutes the true cognate of the Hitt. *ḫi*-conjugation in non-Anatolian IE: he regards them as the *disiecta membra* of a category with perfect endings and *o/e*-ablaut. However, we always find either **o* or **e* in the formations of the daughter languages, never both in one paradigm,[30] suggesting that we are rather dealing with two separate morphological types. It has been noted that the verbs in question typically designate (potentially) repeated actions and belong to such semantic domains as beating, stabbing and digging (cf. Stang 1942: 40-42, Kümmel 2004: 142, Kloekhorst 2018: 100-101). Stang (1942: 42) therefore plausibly compares the formation featuring *o*-vocalism with the Sanskrit 'intensive' (iterative) of the type *jaṅghan-* < **g^{wh}en-g^{wh}on-*, intensive to *han-* < **g^{wh}en-* 'to beat'. Accordingly, LIV^{2} reconstructs e.g. Goth. *malan* (etc.) as **me-molH-*, assuming dereduplication. Although it may be debated whether these were indeed a single type in PIE, and, if not, what exact shape the **molH*-type had, it is at least clear that the latter did not have perfect endings. There is no trace of perfect endings outside Anatolian, nor would this make semantic sense. Therefore it is best to assume that in Hittite these verbs simply took on *ḫi*-inflection on the basis of their *o*-vocalism, just like laryngeal-colored verbs

preform **CoC-eie/o-* as reconstructable on the basis of the other IE languages only to bring it closer to the Hittite form (thus e.g. Kloekhorst 2018: 100: **CoC-e*, only in non-Anatolian IE + **-ie/o-*).

[30] The Hitt. *a/e*-ablaut on which this idea is based is clearly secondary, see Kloekhorst (2012; 2014b; 2018: 90-91).

such as **deh$_3$-* and the *CoC-eie/o*-type, rather than the other way around (cf. Kümmel 2004: 146-148).[31]

6 Conjugation assignment II: A formal distribution between the *mi*- and *ḫi*-conjugations

In the following I will conduct a systematic investigation of the relationship between form and conjugation assignment. If formal mismatches were generally avoided, we should be able to observe some clear formal tendencies, and to be able to find principles to predict to a large extent, on the basis of the inherited PIE root or stem structure, according to which conjugation a given inherited verb will inflect in Hittite: we expect *mi*-inflection to be the standard, and *ḫi*-conjugation to correlate with laryngeal-coloring and morphologically motivated *o*-grade, notably *CoC-eie/o*-formations, **molH*-type iteratives, and – the original core of the category – old perfects. If there are no secure cognates, we can make an educated guess about the original formation of a *ḫi*-verb based on its meaning. If this does not point in any direction either, the exact original formation of the verb in question must remain unclear.[32]

[31] Cf. especially Kümmel (2004: 148): "Es erscheint vorläufig besser, *mi*-Endungen des Aktivs anzusetzen, und zwar wegen der "aktiven" Bedeutung (Tätigkeitsverben) und der Fortsetzung außerhalb des Anatolischen, die nirgendwo eine Konfusion mit dem Perfekt erkennen lässt. Dies impliziert, dass die betreffenden Verben im Heth. sekundär in die *hi*-Konjugation eingeordnet worden und lässt die Frage nach dem eigentlichen Ursprung der anatolischen **hai*-Konjugation offen (hier könnte er jedenfalls nicht liegen).".

[32] In the overviews, perfects are noted as **(Ce-)CoC-e*, *CoC-eie/o*-causatives and -iteratives as **CoC-eie/o-* and **molH*-type iteratives as **CoC-*. All 'educated guesses' are provided with a question mark. When such a guess points to an iterative, the merger prevents us from distinguishing between the iterative type represented by **molH-* 'to grind' and the *CoC-eie/o*-iterative type; in such cases I will note **CoC-*(*eie/o-*), and use the cover term '*o*-grade iterative'. A meaning in the domain of 'cutting' is sometimes used to justify the reconstruction of a **molH*-type iterative (e.g. Jasanoff 2003: 78-79), but since the original meaning of the formation must then have been iterative, such cases may in principle just as well continue *CoC-eie/o*-iteratives. When the original category is irretrievable, but the formation must in any case have had *o*-grade, this is noted as '? (*CoC-*)'.

The discussion will be structured as follows. The first and main part of the overview consists of a collection of unaffixed Hittite verbs inherited from PIE (cf. in general Kloekhorst 2008). This includes verbs with a historical suffix *-*s*- or *-*u*-, which are usually the only surviving form of the lexeme, and for all intents and purposes behave like root formations. In order to determine the effects of laryngeals on conjugation, the root formations are divided into roots which did and roots which did not have a laryngeal adjacent to the ablaut vowel. Those which did not are further divided according to the structure of the root: first the straightforward structures in *°*eC*-, then those in *°*eCC*-. The latter shape requires separate attention because it underwent various vowel-altering sound laws. We then move on to roots with a laryngeal flanking the ablaut vowel to see if they show different *mi*- to *ḫi*-ratios. This is *a priori* not expected for *h_1, but it is for *h_2 and *h_3: if the coloring of the latter type indeed generally triggered a transfer from the *mi*- to the *ḫi*-conjugation, these groups should have a much higher percentage of *ḫi*-inflection. The treatment of the root formations is followed by a scrutinization of the behavior of the remaining types: reduplicated verbs, nasal infix verbs, and verbal suffixes. For the sake of clarity, an overview of the sections of the discussion is provided below.

6.1 **Root formations**
- 6.1.1 No adjacent laryngeal
  - 6.1.1.1 *°*eC*-
  - 6.1.1.2 *°*eCC*-
- 6.1.2 Adjacent laryngeal
  - 6.1.2.1 *h_1
  - 6.1.2.2 *h_2
  - 6.1.2.3 *h_3
  - 6.1.2.4 **H*

6.2 **Affixed formations**
- 6.2.1 Reduplicated formations
- 6.2.2 Infixed formations (*°*-ne-C*-)
- 6.2.3 Suffixes

6.1 Root formations

6.1.1 No adjacent laryngeal

6.1.1.1 *°*eC*-

6.1.1.1.1 **CeC*-

The following overview contains a collection of all roots with the structure *CVC*- without any possibly interfering laryngeal. For this structure, we do not expect there to be an inherent liability to be transferred to the *ḫi*-conjugation, only occasional transfers based on morphological *o*-grade.

PIE root	formation	Hitt.	meaning	conj.
**g*^{wh}*en*-	**g*^{wh}*en*-	*kuen*-^{zi} / *kun*-	'to kill'	*mi*
**kes*-	**kes*-	*kiš*-^{zi}	'to comb'	*mi*
**k*^{w}*er*-	**k*^{w}*er*-	*kuer*-^{zi} / *kur*-	'to cut'	*mi*
**mer*-	**mer*-	*mer*-^{zi} / *mar*-	'to disappear'	*mi*
**neg*^{wh}-	**neg*^{wh}-	*neku*-^{zi}	'to become evening'	*mi*
**pes*-	**pes*-	*peš*-^{zi} / *pišš*-	'to rub'	*mi*
**ses*-	**ses*-	*šeš*-^{zi} / *šaš*-	'to sleep'	*mi*
**ter*-	**ter*-	*ter*-^{zi} / *tar*-	'to speak'	*mi*
**ueḱ*-	**ueḱ*-	*uek*-^{zi} / *uekk*-	'to want'	*mi*
**deḱ*-	**doḱ*-*eie/o*-	*dākk*-^{i} / *dakk*-	'to resemble'	*ḫi*
**leg*^{h}-	**log*^{h}-*eie/o*-	*lāk*-^{i} / *lak*-	'to knock down, fell'	*ḫi*
**ues*-	*(*ue*-)*uos*-*e*?	*u̯āš*-^{i}	'to buy'	*ḫi*

It is immediately clear that we are not dealing with a random distribution. As predicted, the majority of verbs of this type is *mi*-conjugated. Moreover, of two out of three exceptions, it is clear that there is something going on on the morphological level.

dākk-^{i} 'to resemble' does not continue the base verb **deḱ*- 'to receive' (Gr. δέκτο 'received'), but is identical in meaning to Gr. δοκεῖ 'resembles' < **doḱ*-*eie/o*-. This must originally have been the causative of **deḱ*- (cf. Oettinger 1979: 427), but, although the historical semantic connection is not difficult to grasp (cf. the etymological connection between *receive* ~ *perceive*), the somewhat deviant meaning in both Greek and Hittite indicates that it had developed towards the meaning 'to resemble' in PIE

already.[33] It is clear, then, that Hittite *dākk-*^{i} must be interpreted as continuing a PIE *CoC-eie/o*-causative, which joined the *ḫi*-conjugation only secondarily. Coincidentally, the identification of *dākk-*^{i} with δοκεῖ < **doḱ-eie/o*- may also solve a formal problem. If **dóḱ-e*(*i*) were original, it would have lenited the **ḱ* (*-kk-*) and we would not have had *dākki*, but ***dāki* (cf. *aki* / *akkanzi* 'to die' < **Hóḱ-ei* / **Hḱ-enti*). For Kloekhorst (2008: s.v.), this is the reason to assume that the preform was **doḱh*$_1$-. But there is otherwise no trace of a final **h*$_1$, and forms like Gr. δέκτο 'received' and δόξα 'expectation, notion' rather indicate that there was no root-final laryngeal. However, if we accept that the source of *dākk-*^{i} is **doḱ-éie/o*-, with accent on the suffix (cf. Skt. *-áya-*), the problem disappears: unaccented **-o-* does not trigger lenition. A model for long *-ā-* plus a non-lenited *-kk-*, which **dakk-* resembled most closely, was available in *šākk-*^{i} / *šakk-* 'to know' < **sókH-* / **skH-*.

lāk-^{i} 'to knock down, fell' is by now familiar. Its meaning corresponds to that of the causative **log*^{h}*-eie/o-* 'to make lie down' (cf. Goth. *lagjan* 'to lay') rather than to that of the base verb **leg*^{h}- 'to lie (down)' (cf. Goth. *ligan* 'to lie') (cf. Oettinger 1979: 425).

For *u̯āš-*^{i} 'to buy', we do not have any exact non-Anatolian cognates. The other IE languages only have a derived nominal formation **ues-no-* ~ **uos-no-* (Skt. *vasná-* m. 'price bid', *vasná-* n. 'wage(s)', Gr. ὦνος 'price paid; purchase', ὠνή 'buying, purchasing', Lat. *vēnus* 'sale', *vēnum dare* 'to sell', Arm. *gin* 'price'), a zero grade[34] version of which was also inherited in Anatolian, as evidenced by Hitt. *ušniu̯e/a-*^{zi} 'to put up for sale' < **us-n-ie/o-*. The verb indicating the action of buying in the ancestor of the other IE languages was rather **k*^{w}*rih*$_2$- (Skt. *krīṇā́ti*, Gr. πρίασθαι, OIr. *ni-cria* subj., RCS *krьnuti*, ToB *kərya-*, all 'to buy'). For the prehistory of Hitt. *u̯āš-*^{i}, there are two main possibilities that may be explored. One is that the Hittite situation derives from the system as reconstructable on the basis of the other IE languages, which would mean that Hittite innovated the verb based on the noun. This may then have been the source of the *o*-vocalism (cf. later Gr. ὠνέομαι 'to buy' ← ὦνος). However, Hitt. *ušniu̯e/a-*^{zi} suggests that at least one inherited form of the noun did not have

[33] Cf. similarly Lat. *doceō* 'to teach' < *'to make perceive'.
[34] And possibly athematic, see Kloekhorst (2008: s.v.).

o-vocalism in Anatolian, and the verb would have to have been backformed, i.e. the noun would have to have been deprived of its *n*-suffix, which is not an obvious operation. Moreover, *ušniie̯/a-*^{zi} is itself already a denominal derivation from this noun, showing the normal IE denominalizing procedure of adding *-*ie/o*-. It therefore seems more straightforward to assume that the verb is old. This suggests that post-Anatolian IE replaced **ues*- with **k*^{w}*rih*$_2$-, with **ues*- only surviving as an archaism in a nominal derivation. Since there are no direct cognates to check with, we only have the semantics of the verb to go by in trying to determine which *o*-grade formation *u̯āš-*^{i} continues. Since its meaning is neither causative nor iterative, it is unlikely to continue the causative formation or an *o*-grade iterative.[35] Rather, the meaning ties in well with the assumption that we are dealing with one of the verbs which were primary to the category of the *ḫi*-conjugation, i.e. an old perfect. In short, the development would have been pres.-aor. **ues*- 'to buy', perf. *(*ue*-)*uos-e* 'has bought, is in possession of' (cf. Gr. κέκτημαι) > 'bought', whence a new pres. **uos-e-i* 'buys'.

Taking stock of the first and most basic structural category as a first indication of the principles underlying the distribution among the conjugations, we can conclude the following. The distribution of verbs among the two conjugations is not random. Most verbs of the shape **CeC*-, in which *C* is not a laryngeal, are *mi*-conjugating. Of the three exceptions, two clearly go back to derived formations with morphological *o*-grade: *dākk-*^{i}, *lāk-*^{i} < **doḱ-eie/o*-, **log*^{h}*-eie/o*-. The remaining verb *u̯āš-*^{i} 'to buy' is a good candidate to belong to the original group of perfects that was part of the genesis of the *ḫi*-conjugation.

6.1.1.1.2 **CCeC*-

The following overview contains roots of the shape **CCeC*-. We do not expect the extra consonant to have any effect on the ablaut vowel, and so our expectation is that most verbs are *mi*-conjugated, and that any verb with *ḫi*-inflection will have a morphologically motivated *o*-grade.

[35] Oettinger's (1979: 430) reconstruction of a causative **uos-eie/o*- is based on the incorrect idea, also found in LIV^{2} (s.v.), that *u̯āš-*^{i} means 'to sell' rather than 'to buy'. On the semantics cf. HEG (s.v.).

PIE root	formation	Hitt.	meaning	conj.
*h_1ueb^h-	*h_1ueb^h-	*uep-*^{zi}*	‘to weave’ (?)	*mi*
*$h_2ueǵ^{(h)}$-	*$h_2ueǵ^{(h)}$-	*ḫuek-*^{zi}* / *ḫuk-*	‘to slaughter’	*mi*
*h_2ueg^h-	*h_2ueg^h-	*ḫuek-*^{zi}* / *ḫuk-*	‘to conjure’	*mi*
*h_2ues-	*h_2ues-	*ḫuiš-*^{zi}* / *ḫuš-*	‘to live’	*mi*
*smen-	*smen-	*šamen-*^{zi}* / *šamn-*	‘to pass by’	*mi*
*trep-	*trep-	*terepp-*^{zi}* / *tere/ipp-*	‘to plough’	*mi*
*$sreb^h$-	*$srob^h$-*eie/o-*	*šarāp-*^{i}* / *šarip-*	‘to sip’	*ḫi*
*sker-	*skor-*(eie/o-)?	*iškār-*^{i}* / *iškar-*	‘to stab’	*ḫi*
*sper-	*spor-*(eie/o-)?	*išpār-*^{i}* / *išpar-*	‘to spread’	*ḫi*
*g^hreb^h-?	? (*g^hrob^h-)	*karāp-*^{i}* / *kare/ip-*	‘to devour’	*ḫi*

Indeed, although it is not an overwhelming majority, most verbs are *mi*-conjugated.

The origin of the *o*-grade of one of the four *ḫi*-verbs, *šarāp-*^{i} ‘to sip’, can be established without difficulty. The only manifestation of PIE *$sreb^h$- which is attested in multiple daughter languages is *$srob^h$-*eie*- (Gr. ῥοφέω ‘to slurp’, Lat. *sorbeō* ‘to slurp’, Alb. *gjerb* ‘slurps’; see LIV^2: s.v.). It is therefore likely that this is the preform of *šarāp-*^{i} as well (see Oettinger 1979: 426). Again, then, an exception goes back to the *CoC-eie/o*-type, here in its iterative function. This also solves the only example hinted at by Oettinger (2006: 37) of a verb whose meaning he considers problematic to the idea that the *ḫi*-conjugation derives from the perfect: the verb is a secondary member of the conjugation.

For the other three, the comparative evidence is less helpful. Only *iškār-*^{i} and *išpār-*^{i} have undisputed root etymologies. However, the cognates rather feature *e*- or zero grade: for *iškār-*^{i} ‘to stab’, cf. e.g. Gr. κείρω ‘to cut (off), shave’, OHG *sceran* ‘to cut (off), shave’, Lith. *skìrti* ‘to separate’; for *išpār-*^{i} ‘to spread’, cf. Gr. σπείρω ‘to sow’. We can therefore only speculate about the origin of the morphological *o*-grades of *iškār-*^{i} and *išpār-*^{i} based on semantics. *iškār-*^{i} ‘to stab’ is perhaps most likely categorized as an original *o*-grade iterative, given the semantic domain of cutting. The inherently repeated nature of *sper- ‘to spread’ may also point to an *o*-grade iterative. These classifications have to remain speculative.

Least clear of all is *karāp-*^{i} ‘to devour’. The most favored comparison (LIV^{2}: s.v. **g^{h}rebh$_{2}$-*) connects several words for ‘to seize’, among which the perfect **g^{h}e-g^{h}robH-e* (Skt. *jagrábha* ‘has seized, possesses’) and perhaps a causative-iterative **g^{h}robH-eie/o-* (OCS *grabiti* ‘to snatch, grab’). Kroonen (2012: 194-195) rather connects Nw. dial. *gurpa, garpa, garva* ‘to devour, gobble, belch’ < **g^{h}rb^{h}-neh$_{2}$-, *g^{h}rob^{h}-neh$_{2}$-*, with an *o*-grade which he regards as reflecting a derivational base with *o*-grade, which he identifies with Hitt. *karāp-*^{i} < **g^{h}rob^{h}-* and interprets as an iterative on semantic grounds. None of these options is evidently correct.

6.1.1.2 **°eCC-*

In roots ending in **°eCC-* various sound laws made sure that **e* did not survive as such in Hittite. Most importantly, **CerC-* and **CelC-* surface as *CarC-* and *CalC-*, respectively, due to the well-established sound change *eRCC* > *aRCC*, and it seems that the same vocalic change is also found if there is a stop rather than a resonant in such sequences (cf. Melchert 1994: 140, Kloekhorst 2008: s.vv. *takš-*^{zi}, *u̯atku-*^{zi}). It has been proposed on independent grounds that the vowel written as *-a-* here does not spell /a/, but /ə/.[36] If this is indeed the case, we do not expect verbs of this root structure to have been structurally transferred to the *ḫi*-conjugation. For *ḫamank-*^{i} and *išpānt-*^{i}, see 6.2.1; for *tamenk-*^{zi}, see 6.2.2.[37]

[36] Kloekhorst (p.c.), based on the observation that these verbs show consistent spelling with *CVC*-signs where these are available, pointing to a phonological interpretation *CəC* rather than *CaC*. The latter distinction is an older idea confirmed in recent times by more systematic investigations. Frotscher (fthc.) demonstrates that there is an etymological distribution between, on the one hand, consistent use of the sign *kán* (< **-Ken-*, **-Kn̥-*) and, on the other hand, alternation between *kán* and *ka-an*, *ga-an* or *qa-an* (< **-Kon-*). Kloekhorst & Mens (fthc.) show that the distribution also holds for other pairs, and give a synchronic linguistic interpretation.

[37] We may also include here the verb *le/išš-* ‘to pick, gather’ < **lesH-*. There are no attestations with diagnostic endings, but the verb is generally analyzed as *mi*-conjugated on the basis of its vocalism. For the analysis underlying the reconstruction and meaning of the verb *ū(n)ḫ-*^{zi}, see Lorenz & Rieken (2011). Note that the original inflection and prehistory of *malk-* ‘to spin’ are too insecure to allow for a meaningful classification. The original inflection of *kalank-* ‘to soothe, satiate’ is not known, and its original morphological make-up is debated. The preform could be either **KlonK-* or **KlnK-* (see Shatskov 2017: 48-49). The verb is hardly an indication for the existence of an *o*-grade *n*-infix type **-on-*.

PIE root	formation	Hitt.	meaning	conj.
*b^herh_2-	*b^herh_2-	*parḫ-^{zi}*	‘to chase’	*mi*
*b^hers-	*b^hers-	*paršš-^{zi}*	‘to flee’	*mi*
*h_1leng^h-	*h_1leng^h-	*li(n)k-^{zi}*	‘to swear’	*mi*
*$h_{1/3}uenh_1$-	*$h_{1/3}uenh_1$-	*uen-^{zi} / uu̯an-*	‘to copulate’	*mi*
*$h_{1/3}uenh_2$-	*$h_{1/3}unh_2$-	*ū(n)ḫ-^{zi}*	‘to clear’	*mi*
*$k\acute{e}lh_1$-	*$k\acute{e}lh_1$-s-	*kallišš-^{zi} / gališš-*	‘to call’	*mi*
*kerp-	*kerp-	*karp-^{zi}*	‘to pick’	*mi*
*kers-	*kers-	*karš-^{zi}*	‘to cut off’	*mi*
*leuk-	*leuk-	*lukk-^{zi}*	‘to set fire to’	*mi*
*nenK-	*nenK-	*ni(n)k-^{zi}*	‘to soak up’	*mi*
*selK-	*selK-	*šalk-^{zi}*	‘to knead’	*mi*
*$senh_2$-	*$senh_2$-	*ša(n)ḫ-^{zi}*	‘to seek’	*mi*
*$senh_2$-u-	*$senh_2$-u-	*ša(n)ḫu-^{zi}*	‘to roast’	*mi*
*$sperd^h$-	*$sperd^h$-	*išpart-^{zi}*	‘to escape’	*mi*
*$stelg^h$-	*$stelg^h$-	*ištalk-^{zi}*	‘to flatten’	*mi*
*$sTeNh_{2/3}$-	*$sTeNh_{2/3}$-	*išta(n)ḫ-^{zi}*	‘to taste’	*mi*
*$sterk\acute{}$-	*$sterk\acute{}$-	*ištark-^{zi}*	‘to afflict’	*mi*
*teks-	*teks-	*takš-^{zi}*	‘to devise’	*mi*
*$terh_2$-u-	*$terh_2$-u-	*tarḫu-^{zi}*	‘to prevail’	*mi*
*$terk^w$-	*$terk^w$-	*tar(k)u-^{zi}*	‘to dance’	*mi*
*treup-	*treup-	*tarupp-^{zi}*	‘to collect’	*mi*
*$ueih_2$-	*$ueih_2$-	*ueḫ-^{zi} / u̯aḫ-*	‘to turn, patrol’	*mi*
*$uelh_3$-	*$uelh_3$-	*u̯alḫ-^{zi}*	‘to hit’	*mi*
*uelK-	*uelK-	*u̯alk-^{zi}*	‘to ?’	*mi*
*uerp-	*uerp-	*u̯arp-^{zi}*	‘to wash’	*mi*
*$uetk^w$-	*$uetk^w$-	*u̯atku-^{zi}*	‘to jump’	*mi*
*$b^hed^hh_2$-	*$b^hod^hh_2$-	*padda-^{i} / padd-*	‘to dig’	*ḫi*
*$k\acute{e}nk$-	*$k\acute{o}nk$-	*kānk-^{i} / kank-*	‘to hang (tr.)’	*ḫi*
*$meld^h$-	*$mold^h$-	*māld-^{i} / mald-*	‘to recite’	*ḫi*
*melH-	*molH-	*mall-^{i}*	‘to mill’	*ḫi*
*merǵ-(?)	*morǵ-(*eie/o*-)?	*mārk-^{i} / mark-*	‘to divide’	*ḫi*
*$serTh_{2/3}$-	*$sorTh_{2/3}$-(*eie/o*-)?	*šarta-^{i} / šart-*	‘to wipe, rub’	*ḫi*
*$skelh_{2/3}$-	*$skolh_{2/3}$-(*eie/o*-)?	*iškalla-^{i} / iškall-*	‘to split’	*ḫi*
*$sperh_{2/3}$-	*$sporh_{2/3}$-(*eie/o*-)?	*išparra-^{i} / išparr-*	‘to trample’	*ḫi*
*uers-	*uors-(*eie/o*-)?	*u̯aršš-^{i}*	‘to wipe’	*ḫi*
*$meuh_1$-	*(*me*-)$mouh_1$-*e*?	*mau-^{i} / mu-*	‘to fall’	*ḫi*
*$sekh_1$-	*(*se*-)$sokh_1$-*e*?	*šākk-^{i} / šakk-*	‘to know’	*ḫi*
*h_2ueph_1-	? (*h_2uoph_1-)	*ḫu̯u̯app-^{i} / ḫupp-*	‘to throw’	*ḫi*
*h_2uert-	? (*h_2uort-)	*ḫu̯u̯art-^{i} / ḫurt-*	‘to curse’	*ḫi*
*$stemb^hH$-?	? (*$stomb^hH$-)	*ištāp-^{i} / ištapp-*	‘to shut’	*ḫi*

Indeed, the majority of these verbs are *mi*-conjugated. This category therefore shows the behavior expected for roots without laryngeal coloring. This is independent confirmation of the idea that the *a* of these verbs does not spell /a/ (cf. also 6.1.2.2.2 and 6.1.2.3.2). Moreover, for some of the *ḫi*-inflected verbs, cognates with *o*-grade are again more numerous than those with *e*-grade, meaning that the corresponding Hittite verbs also plausibly continue *o*-grade formations, whose vocalism triggered a transfer to the *ḫi*-conjugation.

The cognates of *padda-*^{i} 'to dig' predominantly point to an *o*-grade iterative, esp. Lat. *fodiō* 'to dig', Lith. *badýti* 'to butt, poke' (beside Lith. *bèsti* 'to stick (into)' with *e*-grade). It is therefore likely that the Hittite verb also goes back to the formation underlying these verbs (cf. Jasanoff 1979: 87; 2003: 74, 77; Kloekhorst 2018: 101).

kānk-^{i} 'to hang (tr.)' even provides us with two plausible preform candidates with *-*o*-. Given the meaning 'to hang (intr.)' in the rest of IE, Kloekhorst (2018: 100) proposes to trace the Hittite verb back to a causative **ḱonk-eie/o-* 'to hang (tr.)', corresponding to ON *hengja* 'to hang (tr.)' < **hangjan-*. However, **hangjan-* is probably secondary to **hanhan-* 'to hang (tr.)' (e.g. Goth. *hahan*, ON *hanga*, OHG *hāhan*, all 'to hang (tr.)'; cf. Kroonen 2013: s.v. **hanhan-*). This in turn points to an *o*-grade present, PIE **ḱonk-* 'to hang (tr.)' (cf. Oettinger 1979: 420-421, Jasanoff 2003: 72-74, 76). It is remarkable, however, that the meaning is not iterative.

The main cognate of *māld-*^{i} 'to recite' is Proto-Balto-Slavic **mold-* (Lith. *maldýti* 'to implore', OCS *moliti* 'to ask, pray'; beside Lith. *melsti*, 1sg. *meldžiu* 'to ask, pray' with *e*-grade).

mall-^{i} 'to mill' goes back to the *Paradebeispiel* of the **molH*-type iteratives. Indeed, various cognates have *o*-grade, e.g. Goth. *malan* 'to grind' and Lith. *málti* 'to grind, mill'.

We can only speculate about the original formations of the remaining lexemes, which do not have secure *o*-grade cognates, or even secure cognates at all, in other IE languages.

On the basis of the meaning, we can speculatively classify *šarta-*^{i} 'to wipe, rub', *išparra-*^{i} 'to trample' and *u̯arš-*^{i} 'to wipe, harvest' as *o*-grade iteratives.[38]

Since *mārk-*^{i} 'to divide, separate, cut up' and *iškalla-*^{i} 'to split' belong to the semantic domain of cutting, they could also tentatively be classified as *o*-grade iteratives (cf. Jasanoff 2004: 78-79).[39]

The subject-affecting meaning (see 7) of *mau-*^{i} 'to fall' speaks most in favor of an old perfect: *(*me-*)*mouh*$_1$*-e* 'has fallen' > 'fell', whence **mouh*$_1$*-ei* 'falls'.[40]

The verb *šākk-*^{i} 'to know' is nowadays usually connected with **sekH-* 'to cut' (cf. ToB *kərsa-*, ToA *kärsā-* 'to know, understand, recognize' ~ Hitt. *karš-* 'to cut' < **kers-*), through a meaning 'to distinguish'. *šākk-* can still have meanings quite close to this, such as 'to take note of', 'to recognize', 'to acknowledge' and 'to experience' (see CHD: s.v.). This meaning 'to distinguish' and the related telic and subject-affecting meanings lend themselves well to an analysis as an old perfect: *(*se-*)*sokh*$_1$*-e* 'has distinguished' > 'distinguished', whence **sokh*$_1$*-ei* 'distinguishes, recognizes'. Note that the stative meaning 'to know' is secondary, not a remnant of the original stative(-resultative) value of the perfect.

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[38] *šarta-*^{i} does not have obvious cognates. For *išparra-*^{i} cf. Skt. *sphuráti* 'to kick/push away' < **sprH-*, Lith. *spìrti* 'to kick out' < **sprH-* (cf. Jasanoff 2003: 78, Kloekhorst 2008: s.v.). For *u̯arš-*^{i} cf. OLat. *vorrō* 'to sweep' < **uors-* or **urs-*, RCS *vьrxu* 'to thresh' < **urs-* (cf. Oettinger 1979: 428-429, Jasanoff 2003: 78, Kümmel 2004: 155).

[39] *mārk-*^{i} does not have secure cognates. Proposals include Skt. *marc-áya-* 'to damage' < **mork-eie/o-*(?) (Oettinger 1979: 425) – which probably rather goes back to **molk*^{w}*-eie/o-*, with Gr. βλάπτω 'to damage' < **mlk*^{w}*-ie/o-* – and PGm. **markō-* 'border, region', Lat. *margō* 'border' < **morǵ-* (Kloekhorst 2008: s.v.). For *iškalla-*^{i} cf. Gr. σκάλλω 'to stir up, hoe' < **sklH-*, Lith. *skélti* 'to split' < **skelH-*, σκύλλω 'to tear up, molest', perhaps < **skolH-* (cf. Jasanoff 2003: 78).

[40] *mau-* does not have secure cognates. It is usually presented as having many cognates (cf. e.g. LIV^{2}: s.v. **mi̯eu̯h*$_1$*-*), but the semantics of the connected verbs are only vaguely reminiscent of each other ('to shove', 'to shake', 'to disappear', 'to move'), rendering the entire reconstructed complex quite questionable, and none of the meanings comes very close to the specific Hittite meaning. The reconstruction with **h*$_1$ is based only on the supposed cognates and might therefore be wrong.

The semantics of *ḫuu̯app-*^{i} ‘to throw’, *ḫuu̯art-*^{i} ‘to curse’ and *ištāp-*^{i} ‘to shut, plug up’ do not strongly favor an identification with one particular *o*-grade formation.[41]

6.1.2 Adjacent laryngeal

We now turn to root formations whose ablaut vowel is flanked by a laryngeal.

6.1.2.1 **h₁*

We do not expect the picture to be any different if one of the flanking consonants was **h₁*, which had no coloring effect. We find the following verbs of this shape. For *āk-*^{i} ‘to die’, *ār-*^{i} ‘to arrive’ and *ārk-*^{i} ‘to cut off, divide’, whose initial laryngeal cannot be determined with certainty, see 6.1.2.4. For the nasal infix formations and the suffix *-e-*^{zi}, see 6.2.2 and 6.2.3, respectively.

PIE root	**formation**	**Hitt.**	**meaning**	**conj.**
**h₁ed-*	**h₁ed-*	*ed-*^{zi} / *ad-*	‘to eat’	*mi*
**h₁eg^{wh}-*	**h₁eg^{wh}-*	*eku-*^{zi} / *aku-*	‘to drink’	*mi*
**h₁ei-*	**h₁ei-*	*i-*^{zi}	‘to go’	*mi*
**-h₁ei-*	**-h₁ei-*	*paḭi-*^{zi} / *pai-*	‘to go’	*mi*
**h₁eNs-*?	**h₁eNs-*?	*āšš-*^{zi}	‘to remain’	*mi*
**h₁ep-*	**h₁ep-*	*epp-*^{zi} / *app-*	‘to seize’	*mi*
**h₁erk^{w}-*	**h₁erk^{w}-*	*ārku-*^{zi} / *arku-*	‘to chant, intone’	*mi*
**h₁ers-*	**h₁ers-*	*ārš-*^{zi} / *arš-*	‘to flow’	*mi*
**h₁es-*	**h₁es-*	*eš-*^{zi} / *aš-*	‘to sit; to be’	*mi*
**h₁eup-*	**h₁eup-*	*upp-*^{zi}	‘to come up’	*mi*
**d^{h}eh₁-*	**d^{h}eh₁-*	*tē-*^{zi}	‘to state, say’	*mi*
**-d^{h}eh₁-*	**-d^{h}eh₁-*	*pēḫute-*^{zi} / *pēḫut-*	‘to bring (there)’	*mi*
**-d^{h}eh₁-*	**-d^{h}eh₁-*	*uu̯ate-*^{zi} / *uu̯at-*	‘to bring (here)’	*mi*
**-d^{h}eh₁-*	**-d^{h}eh₁-*	*uerite-*^{zi} / *uerit-*	‘to fear’	*mi*
**-d^{h}eh₁-*	**-d^{h}eh₁-*	*uete-*^{zi} / *uet-*	‘to build’	*mi*
**-h₁ieh₁-*	**-h₁ieh₁-*	*peḭe-*^{zi} / *peḭ-*	‘to send’	*mi*
**-h₁ieh₁-*	**-h₁ieh₁-*	*uḭe-*^{zi} / *uḭ-*	‘to send (here)’	*mi*
**h₁erh₁-*	? (**h₁orh₁-*)	*ārr-*^{i} / *arr-*	‘to wash’	*ḫi*
**leh₁-*?	? (**loh₁-*)	*lā-*^{i} / *l-*	‘to loosen, release’	*ḫi*

[41] *ḫuu̯app-*^{i} and *ḫuu̯art-*^{i} do not have secure cognates. For *ištāp-*^{i} cf. perhaps Skt. *stabhnāti* ‘to prop, fasten, fix’ < **stmb^{h}-ne-H-* (see Melchert 1994: 162; 2012: 180).

Indeed, again a clear majority of verbs are *mi*-conjugated.

If *ārr-*^{i} 'to wash' is related to ToA *yärā-* 'to bathe (intr.)' (caus. *yär-* 'to bathe (tr.)') < *$h_1$erH-*, we need morphological *o*-grade to understand the form *ārr-* < *$h_1$orh_1-*. The inherently repeated semantics may point to an *o*-grade iterative (cf. Oettinger 1979: 438). Since the basic ToA verb means 'to bathe (intr.)' rather than 'to wash', however, we may also consider a causative *$h_1$orh_1-eie/o-* ('to bathe (tr.)').

Another possible case of morphological *o*-grade is *lā-*^{i} 'to loosen, release', which does not have direct counterparts in other IE languages, but is usually reconstructed as *leh_1-* rather than *leh_2-* or *leh_3-* on the basis of the possibly related PIE roots *leh_1u- / *luh_1-* (Gr. λύω 'to loosen', Skt. *lunáti* 'cuts off', Lith. *liáuti* 'to stop') and *leh_1d-* (Goth. *letan* 'to let'). This is not completely obvious, but nevertheless quite possible. Although most forms point to *ḫatrae*-type inflection (cf. Puhvel 2001: 31-32),[42] i.e. *lae-*, Oettinger (1979: 63-67) and Kloekhorst (2008: s.v.) analyze these as secondary to *lā-*^{i}, a formation parallel to *dā-*^{i} 'to take', in view of the oldest 3sg. pres. *lāi* and imp. *lāu*. If this is correct, we need morphological *o*-grade to explain its vocalism. It is not clear which of the *o*-grade formations this should be. The domain of cutting may suggest an *o*-grade iterative (cf. Kümmel 2004: 154, who reconstructs an *o*-grade present **louH-* for the potential variant with **-u-*). Melchert (1984: 38) proposes a causative-iterative *loh_1-eie/o-*. LIV^2 (s.v. *leh_1-* n. 8) rather considers a perfect. In the absence of direct cognates, on top of the uncertainties regarding the inflection, the exact prehistory of this verb must remain unknown.

6.1.2.2 *h_2

We have now reached the point at which an increase in the number of *ḫi*-conjugated verbs is expected. In all overviews seen so far, the percentage of *ḫi*-verbs has not exceeded 40%, and in most it was much lower. If the coloring caused by *h_2* and *h_3* indeed ushered *mi*-verbs to the *ḫi*-

[42] Puhvel (2001: 31): "Oettinger (…) incomprehensibly collated the paradigms of *lā-* (sic) and *dā-* 'take' (despite e. g. pret. sg. act. *lanun, lais, lait* vs. *dahhun, datta, das*). Instead *lai-* conforms to the conjugation of *hai-* 'trust' (…) and especially *sai-* 'rage' (*lanzi*:*sanzi*, *lanun*:*sanun*, *lait*:*sait*, *lantat*:*santati*, *lanza*:*sanza*, *lauwar*:*sauwar*, etc.)."

conjugation, the following overviews should show a significant surge in the percentage of *ḫi*-verbs.

6.1.2.2.1 **eh₂*

I first examine the behavior of verbs featuring **h₂* directly following the ablaut vowel. The following verbs historically show the sequence **-eh₂-*. For the nasal infix verbs and the suffix *-aḫḫ-^{i}*, see 6.2.2 and 6.2.3, respectively.[43]

PIE root	**formation**	**Hitt.**	**meaning**	**conj.**
**neh₂-*	**neh₂-*	*nāḫ-^{i} / naḫḫ-*	'to fear'	*ḫi*.
**peh₂-*	**peh₂-s-*	*paḫš-^{i}*	'to protect'	*ḫi*
**pleh₂-*	**pleh₂-*	*palāḫ-^{i} / palaḫḫ-*	'to call (?)'	*ḫi*
**seh₂-*	**seh₂-*	*šāḫ-^{i}*	'to stuff'	*ḫi*
**tieh₂-*	**tieh₂-*	*zāḫ-^{i} / zaḫḫ-*	'to beat'	*ḫi*
**ueh₂ǵ-*	**ueh₂ǵ-*	*u̯āk-^{i} / u̯akk-*	'to bite'	*ḫi*
**demh₂-*	**dmeh₂-s-?*	*tamăš-^{zi} / tame/išš-*	'to (op)press'	*mi*

Remarkably, virtually all verbs, including all original root formations, are *ḫi*-conjugated. There is only one potential exception.

For each of these verbs, it cannot be excluded that they did originally have *o*-grade – crucially, the two ablaut grades are formally indistinguishable in this structure. However, given the predominance of *e*-grade verbs in the previous overviews, they can hardly all happen to have been *o*-grade formations. The correlation between the morphologically meaningless formal characteristic of featuring **h₂* after the ablaut vowel and *ḫi*-inflection can only be explained from the coloring effects of **h₂* on the morphologically relevant ablaut vowel.[44]

[43] Note that "*ḫā-*" 'to believe, trust' and "*šāi-*" 'to become sullen' are rather *ḫae-* and *šae-*, respectively: they inflect according to the thematic *ḫatrae*-class. The verb *ma-* 'to disappear(?)' is so poorly attested that we cannot analyze it properly. Similarly, our understanding of *lăp*(*p*)- 'to glow, flash' is too limited to be helpful; it has been interpreted both as *mi*- and as *ḫi*-conjugated (I would follow Oettinger 1979: 443 in assuming the latter).

[44] It remains to be determined whether the fact that *a*-vocalism triggered *ḫi*-inflection also means that the transfers of these verbs happened only after the collapse of *o*- and *a*-vocalism in post-Proto-Anatolian pre-Hittite. It is also not excluded that *ă*-vocalism had become morphologically associated with **ŏ*, and dissociated from **e* or **ə*, even

One noteworthy feature of this class is the alternation found in stems ending in a single consonant, viz. °*āC*- / °*aCC*-, i.e. a long vowel plus a lenis consonant in the strong stem and a short vowel plus a fortis consonant in the weak stem.[45] This alternation has its origin in lenition caused by **ó* (> **ṓ*), which affected a following single fortis consonant (either also originally from a single fortis consonant or from a consonant cluster), e.g. *āk-i* / *akk-anzi* 'to die' < **Hók-ei* / **Hḱ-enti*, *ištāp-i* / *ištapp-anzi* 'to shut, plug up' < **stómb^{h}H-ei* / **stmb^{h}H-enti*.[46] The pattern was analogically extended to other single obstruents, as is suggested, for example, by the historically unexpected *-kk-* in *u̯āk-i* / *u̯akk-anzi* 'to bite' < **ueh$_2$ǵ-* / **uh$_2$ǵ-* (cf. Melchert 2012: 180).[47] Similarly, although the potential verbs with °*āḫ*- which do in fact continue old *o*-grade formations would have obtained their alternation through a purely phonetic development **óh$_2$V* > *āḫV*, those which do not must not only have switched to *ḫi*-endings, but also have adopted the °*V̄C*- / °*VCC*- alternation that was characteristic of the category that they joined. The more original non-alternating form can be seen in *-aḫḫ-*^{i} (see 6.2.3), which did not join this class of root formations in which the alternation of *C* and *CC* was productive, and therefore continued to show *-aḫḫ-* throughout the paradigm.[48]

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before the actual phonetic merger of **ă* and **ŏ*. These options will have to be evaluated mainly on the basis of the Luwic evidence.

[45] Most probably *šāḫ-*^{i} 'to stuff' also used to show ablaut, but generalized the strong stem (cf. Kloekhorst 2008: s.v.).

[46] Melchert (2012) rather proposes that only **°óh$_2$V* > **°āḫV* was regular, producing *nāḫ-*^{i} and *šāḫ-*^{i}, after which the pattern of these two verbs was analogically extended to *ḫāš-*^{i} 'to beget', *ḫāš-*^{i} 'to open', *pāš-*^{i} 'to swallow', *āk-*^{i} 'to die', *ištāp-*^{i} 'to plug up', *u̯āk-*^{i} 'to bite', and possibly *zāḫ-*^{i} 'to beat'. This seems too small a basis for the spread of the pattern. The main evidence Melchert adduces against a more general development **óCC* > *āC*, viz. *āppa* 'away' < **Hopo*, is hardly probative, since this etymon not only probably had accentual peculiarities (note, for example, the general absence of two surrounding word dividers with the Lyc. cognates *epi* and *epñ*), but may also simply have been restored from cognate forms (cf. e.g. *appezzi̯a-* 'backmost').

[47] In this case, a potential explanation based in sound law also exists (**u̯əh$_2$ǵ-* > **u̯əkk-*, Kloekhorst 2008: s.v.).

[48] The evidence of the type *tarna-*^{i} < **trneh$_2$-* further suggests that the appearance of *-ḫ(ḫ)-* throughout the paradigm was the result of analogical restoration; see 6.2.2 and 6.2.3.

paḫš-^{i} ‘to protect’ shows some oscillation between *mi*- and *ḫi*-inflection, e.g. *paḫḫšmi* (OH/NS, 1x) ~ *paḫḫšḫi* (MH/NS, often). This is found more often in *ḫi*-verbs ending in *-š-*; the same is found for example in *pāš-*^{i} ‘to swallow’ (3sg.pres. *pašzi* (OH~MH/NS) ~ *pāši* (MH/NS)). The oscillation clearly has its roots in the unfortunate combination of the stem-final **-s-* and the 3sg.pret. ending **-s* in *s*-final *ḫi*-verbs, which was remedied with the introduction of the ending *-ta* before our earliest records. Conceivably, in *ḫi*-verbs which were transferred from the *mi*-conjugation, such forms (e.g. **peh₃sto* > *pāšta* ‘swallowed’) had never been adapted in the first place (cf. Oettinger 1979: 436 n. 89). A 3sg.pret. form in *°š-ta* could easily trigger other *mi*-conjugation forms such as a 3sg.pres. in *°š-zi* (cf. Oettinger 1979: 435). Cf. also *au-*^{i} ‘to see’ (6.1.2.2.2), *mau-*^{i} ‘to fall’ (6.1.1.2), whose *s*-extended forms *auš-* and *mauš-* are *mi*-conjugated. In the specific case of *paḫš-*^{i}, all of these forms are probably secondary, since the regular paradigm is middle: the only attested 3sg.pres. is *paḫša*.

u̯āk-^{i} ‘to bite’ goes back to PIE **ueh₂ǵ-* ‘to break, burst, split apart’, which further survives in ToB *waka-*, ToA *wākā-*, and Gr. ἀγ-.[49] Kloekhorst (2018: 100) suggests reconstructing a causative **uoh₂ǵ-eie/o-*. This reconstruction does not seem likely to me, for two reasons. First, a causative of this kind is not paralleled for this verb. Second, it is likely that the root formation of this verb could by itself also express, or take on, a transitive meaning, and that the distinction was rather made with a voice opposition; cf. Gr. ἄγνυμι ‘to break (tr.)’, ἄγνυμαι ‘to break (intr.)’, and a similar situation is found in Tocharian (cf. Malzahn 2010: 66, Peyrot 2013: 813). For the existence of a similar middle in Hittite cf. *u̯akk-āri* ‘to be lacking’ < *‘to break away’; see Kloekhorst (2008: s.v.). We can therefore simply reconstruct **ueh₂ǵ-*, with *ḫi*-inflection triggered by the *a*-vocalism.

There is one verb in this list with consistent *mi*-inflection, *tamāš-*^{zi} / *tame/išš-* ‘to (op)press’. If this goes back to **dmeh₂-s-* / **dmh₂-s-*, as has been reconstructed on the basis of the occasional attestation of a strong stem *tamāš-* (Kloekhorst 2008: s.v.; 2009), its exceptional behavior in comparison to the other verbs historically featuring the sequence **-eh₂-* is remarkable. There are several factors which may be relevant here. First,

[49] For the development from ‘to split’ to ‘to bite’ cf. PGm. **bītan-* ‘to bite’ < **bʰeid-e/o-* ‘to split’ (Lat. *findō* etc.).

the verb ends in *-š-*, which means that *mi*-inflection is at least partly expected. Indeed, there are no relevant OS attestations, and the oldest (OH/MS) attestations are exactly those forms in which we would expect *mi*-endings throughout attested Hittite even in an original *ḫi*-verb, if this ended in *-š-* (3sg.pret. *tamāšta*, 3sg.imp. *tamāšdu*). It is therefore possible that *tamăš-* was originally *ḫi*-conjugated after all. It is awkward, however, that this would not have left any trace in attested Hittite. We may further look for an explanation in the fact that the original shape of this root is **demh₂-* rather than **dmeh₂-*, cf. Lat. *domō* 'to subdue', Skt. *dam*^{i}- 'to control', PGm. **tamjan-* 'to tame'. Although **-s-* caused Schwebeablaut in some old PIE *s*-extended words, as most clearly in **h₂ueg-s-* 'to increase' (e.g. Gr. ἀέξω) from **h₂eug-* 'to increase' (e.g. Lat. *augeō*), this particular *s*-formation is not paralleled in *s*-presents elsewhere. It is therefore quite likely to be a post-PIE formation, for which a switch to Schwebeablaut is no longer expected (cf. e.g. **h₂erh₃-s-* > *ḫarš-*^{i} 'to till the soil'). This may mean that the occasional forms with *-ā-*, and possibly the position of the ablaut slot in its entirety, are somehow secondary.[50] Perhaps the introduction of these features was prompted by the ablaut slot that had secondarily come into being by the development of *-e/i-* in the weak stem (cf. Oettinger 1979: 124). A completely satisfying historical account of this verb, including an explanation for its failure to comply to various morphological tendencies, remains a desideratum.

6.1.2.2.2 **h₂e*

The clear majority of *ḫi*-inflected verbs in the previous section is in sharp contrast with the clear majorities of *mi*-inflected verbs in the sections preceding it, which suggests that *mi*-verbs whose **-e-* was colored by a following **h₂* were prone to end up in the *ḫi*-conjugation. We would expect to see the same effect when **h₂* precedes the ablaut vowel. The following table contains an overview of verbs containing this sequence.

[50] For a similar secondary plene spelled vowel cf. e.g. the one attestation *kuu̯āš-* for regular *kuu̯aššš-* 'to kiss' (on which see 6.2.2).

PIE root	**formation**	**Hitt.**	**meaning**	**conj.**
**h₂ed-*	**h₂ed-*	*ḫāt-^{i}* / *ḫat-*	‘to dry up’	*ḫi*
**h₂ed^{h}ǵ^{h}-*	**h₂ed^{h}ǵ^{h}-*	*ḫatk-^{i}*	‘to shut, close’	*ḫi*
**h₂ems-*	**h₂ems-*	*ḫāš-^{i}* / *ḫašš-*	‘to give birth’	*ḫi*
**h₂e(N)s-?*	**h₂e(N)s-*	*ḫāš-^{i}* / *ḫašš-*	‘to open’	*ḫi*
**h₂en-*	**h₂en-*	*ḫān-^{i}* / *ḫan-*	‘to draw water’	*ḫi*
**h₂erh₃-*	**h₂erh₃-*	*ḫarra-^{i}* / *ḫarr-*	‘to crush, grind’	*ḫi*
**h₂erh₃-*	**h₂erh₃-s-*	*ḫarš-^{i}* (?)[51]	‘to till (the soil)’	*ḫi*
**h₂eu-*	**(h₂e-)h₂ou-e?*	*au-^{i}* / *u-*	‘to see’	*ḫi*
**h₂emh₁-?*	**h₂omh₁-s-?*	*ānš-^{i}*	‘to wipe’	*ḫi*
**h₂erḱ-*	**h₂erḱ-*	*ḫar(k)-^{zi}*	‘to hold, keep’	*mi*

Almost all verbs are *ḫi*-conjugated. This further corroborates the view that an ablaut vowel colored by a preceding **h₂* triggered *ḫi*-inflection. Note that the very preservation of *ḫ-* points to original *e*-grade (see 5.2).

For *au-^{i}* ‘to see’, we need morphological *o*-grade to explain the loss of **h₂-*. All cognates are based on an adverb **h₂ou-is* ~ **h₂eu-is* ‘manifestly, clearly’ (Skt. *āvíṣ*), to which the verbs **h₂euis-d^{h}(h₁)-* (Gr. αἰσθάνομαι ‘to perceive’, Lat. *audiō* ‘to hear’[52]) and **h₂euis-(i)e/o-* (Gr. ἀίω ‘to perceive’) were created. This does not provide us with any information about the vocalism of the more primary verb, whose survival appears to be an Anatolian archaism. Semantically, the *o*-grade formation which is most plausibly continued by *au-^{i}* is a perfect: **(h₂e-)h₂ou-e* ‘has seen’ > ‘saw’, whence **h₂ou-ei* ‘sees’ (cf. Oettinger 1979: 406-408).

Similarly, *ānš-^{i}* ‘to wipe’ requires *o*-grade. The laryngeal lost due to the *o*-grade is probably still visible in *ḫane/išš-^{zi}* ‘to plaster, wipe’ < **h₂mh₁-s-*, if this was originally its zero grade counterpart (see 5.2 with n. 28). As an inherently iterated action, the meaning ‘to wipe’ is most compatible with an analysis as an *o*-grade iterative (cf. the semantically comparable verbs *šarta-^{i}* and *u̯arš-^{i}* in 6.1.1.2; cf. Oettinger 1979: 437). The combination of

[51] Due to the paucity of attestations, it is not so clear to which conjugation this verb belonged in OH. However, the *ā* in the MS form *ḫāršta* may well point to original *ḫi*-inflection (Kloekhorst 2008: s.v.). The *mi*-conjugation ending *-ta* is regular for *ḫi*-verbs ending in *-š-* (see Kloekhorst 2008: s.v., and the discussion of *paḫš-* in the previous section).

[52] For the development from ‘to perceive’ to ‘to hear’, cf. e.g. Lat. *sentīre* ‘to perceive, feel’ > It. *sentire* ‘to hear’.

o-grade in the root and an *s*-suffix is remarkable. It is possible that the suffix had already become part of the root by the time the *o*-grade iterative was created. If this was not the case, however, the formation was probably a **molH*-type rather than a *CoC-eie/o*-type iterative (for the shape *CoC-s*- cf. e.g. PGm. **wahs*(*j*)*an*- 'to grow' < **h₂uog-s*-). In addition, in view of the preservation of the laryngeal in *ḫane/išš*-, the assumption of a *CoC-eie/o*-iterative to which a secondary zero grade variant was created would require the loss of **h₂/₃* before **o* to have taken place later than the transfer of the *CoC-eie/o*-type to the *ḫi*-conjugation, which is doubtful.

The one apparent exception to the general trend is *ḫar(k)-*^{zi} 'to hold, keep'. Here the main cognates are Gr. ἀρκέω 'to ward off, keep off' and Lat. *arceō* 'to keep off, hold off', which point to a reconstruction **h₂rḱ-eie/o*- (cf. LIV^2: s.v.; against Gr. ἀρκέω as denominal to ἄρκος 'defense' see Beekes 2010: s.v.). We could therefore speculate that this was also the basis of Hitt. *ḫar(k)-*^{zi}. Like *CoC-eie/o*-formations, stems of the type *CC-eie/o*- must have lost the **i̯* by sound law and have been further adapted to one of the more productive categories. Since the stem did not have **o*- or **a*-vocalism, the choice for the *mi*-conjugation would be unsurprising. Alternatively, we may follow the usual assumption that the Hittite form continues a root formation **h₂erḱ*- / **h₂rḱ*-. If this reconstruction is correct, we may try to find an explanation for its *mi*-inflection in the sound law **eRCC* > **əRCC* (see 6.1.1.2) – in this case probably rather **aRCC* > **əRCC* – which may have altered the vocalism in such a way that it was no longer a trigger for transition into the *ḫi*-conjugation. This would suggest that *ḫarra-*^{i} < **h₂erh₃*- and *ḫāš-*^{i} < **h₂ems*- were no input for this sound law, i.e. that the specific alterations of their *RC*-clusters took place before **aRCC* > **əRCC*. The consistent spelling with the *CVC*-sign *ḫar* is an additional argument to prefer either of these two scenarios over an interpretation with a real -*a*- (cf. n. 36). See also *ḫark-*^{zi} 'to get lost' below (6.1.2.3.2).

6.1.2.3 **h₃*

6.1.2.3.1 **eh₃*

In this section I will determine the effect of a **h₃* following the ablaut vowel. The following overview contains all synchronically unaffixed verbs

whose original roots contain this sequence. For the nasal infix formations and the suffix *-šša-*^{i}, see 6.2.2 and 6.2.3, respectively. For **h₃neh₃-*, continued in *ḫanna-*^{i} 'to sue', see 6.2.1.

PIE root	**formation**	**Hitt.**	**meaning**	**conj.**
**deh₃-*	**deh₃-*	*dā-*^{i} / *d-*	'to take'	*ḫi*
**-deh₃-*	**-deh₃-*	*pēda-*^{i} / *pēd-*	'to carry (away)'	*ḫi*
**-deh₃-*	**-deh₃-*	*uda-*^{i} / *ud-*	'to bring (here)'	*ḫi*
**leh₃u-*[53]	**leh₃u-*	*lāḫu-*^{i} / *laḫu-*	'to pour'	*ḫi*
**peh₃-*	**peh₃-s-*	*pāš-*^{i} / *paš*(*š*)-	'to swallow'	*ḫi*
**ǵneh₃-*	**ǵnh₃-s-*	*kane/išš-*^{zi}	'to recognize'	*mi*

For roots in which the ablaut vowel is followed by **h₃*, the distribution among the conjugations is again diametrically opposed to that of the structures without a coloring laryngeal. All verbs with a sequence **-eh₃-* ended up in the *ḫi*-conjugation. This is another clear confirmation that the effects of laryngeal-coloring triggered *ḫi*-inflection.

It can be understood why the Hittite descendant of the root **ǵneh₃-* 'to recognize' is not *ḫi*-conjugated. Its original full grade allomorph was leveled out: the stem *kane/išš-* goes back to **ǵnh₃s-*, which was generalized from the plural (Kloekhorst 2008: s.v.; 2009). Hence, there was no *o*-colored ablaut vowel to trigger *ḫi*-inflection. It is possible that the singular stem that was replaced was *ḫi*-conjugated, i.e. **ǵneh₃-s-* > **kanāš-*^{i} (but cf. 6.1.2.2.1 on the deviant behavior of *š*-final *ḫi*-verbs). For a similar replacement cf. the *mi*-verb *ḫane/išš-*^{zi} 'to wipe', whose original singular stem is most probably still preserved, due to paradigm split, in the verb *ānš-*^{i} 'to wipe' (cf. 6.1.2.2.2).

[53] For this reconstruction see Melchert (2011). Given the outcome of 6.1.2.2.1, for our purposes it does not make any difference whether we reconstruct this root with **h₃* or with **h₂*. See 6.1.2.2.1 also for the form *lāḫu-* for expected ***laḫḫu-* (as for example in the derivative *laḫḫuešš̆ar* 'pouring cup'); cf. esp. *šāḫ-*^{i} 'to stuff'.

6.1.2.3.2 **h₃e*

There are only two verbs in which the ablaut slot was probably preceded by **h₃*.[54]

PIE root	formation	Hitt.	meaning	conj.
**h₃erg-*	**h₃erg-*	*ḫark-^{zi}*	'to get lost, perish'	*mi*
**h₃erǵʰ-*	? (**h₃orǵʰ-*)	*ārk-^{i}*	'to mount, copulate'	*ḫi*

The best candidate for being an old formation starting with **h₃e*° is *ḫark-^{zi}* 'to get lost, perish', which must go back to a root **h₂/₃erK-*, probably **h₃erg-* (Kloekhorst 2008: s.v.). All forms unequivocally point to *mi*-inflection, which is exceptional considering the general patterning of **h₂e*°. Notably, however, the root structure of this verb corresponds to that of the one exception to the overall pattern displayed by **h₂e*°, viz. *ḫar(k)-^{zi}* 'to hold, keep' < **h₂erḱ-*. Also note again the consistent spelling with the *CVC*-sign *ḫar*. The parellelism of these verbs supports the idea that the sound law **eRCC*, **aRCC* > **əRCC* bleeded the transfer of verbs of the shape **h₂/₃eRC-* to the *ḫi*-conjugation.

Although *ārk-^{i}* 'to mount, cover, copulate' could be mechanically reconstructed as **h₃orǵʰ-* (with **h₃-* on account of Hitt. *arki-* 'testicle', Gr. ὄρχις 'testicle' < **h₃rǵʰ-i-*), with loss of **h₃* before **o*, its age and even linguistic reality are dubitable. The verb is usually inflected in the middle voice (*arga* < **h₃rǵʰ-o*), and the one active attestation *ārki* (MH/NS) is not only found as *arga* in the duplicate (MH/LNS), but also occurs in the first part of a simile whose second part expresses the same notion with the middle form *argaru*. If it is *sprachwirklich* at all, the possibility of a late backformation (or formal confusion with *ārk-^{i}* 'to cut'?) is considerable.

[54] We may also discuss here the verb *ḫarp-* 'to change allegiance, to join (a different group)'. This is originally middle, *ḫarp-^{tta}*, and found secondarily inflected in the active (*ḫarp-^{zi}*) only in post-OH times (Melchert 2010). The usual connection with Gr. ὀρφανός 'orphan' (etc.), leading to a reconstruction **h₃erbʰ-*, is semantically far from obvious (for a rationalization see Melchert 2010: 186). Nevertheless, the root must in any case reflect **h₂/₃erP-*. To the extent that the formal distribution between the *mi*- and *ḫi*-conjugations was still active at this point at all, the choice for *ḫarp-^{zi}* rather than ***ḫarp-^{i}* could be explained in the same way as with *ḫar(k)-^{zi}* and *ḫark-^{zi}*, which have identical structures.

However, there is also still a chance that it is old. If so, there is potential comparative evidence to suggest that the original formation was an iterative of the shape **h₃orǵʰ-eie/o-*, namely Gr. ὀρχέομαι ‘to dance; to mount’. If one prefers not to connect this, other options are equally conceivable.

6.1.2.4 **H*

This section discusses verbs with a flanking laryngeal of undetermined color.

PIE root	**formation**	**Hitt.**	**meaning**	**conj.**
**Heḱ-*	*(*He-*)*Hoḱ-e*?	*āk-^{i}* / *akk-*	‘to die’	*ḫi*
**Her-*	*(*He-*)*Hor-e*	*ār-^{i}* / *ar-*	‘to arrive’	*ḫi*
**Herḱ-*	**HorK-*(*eie/o-*)?	*ārk-^{i}*	‘to cut off, divide’	*ḫi*

In the absence of obvious cognates, at least such cognates that allow us better to determine the original shapes, these roots may have started with any of the three laryngeals.[55] This does not have any impact on their classification: we need morphological *o*-grade in all three cases. If these verbs started with **h₁-*, the vowel can only be explained by *o*-grade. If they started with **h₂-* or **h₃-*, we need *o*-grade to explain the loss of these consonants.[56]

The meanings of *āk-^{i}* ‘to die’ and *ār-^{i}* ‘to arrive’ make it extremely likely that these are old perfects (cf. Oettinger 1979: 403-404): *(*He-*)*Hoḱ-e* ‘has died’ > ‘died’, whence **Hoḱ-ei* ‘dies’, and *(*He-*)*Hor-e* ‘has arrived’ > ‘arrived’, whence **Hor-ei* ‘arrives’. Indeed, *ār-* ‘to arrive’ has a perfect match in the Skt. perfect *āra* ‘has arrived’ < **He-Hor-e*.

For *ārk-^{i}* ‘to cut off, divide’, the semantic domain of cutting may suggest an original *o*-grade iterative (cf. Oettinger 1979: 415).

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[55] *ār-^{i}* ‘to arrive’ is usually reconstructed as **h₁er-* based on a connection with Gr. ἔρχομαι, possibly < **h₁r-ske/o-*, but this may rather go with OIr. *eirg* ‘go!’, *regaid* ‘will go’, and simply come from **h₁erǵʰ-* (Beekes 2010: s.v.). Lucien van Beek (p.c.) suggests that the root meaning ‘to arrive, reach’ may rather have been **h₂er-*, identical to **h₂er-* ‘to join’ (Gr. ἀραρίσκω, etc.). For a similar development cf. Italian *giungere* ‘to reach’ < Lat. *iungere* ‘to join’.

[56] For the loss of PAnat. **h₂/₃-* before **o* see 5.2.

6.2 Affixed formations

6.2.1 Reduplicated formations

Leaving the domain of (synchronically) unaffixed formations, we now turn first to reduplicated formations. Here we expect more morphological *o*-grades: in general in IE reduplicated formations *o*-grade is significantly more frequent than in root formations, especially if the reduplication syllable has **-e-* (cf. LIV^2: 16, 21, 24).

PIE root	formation	Hitt.	meaning	conj.
**ǵeus-*	**ǵu-ǵus-*	*kukuš-^{zi}*	'to taste'	*mi*
**k^{w}ers-*	**k^w-k^{w}rs-*	*kukkurš-^{zi}*	'to mutilate'	*mi*
**h$_2$emǵ^h-*	**h$_2$me-h$_2$mǵ^h-*?	*ḫamank-^{i}* / *ḫame/ink-*	'to wrap, tie'	*ḫi*
**meh$_{2/3}$-*	**mi-meh$_{2/3}$-*?	*mimma-^{i}* / *mimm-*	'to refuse'	*ḫi*
**peh$_{2/3}$-*	**pi-peh$_{2/3}$-*?	*pippa-^{i}* / *pipp-*	'to tear down'	*ḫi*
**h$_3$neh$_3$-*	**h$_3$e-h$_3$noh$_3$-*?	*ḫanna-^{i}* / *ḫann-*	'to sue, judge'	*ḫi*
**pers-*	**pe-pors-*?	*papparš-^{i}*	'to sprinkle'	*ḫi*
**ueḱ-*	**ue-uoḱ-*?	*ueu̯akk-^{i}*	'to demand'	*ḫi*
**spend-*	**se-spond-*?	*šipă̄nt-^{i}* ~ *išpă̄nt-^{i}*	'to libate'	*ḫi*
**h$_1$es-*	**h$_1$s(e)-h$_1$os-*?	*ašāš-^{i}* / *ašeš-*	'to seat'	*ḫi*

Of these verbs, only *kukuš-^{zi}* 'to taste' has clear parallels, if not direct cognates, in Skt. *jujuṣ-*, Av. *zūzuš-* < **-ǵus-* (Watkins 2003). The formation of *kukkurš-^{zi}* 'to mutilate' is transparently identical. Since reduplication with a vowel mimicking that of the root is not a normal PIE process, at least the vowel of the reduplication of both verbs will have been innovated, and quite possibly both formations are post-PIE altogether (cf. Yates & Zukoff 2018: 208). Whatever their antiquity, *kukuš-^{zi}* and *kukkurš-^{zi}* are the only verbs in the list that clearly do not contain either **-e-* liable to coloring or **o*, which explains the other unique feature they share: their *mi*-inflection.

Although *ḫamank-^{i}* 'to wrap, tie' is universally connected with **h$_2$emǵ^h-* (> **h$_2$enǵ^h-*) 'to wrap tightly, strangle' (Gr. ἄγχω 'to squeeze tight, strangle', Lat. *angō* 'to bind together, strangle'), its exact formation is the subject of debate. For an overview of proposals so far, see Shatskov (2017: 42-44), who rightly dismisses all of them as morphologically

unlikely. Problematically, all proposals operate with an unparalleled variant of the *n*-infix. Most unsatisfyingly, the exceptional *ḫi*-inflection remains unexplained. In my view, it can hardly be coincidental that this formation contains a *$*h_2$*, which when in contact with the vowel would account for its inflection. Since the root already contains a nasal, the occurrence of two nasals may not be due to infixation, but could also be due to reduplication. I therefore propose to analyze this verb as a reduplicated formation *$*h_2me$-$h_2mǵ^h$-*, which would most likely have produced *ḫamank-* by sound law.[57] The vocalism caused by the sequence *$*-eh_2$-* then neatly explains its *ḫi*-inflection. The weak stem *ḫamink-* could in principle be from a secondary zero grade "*$*h_2m$-$h_2mǵ^h$-*" (for the phonetics cf. e.g. *kane/išš-* 'to recognize' < *$*ǵnh_3s$-*), but more probably represents a secondary zero grade of a later date, much like e.g. in *šarāp-*^{i} / *šare/ip-* 'to sip' < *$*srob^h$-*$*eie/o$-*.

The root-final laryngeals of *pippa-*^{i} 'to knock/tear down, destroy' and *mimma-*^{i} 'to refuse' are undetermined, and therefore so is the original color of the radical vocalism. *$*h_2$* or *$*h_3$* would have colored *$*-e$-* such that it would trigger *ḫi*-inflection. Only *$*h_1$* would require morphological *o*-grade. A reconstruction with *$*h_1$* has been proposed for *mimma-*^{i} 'to refuse', which has been related to *$*meh_1$*, the PIE prohibitive negation, but this connection is not beyond doubt.[58] If the reduplication syllable has original *$*-i$-* rather than *$*-e$-*, which is synchronically probable at least for

[57] Although the exact sequence *$*eh_2mC$* is not paralleled, we may compare it with *$*eh_2m$# > -$\check{a}n$* (e.g. acc.sg.c. *$*h_2eh_1seh_2m$ > *ḫāššan* 'fireplace', *$*dueh_2m$ > *tuṷān* 'to this side'). More in general, it is probable that laryngeals were lost in *VHCC*-sequences (cf. *$*peh_2so$ > *paḫša* 'protects', but, if correctly reconstructed, *$*dmeh_2sti$ > *tamăšzi* '(op)presses').

[58] Another interpretation, going back to Sturtevant (1933: 133), connects *mimma-*^{i} with Gr. μίμνω 'to stay, stand fast' < *$*mi$-*$*mn$-*$*e/o$-*, root *$*men$-* 'to think; to wait'. Apart from the fact that the Hittite verb is not thematic (cf. Dempsey 2015: 295), the *ḫi*-type in *-ai* rather suggests a root ending in *$*h_{2/3}$* (cf. e.g. *tarna-*^{i} 'to let go' < *$*tr$-*$*ne$-*$*h_2$-*, *paddai* 'digs' < *$*b^hod^hh_2$-*$*ei$*). *mimma-*^{i} would in principle allow for a reconstruction *$*mi$-*$*mneh_2$-*, if one would like to connect the related root *$*mneh_2$-* 'to think about', which could just like *$*men$-* have developed its meaning from 'to think' to 'to stay', and then further to 'to refuse', but this is quite farfetched. The exact prehistory of this verb must remain unknown.

mimma-^{i},[59] this would favor the assumption of original *e*-grade over *o*-grade (cf. LIV^{2}: 16). This, in turn, would point to the reconstructions **mi-meh*$_{2/3}$- and **pi-peh*$_{2/3}$-.[60]

ḫanna-^{i} 'to sue, judge' has been connected with Gr. ὄνομαι 'to blame' < **h*$_{3}$*nh*$_{3}$-. This is further related to **h*$_{3}$*neh*$_{3}$*-mn* 'name' (Hitt. *lāman*), which shows the place of the ablaut slot.[61] It is not fully clear what the exact formation of *ḫanna-*^{i} is. Kloekhorst (2008: s.v.) reconstructs a reduplicated formation **h*$_{3}$*e-h*$_{3}$*nVh*$_{3}$-. If this is correct, it cannot be determined directly whether the ablaut vowel was **-e-* or **-o-*, but as a reduplicated formation with **-e-* in the reduplication syllable, the root would probably have had *o*-grade. In either case the *ḫi*-inflection is expected. The original function of this formation is difficult to recover. Although the stem may have been formally identical to that of a perfect, the absence of subject-affecting semantics (see 7) hampers a straightforward identification. Neither is the meaning iterative.

Since the remaining verbs do not contain a coloring laryngeal, their vocalism must go back to a morphologically motivated *o*-grade.

That *papparš-*^{i} 'to sprinkle' reflects *o*-grade rather than *e*-grade or zero grade is confirmed by the frequent spelling with *pa-ar* rather than with *pár* (cf. Kloekhorst & Mens fthc.). Although its cognates (mainly ToB *pərsa-*, ToA *präsā-* 'to sprinkle') do not show *o*-vocalism, the inherently iterative (in this case distributive) meaning 'to sprinkle' would fit an interpretation as an *o*-grade iterative. The iterativity is undoubtedly also the motivation behind the reduplication. The fact that the reduplication vowel mimics the vowel in the root is certainly an innovation, but the age of the reduplicated formation as such remains to be determined. The reduplication may have been added secondarily (cf. *u̯arš-*^{i} ~ *u̯au̯arš-* 'to wipe'), or it may have been formed to the original *mi*-base (cf. *ueu̯akk-*^{i} ~ *uek*(*k*)-^{zi} 'to demand' below).

[59] The spelling of *pippa-*^{i} is in fact ambiguous, and could equally well stand for *peppa-*^{i} (*pí-ip-* = *pé-ep-*) (cf. Oettinger 1979: 498, Kloekhorst 2008: s.v.).
[60] For the loss of **h*$_{2}$ cf. **trneh*$_{2}$*-ti* > **tarnā-di* >> *tarna-*^{i} (see 6.2.2 n. 71).
[61] Rather than 'to call names' (thus Kloekhorst 2008: s.v.), I would envisage the original meaning of the verb **h*$_{3}$*neh*$_{3}$- to be 'to name, to mention by name, to identify by name', from there 'to indict, to accuse, to blame', i.e. to verbally identify someone as a supposed culprit by saying their name.

In the latter case, the verb could continue an old iterative **pe-pors-*, comparable to the following verb, *ueu̯akk-*.

The reduplication with *-e-* strongly suggests that *ueu̯akk-* 'to demand, ask' goes back to **ue-uoḱ-*. Semantically, it is an intensive, or iterative, of the verb *uek*(*k*)-^{zi} 'to wish, demand' (for which see 6.1.1.1.1). This meaning precludes the possibility that this is an old perfect (see Kloekhorst 2008: s.v.). We do not expect a verb with a stative primary meaning (expressed by the present-aorist system, **ueḱ-ti* 'wants') to have had a perfect (cf. 7). Rather, the verb is a reduplicated *o*-grade iterative. In formation and meaning it is close to the Sanskrit intensive (iterative), the reduplicated *o*-grade iterative possibly underlying the **molH*-type iterative (see 5.2). With Hoffmann *apud* Oettinger (1979: 433), we may also compare the Skt. 2sg.pres. *vavák-ṣi* 'you want' (cf. also the later 3sg.pres. *vivaṣ-ṭi*), although this most probably constitutes a more or less parallel innovation rather than a direct cognate.[62]

The main cognates of *šipānt-*^{i} ~ *išpānt-*^{i} 'to libate' are Gr. σπένδω 'to libate', ToB *spənta-*, ToA *späntā-* 'to trust', and Lat. *spondeō* 'to pledge, promise'. The Latin verb goes back to **spond-eie/o-*, which was probably originally iterative. Although this does offer an *o*-grade formation to which the Hittite verb might also go back (thus e.g. Oettinger 1979: 418-419), there is no semantic indication that the Hittite verb does continue an iterative derivation rather than the basic verb as continued in Gr. σπένδω. Forssman (1994: 103) reconstructs the unexpected variant *šipānt-* as a reduplicated formation, which he further identifies with the Latin perfect *spopondī* < OLat. *spepondī* < **spe-spond-*. Whether or not the two formations go back to a PIE formation, it is in any case clear that *šipānt-* cannot be a regular outcome of **spond-* or a mere graphic variant of *išpānt-*;[63] it must be a morphological variant, for which a reduplicated formation is the only serious possibility.[64] This leads to a reconstruction

[62] A preform **ueuoḱti* rather than **ueuoḱe*(*i*) could also directly explain the absence of lenition. But the fortis consonant may also have been restored on the basis of *uekk-*.
[63] Thus Kassian & Yakubovich (2002).
[64] This cannot have been a reduplicated aorist, as Melchert (2016) proposes. An aorist cannot account for the *o*-grade needed to explain the *ḫi*-inflection. The telic semantics, the most important reason for Melchert to opt for an aorist, are exactly what we expect from a perfect-turned-preterite, as was advocated in 4.2.3.

**si-spond-* or **se-spond-*. Since reduplication syllables may undergo formal innovation, the formal objections that have been raised against Forssman's connection can easily be overcome.[65] The criticism focusing on the functional mismatch – an action verb in Hittite but a perfect in Latin – is also beside the point: it matches the unjustified semantic argument against deriving the *ḫi*-conjugation as a whole from the perfect (on which see 4.2.3). The only justifiable argument against identifying *šipă̄nt-* as an original perfect is the fact that 'to libate' is not a subject-affecting meaning (see 7). The identification would therefore require the assumption that perfects were created to verbs which did not originally have one. While this is certainly a theoretical possibility, witness the Latin perfect, the collective Hittite evidence suggests that the perfect did not spread so much beyond its original nucleus (see 7). Still, the fact that the meaning is not iterative but rather that of the base verb fits a perfect interpretation better than an iterative interpretation. However, in this scenario it would in fact be an anomaly that this formation was not (fully) dereduplicated (see 7). This could nevertheless plausibly be related to the removal of the second **s*. Whatever the exact mechanism that caused this,[66] it rendered the original reduplication syllable unrecognizable as such, and indispensable. The variant *išpānt-* shows the unreduplicated stem, which must have been taken from other instantiations of this root, cf. e.g. *išpanduzzi-* 'libation vessel', which never has the variant *šipant-* (confirming the morphological nature of this variant). Although we must at least be dealing with a reduplicated formation, then, and a perfect interpretation is conceivable, ultimately, the semantics do not allow a straightforward classification.

ašāš-^{i} / *ašeš-* 'to seat' is clearly a reduplicated causative of *eš-*^{zi} 'to sit' < **h₁es-* (6.1.2.1). The historical morphological details as well as the age

[65] Similarly, one would not want to dismiss a connection between e.g. Gr. ἔστηκα and Lat. *stetī* 'to stand' < **s*(*t*)*e-stoh₂-*, or between the reduplication of the PIE perfect and that of the Tocharian pret.ptc. (e.g. ToB *kekamu*, ToA *kakmu* 'having come' < **gʷo-gʷm-uōs*) or that of some Skt. perfects (e.g. *bubodh-* 'to be aware' < **bʰu-bʰoudʰ-*). Cf. Melchert (2016: 192-194).

[66] If it was not simply a phonetic development, the removal of the **s* can perhaps be related to the existence of the variant *išpānt-*, whose phonemic composition after the development of a prothetic vowel may have blurred the analysis of **šišpānt-* as a reduplicated formation, and would rather have suggested that this variant had a redundant *š*.

of this formation are far from clear, but in any case the *ā* can hardly reflect anything other than **ó*. A (probably anachronistic) backprojection could look like **h₁s(e)-h₁os-* / **h₁s(e)-h₁s-* (cf. Kloekhorst 2008: s.v.). Although causative reduplicated formations are known in the shape of reduplicated aorists in Greek and Indo-Iranian, and from the causative preterite in Tocharian, none of these formations has *o*-grade, and the Hittite formation therefore remains unparalleled.

6.2.2 Infixed formations (*°-*ne*-*C*-)

In the following I list all nasal infix verbs.[67] Given the tendencies found in the previous sections, we would expect *°-*ne*-*K*- and *°-*ne*-*h₁*- to come out as *mi*-conjugated in Hittite, and *°-*ne*-*h₂*- and *°-*ne*-*h₃*- as *ḫi*-conjugated. Morphological *o*-grade is not expected.

formation	**Hitt.**	**meaning**	**conj.**
**h₂u-ne-g*$^{(h)}$-	*ḫuni(n)k-*^{zi}	'to bash'	*mi*
**h₃r-ne-g-*	*ḫarni(n)k-*^{zi}	'to make disappear'	*mi*
**h₂/₃i-ne-k-*	*ḫinik-*^{zi} / *ḫink-*[68]	'to grant, bestow'	*mi*
**ni-ne-k-*	*nini(n)k-*^{zi}	'to mobilize'	*mi*
**sr-ne-ḱ-*	*šarni(n)k-*^{zi}	'to compensate'	*mi*
**str-ne-ḱ-*	*ištarni(n)k-*^{zi}	'to afflict'	*mi*
**tm-ne-k-*	*tamenik-*^{zi} / *tamink-*[69]	'to attach'	*mi*
**d*^{h}*ur-ne-h₁-*	*duu̯arni-*^{zi} / *duu̯arn-*	'to break'	*mi*
**h₁/₃rs-ne-h₁-*	*aršane-*^{zi} / *aršan-*	'to be envious'	*mi*
**h₂ul-ne-h₁-*	*ḫulle-*^{zi} / *ḫull-*	'to smash'	*mi*
**ti-ne-h₁-*	*zinni-*^{zi} / *zinn-*	'to finish'	*mi*
**sn-ne-h₂-*	*šanna-*^{i} / *šann-*	'to hide'	*ḫi*
**tr-ne-h₂-*	*tarna-*^{i} / *tarn-*	'to let (go)'	*ḫi*
**su-ne-h₃-*	*šunna-*^{i} / *šunn-*	'to fill'	*ḫi*

The overview is telling. As expected, all verbs in **-ne-K*- and **-ne-h₁*- are *mi*-conjugated. The absence of a type ***-na-*^{zi} shows that no verbs in

[67] Possibly, we should classify *kanen-*$^{(zi?)}$ 'to bow, genuflect' < **ǵ-ne-n-* here as well.
[68] On this verb see Shatskov (2017: 46-48).
[69] For a discussion and analysis of the stems of this verb, see Shatskov (2017: 53-60). Whatever the exact details, the normal developments must in some way have been distorted by the presence of the root-inherent nasal *-m-* and contamination from the middle stem *tamek-* (which is itself also problematic).

*-*ne*-$h_{2/3}$- ended up being *mi*-conjugated.[70] Since we do not expect *o*-grade in this formation, as the velar-final formations confirm, this already indicates that the verbs in *-na-*^{i} descend from *-*ne*-$h_{2/3}$-.[71] Independent evidence for the color of the laryngeal comes from the etymological connections of the verbs in question.

For *šanna-*^{i} 'to hide', the received etymology connects Gr. ἄνευ 'without' (cf. Kloekhorst 2008: s.v.). I find this very farfetched. Within Hittite, there is a much closer plausible cognate. The root must be **senH*-. The one other Hittite verb which goes back to this structure is *šanḫ-*^{zi} 'to seek, look for', normally reconstructed as **senh*$_2$- (cf. Kloekhorst 2008: s.v.). With one verb meaning 'to hide' and the other 'to seek', both obviously part of the same semantic domain, there can in my opinion be no doubt that these two verbs are etymologically related. This suggests that *šanna-*^{i} goes back to **sn-ne-h*$_2$-.[72]

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[70] The most important verb that is sometimes claimed to be of exactly such a type, "*ḫarna-*^{zi}" 'to sprinkle', is seen as a *mi*-verb only on the basis of the one attestation 1pl.pres. *ḫarnaṷeni* instead of **ḫarnumeni*, which however occurs in a text whose reliability is questionable (cf. Kloekhorst 2008: s.v.: "I have doubts regarding the reliability of this text, however: cf. the fully aberrant 1pl.pres.act. form *iš-ḫu-ṷa-ṷa-a-ni* (ibid. 18)"), and may moreover well simply show the transition to the *ḫatrae*-class by which the *tarna*-type is later absorbed (cf. e.g. 3sg. *tarnaizzi*). It goes without saying that this form does not justify the assumption of a type **-*na-*^{zi}.

[71] Kloekhorst's (2008: s.v. *šanna-*^{i}) formal objection to a reconstruction with *h_2, to the effect that **CC-nó-h*$_2$*-ei* would give Hitt. **-naḫi* (i.c. **sn-nó-h*$_2$*-ei* > ***šannaḫi*) does not apply to the current scenario: starting from an originally *mi*-conjugated verb, the original form **-ne-h*$_2$*-ti* would regularly become **-nā-ti* (**-nā-di*), with loss of the laryngeal before a stop (Kloekhorst 2008: 77), and then be turned into **-nā-i*. The evidence of the nasal infix verbs suggests that other stems continuing *°*eh*$_2$- that still show **h*$_2$ > *ḫḫ* leveled this from forms in which the laryngeal had not disappeared. It concerns root formations of the type *(*C*)*Ceh*$_2$- (see 6.1.2.2.1) and the suffix **-eh*$_2$- (see 6.2.3), in which the **h*$_2$ was much less dispensable than in *tarna*-formations.

[72] Oettinger (1979: 159) had thought of this possibility, but rejected it because he did not consider it plausible that 'to make look for' changed to 'to hide'. However, to arrive at an accurate description of 'to hide' the only necessary adaptation of the synchronically most expected meaning is to have the causative apply to the object rather than to the subject of *šanḫ-*^{zi} (i.e. 'to make looked for' or 'to make to be looked for'). Cf. Dutch *zoeken* 'to look for', *zoekmaken* 'to make missing' < *te zoeken maken* 'to make to be looked for'. Not all the details of the apparent synchronic function of the *n*-infix should be taken as rigorous leading principles in etymological matters, since it is unlikely that this exact function is of PIE date; PIE rather formed causatives with the *CoC-eie/o*-type, also before the departure of Anatolian. Hence the slight

For *tarna-*^{i} ‘to let (go), allow’, two competing etymologies exist. One connects **terh₂-* ‘to cross, pass through’ (Skt. *tárati* ‘comes through’, Lat. *trāns* ‘across’), the other ToB *tərka-*, ToA *tärkā-* ‘to let go, let, allow, emit, dismiss’ (present stem B *tərk*(*ə*)*na-*, A *tärnā-*) < **TerKH-*, **TrK-ne-H-*. The latter is now usually preferred (cf. LIV^{2}: s.v. **TerKh₂-*, Kloekhorst 2008: s.v.). If this connection is correct, the laryngeal would not be determinable on the basis of etymology.[73] From a Hittite perspective, however, it is somewhat awkward that a *-k-* has to be postulated for which there is no internal evidence, which has to be lost in a cluster *-RkC-* in *tarna-* and in a cluster *-ksC-* in the imperfective *tar-šik*(*k*)*e/a-*. Moreover, since this is a nasal infix formation, in principle we expect the meaning of the Hittite formation to be causative. The Tocharian verb, however, inherently means ‘to let go’ rather than ‘to go’. Semantically, a connection with PIE **terh₂-* ‘to cross, pass through’ therefore fits much better: ‘to let (go), allow’ can easily be from ‘to make pass (through)’, i.e. ‘to provide someone with the possibility to go (on)’. The semantics of *tarna-*^{i}, which were the reason for Kloekhorst (2008: s.v.) to reject the derivation from PIE **terh₂-* ‘to cross, pass through’, are therefore rather an argument in favor of it. If we connect **terh₂-* rather than the Tocharian verb, this leads to a preform **tr-ne-h₂-*.

šunna- ‘to fill’ is a factitive to *šūuš* ‘full’ < **seuH-u-*. Since **seuh₂-u-* would rather have become ***šūḫu-*, the root must have been **seuh₁-* or **seuh₃-* (Melchert 1987: 24). The derived adjective *šu-u-uš* /sōus/ ‘full’, with *ō* rather than *ū*, the regular reflex of **-eu-*, further points in the direction of **h₃* (Kloekhorst’s 2008: s.v. reconstruction **-ou-*, with *o*-grade, is morphologically unexpected).[74] Conversely, **h₃* is confirmed by our expectation to find **h₂* or **h₃* in this verbal type, of which **h₂* has been

divergence from the synchronic function should not be invoked to reject an etymological connection between a formally matching pair of verbs of which one means ‘to hide’ and the other ‘to seek’.

[73] Conversely, in view of the origin of the morphological type as proposed here, it follows from Hitt. *tarna-*^{i} that the laryngeal must have been either **h₂* or **h₃*.

[74] The Palaic 3sg.pret. *šūnāt*, which has been glossed as ‘poured out’, has also been taken as support for **h₃* (Melchert 1987: 25). I prefer not to base any argument on Palaic.

ruled out. We can therefore settle the reconstruction on **seuh₃-*, with *šunna-^{i}* < **su-ne-h₃-* / **su-n-h₃-*.

As it turns out, then, our expectations of the nasal infix verbs of the type **-ne-C-* are completely borne out by the data. Formations in **-ne-K-* and **-ne-h₁-* surface as *mi*-conjugated (*-ni(n)k-^{zi}*, *-ne-^{zi}*/*-ni-^{zi}*), formations in **-ne-h₂-* and **-ne-h₃-* as *ḫi*-conjugated (*-na-^{i}*). This provides a strong confirmation of the correctness of the analysis, both of the mechanism of conjugational transfer in general, without which the existence of the *tarna-* type cannot be explained, and of the exact formal triggers as observed on the basis of the unaffixed formations.

One lexeme that may also be treated here is *kuu̯ašš-^{zi}* 'to kiss'. Comparing the likely cognate Gr. κυνέω < **ḱu-ne-s-* (cf. LIV^{2}: s.v. *ḱu̯as-*), Kloekhorst (2008: s.v.) reconstructs *kuu̯ašš-^{zi}* as **ḱu-en-s-*.[75] While possible in terms of sound law, this reconstruction is morphologically problematic, since there is otherwise no evidence for the existence of a nasal infix of this type in PIE.[76] I therefore propose to reconstruct **ḱu-n-s-* instead, which is the expected shape of the zero grade stem that must originally have accompanied **ḱu-ne-s-* as preserved in Gr. κυνέω. **ḱu-n-s-* would regularly have been vocalized as **ḱu̯n̥s-* (> **k^{w}n̥s-*) before a consonant, and have produced the attested form *kuu̯ašš-*, cf. e.g. **d^{h}ur-n-h₁-* > *duu̯arn-* 'to break', **g^{wh}n-ske/o-* > *kuu̯aške/a-* 'to kill (impf.)', **k^{w}r-ske/o-* > *kuu̯araške/a-* 'to cut (impf.)' (Kloekhorst 2007b). This suggests that the expected allomorphy **kuneš-* / **kuu̯ašš-* / **kušš-* was

[75] This reconstruction was retracted in Kloekhorst (2014a: 286-287) in favor of a hesitatingly postulated reconstruction **kueh₃s-* (~ Skt. *cū́ṣati* 'to suck, smack'?) in order to explain the OH/MS attestation with plene spelling, *ku-u̯a-a-aš-zi*. I do not consider this one attestation to have enough weight to justify an adaptation of the root etymology, which entails abolishing the very attractive etymological connection with Gr. κυνέω. The alternative reconstruction is also suspicious given the general tendency to transfer verbs with a sequence **-eh₂/₃-* to the *ḫi*-conjugation (although the only exception to the tendency, *tamăš-^{zi}* 'to (op)press', has a similar structure). I therefore prefer to analyze the plene spelling in *ku-u̯a-a-aš-zi* in a different way, for example, as the result of hypercorrection, or like the occasional attestation of *ap-pé-e-ez-zi*° 'backmost', which must prehistorically and throughout attested Hittite have featured a short vowel (cf. Skt. *ápatya-* 'offspring'). If the plene spelling does spell real length in this case, it may reflect an attempt to (re)create ablaut.

[76] For *kalank-* 'to soothe' and *ḫamank-^{i}* 'to wrap, tie', which have been claimed to go back to *ḫi*-inflected variants of this structure, see 6.1.1.2 n. 37 and 6.2.1, respectively.

leveled in favor of *kuu̯ašš-*. Very probably, the epenthetic vowel that developed before a vocalic resonant was not /a/, but rather /ə/ (cf. Kloekhorst 2008: 27-29, and cf. 6.1.1.2), and therefore the *mi*-inflection is expected.

6.2.3 Suffixes

In the following overview I list the inherited athematic verbal suffixes.[77] On the basis of the other IE languages, we again do not expect morphological *o*-grade, and so we expect *ḫi*-inflection only in the case of *h_2 or *h_3 adjacent to the ablaut vowel.

formation	**Hitt.**	**meaning**	**conj.**
*-*eh*$_1$-	-*e*-^{zi}	stative suffix	*mi*
*-*eh*$_1$-*sh*$_3$-	-*eššš*-^{zi}	fientive suffix	*mi*
*-*neu*-	-*nu̯*-^{zi}	causative suffix	*mi*
*-*eh*$_2$-	-*aḫḫ*-^{i}	factitive suffix	*ḫi*
*-*ei*-	-*ai*-^{i} / -*i*-	verbal suffix	*ḫi*
*-*seh*$_3$-	-*šša*-^{i} / -*šš*-	imperfective suffix	*ḫi*

Indeed, all *mi*-conjugated suffixes go back to shapes without a coloring laryngeal adjacent to the ablaut vowel, and all suffixes that did have such a laryngeal ended up in the *ḫi*-conjugation.

The suffix -*aḫḫ*-^{i} shows a peculiarity compared to root formations with a similar structure: unlike those, -*aḫḫ*-^{i} does not lenite its 3sg. to **-*āḫ*-. The lenition of the root formations, inasmuch as they are the result of transfer rather than original *o*-grade formations, was explained in 6.1.2.2.1 as analogical after the pattern of other members of the same class, where it originated in lenition caused by **ó*. As a suffix, -*aḫḫ*-^{i} did not become part of this class, and therefore understandably did not adopt its pattern, but instead continued to show the unlenited -*ḫḫ*- as expected from the *e*-graded preform *-*eh*$_2$- (cf. Kloekhorst 2008: s.v.). The -*ḫḫ*- throughout the paradigm cannot be completely due to sound law either, however: as is

[77] We may also mention here the special cases of the thematic suffixes -*ške/a*-^{zi} and -*ie/a*-^{zi}, whose original alternation of **e* and **o* reached attested Hittite relatively unscathed, apart from a slight expansion of -*e*- in the oldest texts (-*škēmi*, -*iemi*). Their *mi*-inflection, mostly inherited as such from PIE, is unsurprising.

clear from nasal infix verbs such as *tarna-* < **trneh₂-*, part of the paradigm must have shown a development to **-ā-*, e.g. **-eh₂-ti* > **-ā-ti* (**-ā-di*) (see 6.2.2 n. 71). This development must also have taken place in the suffix **-eh₂-*, meaning that *-ḫḫ-* was in this case restored from other forms in the paradigm in which it had not been lost (e.g. **-eh₂-enti* > *-aḫḫ-anzi*). It can be understood why these two types were leveled in different directions: while forms like *tarna-* had acceptable shapes also after the workings of the sound law, meaning that the now anomalous forms such as **-eh₂-enti* > **-aḫḫ-anzi* could be leveled out, in *-aḫḫ-* the *-ḫḫ-* was the most prominent and recognizable part of the suffix, and thus less dispensable. In the root formations *-ḫḫ-* enjoyed similar prominence. The generalization of *-aḫḫ-* rather than **-ā-* in these cases is therefore unsurprising.[78]

Only one suffix behaves unexpectedly: the suffix *-ai/i-*^{i}.[79] With Kloekhorst (2006a: 118, also Kloekhorst & Lubotsky 2014: 131), this is clearly related to the suffix **-ei/i-* that can be reconstructed for PIE on the basis of non-Anatolian relics, mainly **tḱ-ei-ti* / **tḱ-i-enti* 'to cultivate (land)' (Skt. *kṣeti*, *kṣiyánti* 'to dwell', Myc. *ki-ti-je-si* 'they cultivate'), derived from the root **teḱ-* 'to give birth to, produce', and **dʰgʷʰ-ei-ti* / **dʰgʷʰ-i-enti* 'to decay (by or as if by fire)', from **dʰegʷʰ-* 'to burn' (see LIV²: s.vv. **dʰgʷʰeu̯-*, **tḱeu̯-*). LIV² (s.vv.) convincingly analyzes this as an originally intransitivizing suffix ('to burn (tr.)' → 'to decay ((as if) by fire)', 'to produce' → 'to cultivate land, farm'). As an athematic ablauting suffix attached to the zero grade of the root, **-ei/i-* is a complete morphological match of Hitt. *-ai/i-* except for the color of the ablaut vowel. The Hittite suffix is reconstructed as **-oi/i-*, with morphological *o*-grade, by Kloekhorst (2006a, following Oettinger 2002: xxviii), who also reconstructs this form for PIE on the basis of an equation of Hitt. *išpai-*^{i} 'to become satiated' and Skt. *sphāya-te* 'becomes fat' < (virtual) **sph₁-ói-e-toi* (?) (Kloekhorst 2006a: 115 n. 10, 118 n. 18, following a

[78] For prominence as a determining factor in the absence or presence of restoration, cf. e.g. the general restoration in Italian of [k] and [g] before the plural *-i* immediately after the accent, i.e. in a more prominent position, but its retention elsewhere, e.g. *stòrico* [-k-], pl. *stòrici* [-tʃ-] 'historic; historian', but *fíco* [-k-], pl. *fíchi* [-k-] 'fig'.

[79] The *ai/i*-class originally also included the *mēma/i*-class, its counterpart in polysyllabic stems in which the suffix was not accented (cf. Oettinger 1979: 462-463, Kloekhorst 2008: 145-147, Kümmel 2012).

suggestion by Lubotsky, who further developed this in Lubotsky 2011: 115), to which Kloekhorst & Lubotsky (2014: 133-134) add Hitt. *nai-^{i}* 'to turn' < **nh₁-oi-*, *nanna/i-* 'to drive' < **ne-nh₁-oi-* ~ Skt. *náyati*, *-te* 'to lead, bring' < **nh₁-oi-e-*, perf. *ninā́ya* < **ne-nh₁-oi-*.[80] If correct, its morphological *o*-grade would immediately explain the *ḫi*-inflection. However, I am not convinced that the adduced forms warrant the reconstruction of a PIE suffix **-oi/i-*. First of all, this reconstruction is morphologically suspicious because PIE verbal suffixes with inherent *o*-grade are otherwise unknown. Moreover, the few forms that constitute the non-Anatolian part of the equation allow for different interpretations: *sphāya-* may have obtained its sequence *Chā* in the same way as did *sthā-* 'to stand' < **steh₂-* / **sth₂-*, and while the verb *nī-* / *nay-* < **neiH-* or **nHei-* may indeed result from a reinterpretation of **nH-ei/i-* as a root, its perfect *ninā́ya* is a transparent perfect formation and may have been created at any time after the reinterpretation of the basal verb.[81] The idea that these formations are specifically Indo-Iranian creations is strengthened by the fact that there is no evidence for corresponding forms in the rest of non-Anatolian IE. Indeed, at an earlier stage, i.e. before the reinterpretation of these *i*-presents as roots, and before the post-PIE functional developments of the perfect, such creations are unexpected in view of the meaning of the suffix **-ei/i-*, if this really detransitivized the basic verbal meaning, creating Vendlerian 'activities' (for this term and the semantic restrictions of the PIE perfect see 7). These arguments caution against a mechanical reconstruction of Hitt. *-ai/i-* as **-oi/i-*. This reconstruction is furthermore based on the premise that the *ḫi*-conjugation always owes its vowel to morphological *o*-grade, which can in view of the model developed here no longer be upheld. In view of all this, I prefer a different analysis. It is important to note that a direct descendant of **-ei/i-* is otherwise completely absent in Hittite. To me, this suggests that *-ai/i-* is in fact the direct descendant of **-ei/i-*, whose ablaut vowel came to be altered. As a switch to an *o*-grade variant would be hard to justify morphologically, I think we

[80] Cf. also De Vaan (2019), who reconstructs **dʰh₁-oi/i-* (Hitt. *dai-^{i}* / *ti-*) for PIE.
[81] Cf. Skt. *á́ siṣāya* 'holds fettered' < **se-sh₂oi-e*, perfect to *sināti* 'to make fettered' < **si-ne-h₂-ti*, ultimately from a reinterpreted *i*-present to the root *sā-* < **seh₂-* (cf. Lubotsky 2011: 109-111, 121).

rather have to look for a solution based in sound law. There are two logical possibilities that may be explored here.

A first option that deserves serious consideration is that **-éi-ti* simply became **-ái-ti* (**-ái-di*) by sound law. The usual assumption, however, is that **ei* was always monophthongized (cf. e.g. Melchert 1994: 145, Kimball 1999: 207-214, Kloekhorst 2008: 99-100). But while **ei* clearly became a monophthong in some contexts (see below), it cannot be regarded as certain that it did in all of them, and a split outcome would in fact not be isolated. The diphthong **ou*, which may *a priori* be expected to show parallel developments to those of **ei*, has both a monophthongized outcome /ŏ/ and a conditioned diphthongal outcome *au* before dentals (e.g. in **h₂ou-* > *au-* 'to see': 1sg. *u-uḫ-ḫi*, 2sg. *a-ut-ti*, 3sg. *a-uš-zi*; cf. Kloekhorst 2008: 58-59, 101). Similarly, **oi* becomes *ĕ* word-finally (**ḱói* > *kē* 'these', **=oi* > *=e* 'they', cf. Gr. τοί 'they'), but *ai* word-internally before dentals (**ḱoinos* > *kainaš* 'in-law, kinsman';[82] cf. Kimball 1999: 216-217, Kloekhorst 2008: 100). *A priori*, one could therefore suppose that **ei* likewise became *ĕ*, but *ai* word-internally before dentals. But of course, we have to judge this hypothesis on the basis of the evidence. For **ei* > *ĕ* before non-dentals and word-finally, Kloekhorst (2008: 99-100) adduces *eḫu* 'come!' < **h₁éi-h₂ou*, *ḫēu-* 'rain' < **h₂eih₃-u-*, *nēa* < **neih₁/₃-o*, *mēḫur* < **meih₂-ur* and **uors-ei* > *u̯aršše* (later replaced by *u̯arši*).[83] The only example with **ei* > *e* before a dental, and therefore the only counterevidence for *-ai-* resulting from **-ei-* by sound law before dentals, is *uezzi* 'comes', which Kloekhorst reconstructs as **h₂ou-h₁eiti*. A problem with this form is that the verb to which it belongs has secondarily acquired a thematic inflection (*ue/a-*^{zi}), and it cannot be ruled out that *uezzi* was not

[82] Although the *ai* in *kainaš* must be from **oi* or **ei*, it is not immediately clear which of the two it is. None of the cognates that are usually adduced (e.g. Skt. *śéva-* 'dear, precious' < **ḱVi-uo-*, MHG *hīe* 'household member' < **ḱei-uo-*, Lat. *cīvis* 'citizen' < **ḱei-ui-*, Latv. *siẽva* 'wife' < **ḱei-ueh₂-*, OIr. *cóim* 'dear, nice' < **ḱoi-mo-*; cf. Kimball 1999: 216, Kloekhorst 2008: s.v.) match *kainaš* in formation. However, perhaps we may further adduce Gr. κοινός 'belonging to the community', i.e. 'common, shared, kindred', of which **ḱóinos* could be the substantival counterpart. For the possibility that κοινός belongs to this root, cf. already Chantraine (2009: s.v.). The received etymology rather derives κοινός from **ḱom-io-* (to **ḱom* > Lat. *cum* 'with').

[83] This is usually seen as a case of analogy. Cf. Kümmel (2012) for the possibility of a sound law *-e* > *-i*.

one of the analogically reshaped forms rather than a pivot form; cf. *ie/a-*$^{tta(ri)}$ 'to go', of which only the stem form *i̯a-* < **h₁i-V*° can directly reflect the older athematic verb, whereas *ie-* is analogical rather than a regular reflex of **h₁ei-*. The exact formal history of the other continuation of **h₁ei-*, found in *pa̯i-*^{zi} / *pai-* 'to go', is difficult to recover, and has likewise been proposed to include a case of leveling which removed the original strong stem (Kloekhorst 2008: s.v.). The preverb that is also part of this verb, however, provides some positive evidence for a development **ei* > **ai*. This preverb developed from an adverb still found as *pē* (e.g. *pē-da-*^{i} 'to carry, bring', *pē ḫar(k)-*^{zi} 'to have, hold'). This is reconstructed as **h₁p-oi* by Kloekhorst (2008: s.v.), a modification of Eichner's (1973: 78) reconstruction **po-i*. However, a morphologically much more likely reconstruction would be **h₁p-ei*, a dative existing next to the locative **h₁ep-i* (Gr. ἐπί, etc.). For such a morphological pair cf. e.g. **per-i* (Gr. περί, etc.) ~ **pr-ei* (OPruss. *prei*, Lith. *priẽ*, OCS *pri*). It is therefore likely, in my view, that *pē*, rather than the accented dat.-loc.sg. ending *-ī*, shows the regular outcome of **-éi*. The dat.-loc. ending *-ī* may well have followed a similar path to that of *u̯aršše* >> *u̯arši*, i.e. **-éi* > **-ē* >> *-ī*, after the much more frequent unaccented dat.-loc. ending *-i* < **-i*. The evidence of *pa̯i-*^{zi} / *pai-* 'to go' shows that **h₁péi* > *pē* went through a stage **pái*, whose diphthong was retained as such in the univerbated verb, but monophthongized to *é́* in word-final position (Kloekhorst 2008: s.v.). Here we would then have a development **éi* > **ái*, later > *é́* word-finally. This could mean that 2sg. **-éi-si* and 3sg. **-ei-ti* likewise developed to **-ai-si* and **-ai-ti* (**-ai-di*), retaining the diphthong before a dental, but monophthongizing it in most other positions, including word-finally. These developments would be fully parallel to those of **oi* > *ai* ~ *e̋* and **ou* > *au* / ~ /ő/, and would allow us to reconstruct the morphologically expected *e*-grade rather than a fully unexpected *o*-grade in the adverb *pē* < **pai* (< **h₁p-éi* rather than **h₁p-ói*) and in the verbal suffix *-ai/i-* (< **-éi/i-* rather than **-ói/i-*).

Another possibility is that the outcome *-ai/i-* was caused by the usual suspects for causing coloring of **e* to **a*/*o*, viz. **h₂* and **h₃* – cf. the origin of the type *padd-ai* < **b*^{h}*od*^{h}*h₂-ei* –, after which this colored variant was generalized. This option gains probability in light of the fact that the suffix

is in Hittite correlated with roots originally ending in a laryngeal (Jasanoff 2003: 94-95). And indeed, various prominent members of this class may directly continue *e*-grade forms by sound law, e.g. **sh₂-ei-* / **sh₂-i-* > *išḫai-* / *išḫi-* 'to bind', **mh₂-ei-* / **mh₂-i-* > *m-ai-* / *m-i-* 'to grow', **pth₂-ei-* / **pth₂-i-* > *pidd-ai-* / *pitt-i-* 'to run, flee, fly',[84] perhaps **nH-ei-* / **nH-i-*[85] > *n-ai-*, **n-i-*, *nē-* 'to turn, send', **spH-ei-* / **spH-i-*[86] > *išpai-^{i}* / *išpi-* 'to become satiated'.[87] In these verbs, the laryngeal-colored suffix vocalism would expectedly have triggered a transition to the *ḫi*-conjugation. If the regular outcome of **-ei/i-* was **-ē/i-*, in accordance with the current understanding of the development of **ei*, this alternation would have become quite opaque, which could have been an incentive to generalize the more transparent ablaut of the colored variant of the suffix, with the identical zero-grade **-i-* as the pivot form (e.g. *išḫ-i-anzi* (etc.) : *išḫ-āi* = *t-i-anzi* (etc.) : X → *d-āi*).[88] Indeed, if we expect two different outcomes of **-ei/i-* by sound law (**-ē/i-* and **-ai/i-*), and only one of them is found, this directly suggests that the two types created by sound law were leveled in favor of one of the two. In any case, whichever scenario is correct –

[84] Kloekhorst's (2008: s.v. *pattai-^{i}* / *patti-*) reconstruction with **h₁* is based on *pitteʲant-* 'fugitive', with *-e-* rather than *-a-* as in *maʲant-* 'adult man'. However, since intervocalic **ʲ* is lost in Hittite, the exact shape of *pitteʲant-* cannot be old, and is therefore non-probative. Moreover, the Greek evidence points to **h₂*: ἔπτατο 'flew' < **pth₂-*, ποτάομαι 'to fly hither and tither' < **poth₂-eie/o-* (see LIV²: s.v. **peth₂-*[2]). This contrasts with πίπτω 'to fall' < **pet-* or **peth₁-*. The IIr. evidence cannot be used to determine the final laryngeal of 'to fly'. Here we find only one verb, **pat-* or **patH-* 'to fly, fall' (e.g. Skt. *pátati* 'to fly'), possibly due to a conflation of the two roots (Kümmel 2000: 295-296, LIV²: s.v. **peth₁-*).

[85] That is, if the root was **neh₃-*, rather than to be identified with **neh₁-* 'to twist; to sew' as per Kloekhorst & Lubotsky (2014: 134-135), and if the root was not in fact **neiH-* (cf. Kloekhorst 2008: s.v.).

[86] The identity of this root with those of the often compared lexemes Lith. *spéti* 'to be in time, be capable', Lat. *spēs* 'hope' and PGm. **spēdi-* 'late', which would point to **h₁* rather than **h₂* or **h₃*, is not more than a possibility.

[87] Note that the 3sg.pres. in *-āi* (e.g. *dāi* 'puts') is non-probative with regard to the original color of the vowel, despite its length: this could also regularly come from **-aʲ-e(i)*, with a short vowel, as is shown for example by the nominal *i*-stems, e.g. dat.-loc.sg. **-aʲ-i* > *-āi*, nom.pl.c. **-aʲ-es* > *-āeš* (see Kloekhorst 2008: 90).

[88] Note, in addition, that the original full grade of this particular verb, **d^{h}h₁-ei-*, would then have given *tē-*, and would thus inconveniently have become identical to *tē-^{zi}* 'to say'. This would have been a problem for roots originally ending in **°eh₁-* more generally.

o-grade, coloring of **e* by **h*$_2$ and **h*$_3$, or a development **ei* > **ai* – in each of them the resulting vocalism can immediately explain the transfer of the suffix to the *ḫi*-conjugation.

The laryngeal in the preform of *-šša-*^{i} / *-šš-* < **-seH-* / **-sH-* must have been either **h*$_1$ or **h*$_3$, since **-sh*$_2$*-* would have been preserved as ***-šḫ-* rather than developed to *-šš-* in the weak stem (cf. e.g. **h*$_1$(*e*)*sh*$_2$*en-* > *išḫan-* 'blood'). Kloekhorst (2018: 101) proposes to compare *-šk(e/a)-* < PIE **-ske/o-*, whose pure velar may point to an earlier **-sk*^{w}*-e/o-*. Considering the alternation **k*^{w} ~ **h*$_3$ in PIE **=k*^{w}*e* (Myc. *=qe*, Lat. *=que*, Hitt. *=kku*, etc.) ~ PAnat. **=Ho* < **=h*$_3$*e* (Hitt. *=(i)a*, Luw. *=ha*, Lyc. *=ke*) 'and', he convincingly proposes to reconstruct *-šša-* as **-seh*$_3$*-* / **-sh*$_3$*-*. Even if one does not accept this account, we do not expect *o*-grade in this suffix, and need **h*$_2$ or **h*$_3$ rather than **h*$_1$ in order to explain the coloring of the ablaut vowel, leaving **h*$_3$ as the only option.

Some of these suffixes were used by Jasanoff as prime examples to show the alleged randomness of the distribution of lexical elements among the *mi-* and *ḫi*-conjugations (see 5.1). The model developed here accurately predicts their conjugation assignment: *-nu-*^{zi} is *mi*-conjugated because it did not contain morphological *o*-grade or *e*-grade colored by **h*$_2$ or **h*$_3$, *-aḫḫ-*^{i} and *-šša-*^{i} are *ḫi*-conjugated because the *e*-grade was colored by **h*$_2$ and **h*$_3$, respectively, triggering a transfer to the *ḫi*-conjugation.

6.3 Overview and further interpretation

This concludes the discussion of individual lexemes. The following pages provide an overview of all formations discussed in the previous sections, classified according to the interpretations reached.

***MI*-CONJUGATION**

Root formations (including *s*- and *u*-extended roots) with **-e-*

Without coloring

**b^{h}erh$_{2}$-*	*parḫ-^{zi}*	**h$_{2}$ueg^{h}-*	*ḫuek-^{zi}*	**sperd^{h}-*	*išpart-^{zi}*
**b^{h}ers-*	*parš-^{zi}*	**h$_{2}$ues-*	*ḫuiš-^{zi}*	**stelg^{h}-*	*ištalk-^{zi}*
**d^{h}eh$_{1}$-*	*tē-^{zi}, -te-^{zi}*	**ḱelh$_{1}$-s-*	*kalliššš-^{zi}*	**sTeNh$_{2/3}$-*	*išta(n)ḫ-^{zi}*
**g^{wh}en-*	*kuen-^{zi}*	**kerp-*	*karp-^{zi}*	**sterḱ-*	*ištark-^{zi}*
**h$_{1}$ed-*	*ed-^{zi}*	**kers-*	*karš-^{zi}*	**teks-*	*takš-^{zi}*
**h$_{1}$eg^{wh}-*	*eku-^{zi}*	**kes-*	*kiš-^{zi}*	**ter-*	*ter-^{zi}*
**h$_{1}$ei-*	*i-^{zi}, paa̯i-^{zi}*	**k^{w}er-*	*kuer-^{zi}*	**terh$_{2}$-u-*	*tarḫu-^{zi}*
**h$_{1}$eNs-?*	*āššš-^{zi}*	**lesH-?*	*le/iššš-^{zi}*	**terk^{w}-*	*tar(k)u-^{zi}*
**h$_{1}$ep-*	*epp-^{zi}*	**leuk-*	*lukk-^{zi}*	**trep-*	*terepp-^{zi}*
**h$_{1}$erk^{w}-*	*ārku-^{zi}*	**mer-*	*mer-^{zi}*	**treup-*	*tarupp-^{zi}*
**h$_{1}$ers-*	*ārš-^{zi}*	**neg^{wh}-*	*neku-^{zi}*	**ueḱ-*	*uek-^{zi}*
**h$_{1}$es-*	*eš-^{zi}*	**nenK-*	*ni(n)k-^{zi}*	**ueih$_{2}$-*	*ueḫ-^{zi}*
**h$_{1}$eup-*	*upp-^{zi}*	**pes-*	*peš-^{zi}*	**uelh$_{3}$-*	*u̯alḫ-^{zi}*
**h$_{1}$ieh$_{1}$-*	*pei̯e-^{zi}, ui̯e-^{zi}*	**selK-*	*šalk-^{zi}*	**uelK-*	*u̯alk-^{zi}*
**h$_{1}$lenǵ^{h}-*	*li(n)k-^{zi}*	**senh$_{2}$-*	*ša(n)ḫ-^{zi}*	**uerp-*	*u̯arp-^{zi}*
**h$_{1}$ueb^{h}-*	*uep-^{zi}*	**senh$_{2}$-u-*	*ša(n)ḫu-^{zi}*	**uetk^{w}-*	*u̯atku-^{zi}*
**h$_{1/3}$uenh$_{1}$-*	*uen-^{zi}*	**ses-*	*šeš-^{zi}*		
**h$_{2}$ueǵ$^{(h)}$-*	*ḫuek-^{zi}*	**smen-*	*šamen-^{zi}*		

Coloring undone by **h$_{2/3}$eRCC > *HəRCC*

**h$_{2}$erḱ-*	*ḫar(k)-^{zi}*
**h$_{3}$erg-*	*ḫark-^{zi}*
*(*h$_{2/3}$erP-*	*ḫarp-^{zi})*

Nasal infix **-ne-* **Zero grade** **Suffixes**

**h$_{2}$u-ne-g$^{(h)}$-*	*ḫuni(n)k-^{zi}*	**ǵnh$_{3}$-s-*	*kane/iššš-^{zi}*	**-eh$_{1}$-*	*-e-^{zi}*
**h$_{2/3}$i-ne-k-*	*ḫinik-^{zi}*	**ǵu-ǵus-*	*kukuš-^{zi}*	**-eh$_{1}$-sh$_{3}$-*	*-ešš-^{zi}*
**h$_{3}$r-ne-g-*	*ḫarni(n)k-^{zi}*	**h$_{1/3}$unh$_{2}$-*	*ū(n)ḫ-^{zi}*	**-neu-*	*-nŭ-^{zi}*
**ni-ne-k-*	*nini(n)k-^{zi}*	**h$_{2}$mh$_{1}$-s-*	*ḫane/iššš-^{zi}*		
**sr-ne-ḱ-*	*šarni(n)k-^{zi}*	**ḱu-n-s-*	*ku̯u̯ašš-^{zi}*		
**str-ne-ḱ-*	*ištarni(n)k-^{zi}*	**k^{w}-k^{w}rs-*	*kukkurš-^{zi}*		
**tm-ne-k-*	*tamenik-^{zi}*				
**ǵ-ne-n-*	*kanen-^{zi}*				
**d^{h}ur-ne-h$_{1}$-*	*du̯u̯arni-^{zi}*				
**h$_{1/3}$rs-ne-h$_{1}$-*	*aršane-^{zi}*				
**h$_{2}$ul-ne-h$_{1}$-*	*ḫulle-^{zi}*				
**ti-ne-h$_{1}$-*	*zinni-^{zi}*				

Unclear

**dmeh$_{2}$-s-?*	*tamăš-^{zi}*

***ḪI*-CONJUGATION**

Perfect | ****CoC-eie/o-*** | ****molH*-type iteratives**

*(He-)Hor-e	*ār-*^{i}	Causative		*$b^{h}od^{h}h_{2}$-	*padda-*^{i}
*(He-)Hoḱ-e?	*āk-*^{i}	*doḱ-eie/o-	*dākk-*^{i}	*ḱonk-	*kānk-*^{i}
*(h_{2}e-)h_{2}ou-e?	*au-*^{i}	*log^{h}-eie/o-	*lāk-*^{i}	*$mold^{h}$-	*māld-*^{i}
*(me-)mouh$_{1}$-e?	*mau-*^{i}			*molH-	*mall-*^{i}
*(se-)sokh$_{1}$-e?	*šākk-*^{i}	Iterative		*h_{2}omh$_{1}$-s-?	*ānš-*^{i}
*(ue-)uos-e?	*u̯āš-*^{i}	*srob^{h}-eie/o-	*šarāp-*^{i}		
				*pe-pors-?	*papparš-*^{i}
				*ue-uoḱ-?	*ueu̯akk-*^{i}

***o*-grade (original category unclear)**

Various possibilities		Quite possibly iterative		Reduplicated causative?	
*$g^{h}rob^{h}$-(°)?	*karāp-*^{i}	*HorK-(°)	*ārk-*^{i}	*h$_{1}$s(e)-h$_{1}$os-?	*ašāš-*^{i}
*h$_{1}$orh$_{1}$-(°)	*ārr-*^{i}	*morǵ-(°)	*mārk-*^{i}		
*h_{2}uoph$_{1}$-(°)	*ḫuu̯app-*^{i}	*skolh$_{2/3}$-(°)	*iškalla-*^{i}		
*h_{2}uort-(°)	*ḫuu̯art-*^{i}	*skor-(°)	*iškār-*^{i}		
*h$_{3}$orǵ^{h}-(°)?	*ārk-*^{i}	*sorTh$_{2/3}$-(°)	*šarta-*^{i}		
*loh$_{1}$-(°)?	*lā-*^{i}	*spor-(°)	*išpār-*^{i}		
*$stomb^{h}$H-(°)	*ištāp-*^{i}	*sporh$_{2/3}$-(°)	*išparra-*^{i}		
		*uors-(°)	*u̯arš-*^{i}		
*h$_{3}$e-h$_{3}$noh$_{3}$-?	*ḫanna-*^{i}				
*se-spond-?	*šipa̯nt-*^{i}				

Colored **-e-*

Root formations (including *s*-extended roots) with **-e-*

*deh$_{3}$-	*dā-*^{i}, *-da-*^{i}	*h_{2}erh$_{3}$-	*ḫarra-*^{i}	*pleh$_{2}$-	*palāḫ-*^{i}
*h_{2}ed-	*ḫāt-*^{i}	*h_{2}erh$_{3}$-s-	*ḫarš-*^{i}	*seh$_{2}$-	*šāḫ-*^{i}
*$h_{2}ed^{h}g^{h}$-	*ḫatk-*^{i}	*leh$_{3}$u-	*lāḫu-*^{i}	*tieh$_{2}$-	*zāḫ-*^{i}
*h_{2}ems-	*ḫāš-*^{i}	*neh$_{2}$-	*nāḫ-*^{i}	*ueh$_{2}$ǵ-	*u̯āk-*^{i}
*h_{2}en-	*ḫān-*^{i}	*peh$_{2}$-s-	*paḫš-*^{i}		
*h_{2}e(*N*)s-?	*ḫāš-*^{i}	*peh$_{3}$-s-	*pāš-*^{i}		

Nasal infix **-ne-*		Reduplicated formations		Suffixes	
*sn-ne-h_{2}-	*šanna-*^{i}	*h_{2}me-h_{2}mǵ^{h}-?	*ḫamank-*^{i}	*-eh$_{2}$-	*-aḫḫ-*^{i}
*su-ne-h$_{3}$-	*šunna-*^{i}	*mi-meh$_{2/3}$-?	*mimma-*^{i}	*[$h_{2/3}$]-ei/i-	*-ai/i-*^{i}
*tr-ne-h_{2}-	*tarna-*^{i}	*pi-peh$_{2/3}$-?	*pippa-*^{i}	*-seh$_{3}$-	*-šša-*^{i}

We can generalize as follows. There is a formal distribution between the *mi*- and the *ḫi*-conjugations. The *mi*-conjugation contains formations in which the ablaut vowel *-*e*- was not affected by *h_2 or *h_3, and zero grade formations. The *ḫi*-conjugation contains formations with *o*-grade, notably perfects, *CoC-eie/o*-causatives and -iteratives, **molH*-type iteratives, as well as verbs in which the ablaut vowel *-*e*- was colored by *h_2 or *h_3.

The latter category, the largest among the historical categories that make up the *ḫi*-conjugation, is especially informative: the fact that a morphologically arbitrary feature of the root, viz. its phonological make-up, is found abundantly in the *ḫi*-conjugation, but is essentially absent from the *mi*-conjugation, clearly betrays a secondary association of (the effects of) this phonological feature with the morphological category of the *ḫi*-conjugation. Since *h_2 and *h_3 changed the color of an adjacent ablaut vowel *-*e*- to match the color of the ablaut vowel of the *ḫi*-conjugation, it is not difficult to understand the association. The distribution clearly suggests that *mi*-conjugated verbs whose ablaut vowel color came to match that of the *ḫi*-conjugation were transferred to the *ḫi*-conjugation. This, in turn, suggests that the various morphological categories with *o*-grade that are also contained by the *ḫi*-conjugation were likewise transferred on the basis of their vocalism – except, of course, for the original source category of the *ḫi*-conjugation. There can be no doubt which of the *o*-grade categories this original source was: since the *ḫi*-conjugation has endings going back to the perfect, its origin clearly lies in the perfect.

It need not bother us that so few members of the *ḫi*-conjugation, if any at all, can be matched to specific perfects found elsewhere in Indo-European. Such matches are in fact rare for all groups of verbs with historical *o*-grade. And our chances of encountering a match are reduced to begin with: none of these groups is particularly large, even in the unlikely event that all unclear cases originally belonged to only one of these categories. For each of these groups, the surviving lexemes surely constitute only a fraction of the original group size, and many group members must simply have been lost. And the chances are reduced even more because some lexemes retained in Anatolian were most likely replaced in post-Anatolian IE (*h_2*eu*-, **ues*-, probably **Hek̑*-). It is therefore not at all bad that we are still left with one good match, *ār-*^{i} ~ Skt.

āra, and have at least a candidate for another match in *šipānt-*^{i} ~ Lat. *spopondī*. For comparison, even though we can reconstruct a few hundred strong verbs for Proto-Germanic, only four of their perfect-continuing preterites can be matched to perfects in other IE languages (**baid-*, **laihw-*, **kwam-*, **warþ-* < **b*^{h}*e-b*^{h}*oid*^{h}*-*, **le-loik*^{w}*-*, **g*^{w}*e-g*^{w}*om-*, **ue-uort-*, see Ringe 2017: 180-181).

At the categorical level, it makes sense that it was the type deriving from the perfect that was generalized: with primary meanings such as 'to die', 'to arrive', 'to see', this category was more prominent than that of the more peripheral *o*-grade iteratives ('to dig', 'to grind', 'to stab') and that of the derived causatives ('to make lie down', 'to resemble'). And after the perfect had become the main expression of the lexeme it belonged to, taking over the roles of the former present-aorist, it operated in the core of the verbal system, on a par with the *mi*-conjugation; it was no longer a derived category, but a second primary conjugation, which could attract other formations with *o*-grade.

It may be useful to point out explicitly that the original semantic values that the merging morphological categories had had in PIE were clearly no obstacle to the merger. Nor is this expected after the perfect had lost its original value to simply become the main expression of the lexeme it was part of. For all lexemes involved in the merger, all shades of meaning were, as Hittite shows, identifiable simply on the basis of the root, allowing the shape of the (former) perfect to be generalized among formations with *o*-grade in the root – a morphological simplification – without any cost at the semantic level.

The analysis above also provides us with a better position to judge the matter of reduplication. Of the two verbs that can perhaps be linked to existing perfects in other IE languages, *ār-*^{i} 'to reach, arrive' and *šipānt-*^{i} 'to libate', the latter very plausibly continues a reduplicated formation, and the former might as well, just like the Sanskrit cognate *ār-* < **He-Hor-*.[89] The first input for the *ḫi*-conjugation may, then, have contained at least some reduplicated formations after all. These verbs also offer two potential mechanisms for the dissolution of the reduplication: *ār-* may have lost the

[89] This scenario would however probably require the laryngeal to have been **h*$_{1}$, which is not certain (cf. n. 55).

reduplication by sound law; *šipă̆nt-* alternates with unreduplicated *išpă̆nt-*, which was found in derivations and was seeping through to the new basal verb. Most importantly, however, once the perfect had developed to a past tense, and certainly once it had become a conjugation of its own, reduplication was morphologically completely redundant, and indeed a typological anomaly, as the form had now come to be the main expression of the underived meaning, i.e. the unmarked form of the verb. A general process of removal of the marked reduplication, i.e. dereduplication (e.g. **He-Hor-* >> **Hor-*; **ue-uos-* >> **uos-*), would therefore be anything but surprising.[90] With so few original perfect formations, we can hardly expect to find potential exceptions (and even so *šipă̆nt-* < **se-spond-* may be exactly that).

7 The ultimate origin of the *ḫi*-conjugation and the semantics of the PIE perfect

Finally, we may return to the ultimate roots of the division between the *mi*-conjugation and the *ḫi*-conjugation. Why did **h₁es-* 'to sit, to be', **dʰeh₁-* 'to put', **ueḱ-* 'to want', etc., keep their original shapes, but did **Her-* 'to arrive', **h₂eu-* 'to see', **Heḱ-* 'to die', etc., continue their existence as a perfect? The most obvious factor is that a verb had to have a perfect to begin with in order for the perfect to be able to become the verb's main vehicle of expression.

This brings us to the nature of the PIE perfect.[91] The perfect could not appear in just any lexeme in PIE. A verb had to have a specific semantic frame,[92] i.e. a specific structure in the range of related meanings that a verb could express, for it to allow expression in the perfect. This semantic frame

[90] Note how the four inherited Germanic preterites cited above likewise do not show reduplication anymore. Cf. Lazzeroni (2012: 57).

[91] For brief outlines of current thinking on this topic cf. e.g. LIV² (21-22) and Fortson (2010: 104-105). For Greek, the most important basis for our reconstruction of the PIE perfect, see e.g. Allan (2016: § 3.3, with refs., synchronic and prehistoric), whose account is largely accepted here; for synchronic classical Greek, see e.g. Rijksbaron (2002: 35-37), CGCG (420-425).

[92] For the concept 'semantic frame' see Croft (2012).

consisted of a change-of-state event resulting in a state of the subject. The event was expressed with the present-aorist system, the state with the perfect, e.g. pres.-aor. 'to wake up', perf. 'to be awake'; pres.-aor. 'to stand up/still', perf. 'to stand'. It is debated whether the semantic value of the PIE perfect was inherently 'stative-resultative', or purely 'stative', only sometimes with resultative implication.[93] In my view, both descriptions are too narrow, but 'stative-resultative' is the more accurate of the two.

A stative-resultative interpretation does not work for every instance of the perfect. An event preceding the state might or might not be implied in a given instance. The frequency of such an implication differed per lexeme. For example, **s(t)e-stoh₂-* was clearly the normal way to express 'to stand', without any relevant implication of a previous event of standing up or still – at least not to a larger degree than e.g. the implication of 'to put on clothes' for **ues-* 'to wear', or 'to fall asleep' for **ses-* 'to sleep'. Similarly, **h₁ge-h₁gor-* could mean 'to be awake' rather than 'to have woken up'. Common paraphrases of the perfect of the type "to have stood up and therefore now stand", inspired by the idea that all perfects expressed a result state, are therefore not only very forced, but often inaccurate. In other lexemes, a prominent implication of a preceding event was more common, e.g. **gʷe-gʷom-* 'to have come', rather than 'to be here' without any implication of the event of coming.[94] The latter type of meaning shades into uses of the perfect in which the state of the subject amounts to little more than being someone who has experienced the event once or multiple

[93] 'Stative-resultative' is the traditional analysis (cf. e.g. LIV²: 21-22, Clackson 2007: 121-122, Kümmel 2000: 65-82, Allan 2016: § 3.3). For the interpretation as a pure 'stative', which has become popular in more recent times, see e.g. Sihler (1995: 564-568), Fortson (2010: 105), Ringe (2017: 28), Willi (2018: 232-246), Van Beek & Migliori (2019: 73-77).

[94] The polysemy of the perfect in this respect has close typological parallels in nominal formations such as passive past participles (ppp.), for which stative-resultative and purely stative meanings may exist side by side in the same lexeme. For example, the Italian word for 'wet' is *bagnato*, which is *also*, and originally, the ppp. of the verb *bagnare* 'to make wet' (e.g. *ho bagnato la tovaglia* 'I have wet the tablecloth'). It. *pulito* is both the ppp. of *pulire* 'to clean', i.e. 'cleaned' (*ho pulito la stanza* 'I have cleaned the room') and an adjective meaning 'clean' (*una stanza pulita* 'a clean room', whence also *un uomo pulito* 'a tidy man'). The English stative adjective *dead* < **dau-da-* was originally the ppp. ('died') of **dau-jan-* 'to die', the source of *die*.

times at some point in the past (e.g. 'to have (once) seen').[95] These meanings were the seed for the development eventually to a simple past ('has come' > 'came', 'has seen' > 'saw', etc.).

Although some instances of the perfect were purely stative, a description of the perfect as a pure stative with occasional resultative implication is also too narrow, as it does not duly capture the restriction in the type of semantic frame the perfect could occur with. Although not all instances of the perfect implied a preceding event, the *potential* range of meanings expressed by verbs with a perfect did always include a preceding change-of-state event.[96] The perfect normally occurred in conjunction with

[95] Examples from Homer: τὸν μὲν ἐγὼ μάλα πολλὰ μάχῃ ἔνι κυδιανείρῃ ὀφθαλμοῖσιν ὄπωπα 'I have seen him many times with my own eyes in battle that brings glory to men' (*Il.* 24.391-392), τολμήεις μοι θυμός, ἐπεὶ κακὰ πολλὰ πέπονθα 'my heart is enduring, because I have suffered many hardships' (*Od.* 17.284). This use of the perfect can even be extended to verbs whose denoted event does not really affect the subject as it is carried out; the perfect then merely denotes that having carried out the event in the past is a characteristic of the subject, e.g. μυρί' Ὀδυσσεὺς ἐσθλὰ ἔοργε 'Odysseus has done thousands of good things' (*Il.* 2.272). These meanings are clearly closely related to the stative-resultative meaning, and are no sound basis for an analysis of the perfect as a general stative (contra Willi 2018: 232-234).

[96] This is true for all reconstructable perfects (cf. LIV^2). Some Greek verbs have been used to argue that the related present-aorist may also be atelic, meaning that the semantic frame would not necessarily contain an event *leading up to* the state of the perfect. However, none of these have root presents or aorists, and the Greek state of affairs may therefore well be secondary (for this point see Allan 2016: § 3.3). We may assume that the verbs in question underwent similar developments to that seen, for example, in πειθ-, whose original situation, pres.-aor. πείθομαι ~ ἐπιθόμην 'to be persuaded, won over', perf. πέποιθα 'to trust', was blurred to some extent because the present also came to express 'to believe, trust'. Most verbs in question refer to similar mental processes or emotions. Similarly, both meanings of the pair κεύθω 'to cover, hide, conceal' ~ κέκευθα 'to keep covered, contain' can be regularly derived from the telic meaning that is found in the aorist ἔκυθον 'covered' (ὄφρα πύθηαι πατρός, ὅπου κύθε γαῖα καὶ ὅν τινα πότμον ἐπέσπεν 'to find out about your father, where the earth covered him and what fate he met', *Od.* 3.15-16), which was, however, all but completely superseded by κρύπτω and καλύπτω. Willi's (2018: 234-236) prime example is **men*- 'to think', a meaning that was however probably also proper only to derived formations (Skt. *mányate*, probably Gr. μένω 'to wait' < *'to think'): significantly, the only root formation, Skt. *ámata*, is a root *aorist* (LIV^2: s.v., Allan 2016: § 3.3 n. 59); cf. *bṛ́haspátir ámata hí tyád āsāṃ, nā́ma svarṇ́ṇāṃ sádane gúhā yát* 'for Bṛhaspati brought to mind this very name of these who were resounding (with)in the seat – (the name) which was hidden' (RV 10.68.7, translation Jamison & Brereton 2014).

the present-aorist system in one lexeme, and can be analyzed as secondary to, i.e. *derived from*, the present-aorist system.[97] What is more, the event expressed with the present-aorist had to result in a state of the subject. This explains why verbs like **$d^{h}eh_{1}$-* 'to put', **$g^{wh}en$-* 'to kill', **$h_{1}ieh_{1}$-* 'to throw', which resulted in a state of the *object* rather than of the subject, as well as Vendlerian 'activities'[98] such as **$h_{1}ei$-* 'to go', did not have a perfect in PIE. An analysis of the perfect as a stative with primarily habitual or characterizing meaning ('to be a …-er', in the paraphrasis of Willi 2018: e.g. 229) cannot explain this distribution.[99] Purely or even just more prominently stative semantic frames were rather encoded as their own basic lexeme, in the default conjugation, i.e. the present-aorist system, e.g. **$h_{1}es$-* 'to sit', **ue$k\acute{}$-* 'to want', **ses-* 'to sleep', etc.[100] The analysis of

[97] The few Homeric perfects that have been adduced to show the contrary as an argument for the purely stative interpretation (e.g. Willi 2018: 236-239) all express events of making sound, e.g. ἄνωγε 'commands', λέληκε 'shrieks', μέμυκε 'lows', βέβρυχε 'roars'. The meanings of these perfects are certainly not stative, but eventive/dynamic, and thus they are atypical under either analysis.

[98] For the classic lexical semantic categories 'state', 'activity', 'accomplishment' and 'achievement', see Vendler (1967), as well as Croft's (2012) insightful adaptation and elaboration of this framework. States and activities are events that do not have an inherent endpoint (they are 'atelic'); the difference between them is that states are non-dynamic/non-eventive (e.g. 'to sit') and activities are dynamic/eventive (e.g. 'to walk'). Accomplishments and achievements do have an inherent endpoint (they are 'telic', or 'change-of-state verbs'). The difference is that accomplishments are stretched out in time (e.g. 'to draw a circle'), whereas achievements are instantaneous (e.g. 'to die'). Some lexemes allow for multiple 'construals', e.g. 'to eat' in isolation or with an unbounded object, e.g. 'to eat bread', is an activity, but 'to eat a piece of bread' is an accomplishment.

[99] There is no doubt that the perfect can have habitual and related interpretations in Greek. However, this is merely a consequence of its imperfectivity, just like it is with the present. Thus, a case like κλῦθί μοι, Ἀργυρότοξ', ὃς Χρύσην ἀμφιβέβηκας 'hear me, god of the silver bow, who protects Chryse' (*Il.* 1.37), could indeed be paraphrased as '… who is the protector of Chryse' (Willi 2018: 229-230), but the reason the perfect is used rather than the present is that the meaning 'to protect, to have under one's protection, to have (someone) covered', which developed from 'to have gone around, to have covered' (e.g. νεφέλη δέ μιν ἀμφιβέβηκε 'a cloud covers it', *Od.* 12.74, in the description of a high peak), is proper only to the perfect, since the eventive counterpart, ἀμφιβαίνω 'to go around', describes the act proceeding *towards* this state.

[100] In such cases, if the ingressive stage was also significant enough to be expressed, this was sometimes done with a derived pres.-aor. of the same root, e.g. **$h_{1}e$-$h_{1}s$-o* 'to sit down' (on which cf. Chapter 6), or alternatively, with a different lexeme (e.g. Gr.

the relevant semantic frame as an event effectuating a state of the subject further brings the perfect closer to the related middle voice, which is indeed often found in the eventive pres.-aor. of verbs with a perfect (e.g. Gr. ἐγείρομαι 'to wake up', ἐγρήγορα 'to be awake'; τήκομαι 'to melt, dissolve', τέτηκα 'to be dissolved'). The middle denotes that the subject is affected by the event (as it takes place),[101] the perfect that the subject has been affected by the event (after its completion).

In accordance with the analysis above, many of the most prominent and securely reconstructable examples of PIE verbs with a perfect express changes-of-state+result-states of body or mind, such as body positioning (e.g. **steh*$_2$- 'to stand up/still', perf. **s*(*t*)*e-stoh*$_2$- 'to stand'), coming and leaving (**g*^{w}*em*- 'to come', perf. **g*^{w}*e-g*^{w}*om*- 'to have come', **leik*^{w}- 'to leave', perf. **le-loik*^{w}- 'to have left'), psychosomatic activities (**h*$_1$*ger*- 'to wake up (intr.)', perf. **h*$_1$*ge-h*$_1$*gor*- 'to be awake'), mental activities (**b*^{h}*eid*^{h}- 'to be persuaded', perf. **b*^{h}*e-b*^{h}*oid*^{h}- 'to trust, believe'), perception (**derḱ*- 'to cast a glance (at)', perf. **de-dorḱ*- 'to look (at), see', **ueid*- 'to see, witness', perf. **uoid*- *'to have seen, witnessed' > 'to know', **b*^{h}*eud*^{h}- 'to become aware (of)', perf. **b*^{h}*e-b*^{h}*oud*^{h}- 'to be aware (of)'), and living and dying (**ǵenh*$_1$- '(act.) to beget, (med.) to be born', perf. **ǵe-ǵonh*$_1$- 'to have been born'). Verbs like **Her*- 'to arrive', **h*$_2$*eu*- 'to see' and **Heḱ*- 'to die' fit right into these categories, and will have had the perfects *(*He*-)*Hor-e* 'has arrived', *(*h*$_2$*e*-)*h*$_2$*ou-e* 'has seen', *(*He*-)*Hoḱ-e* 'has died' (Hitt. *ār-*^{i}, *au-*^{i}, *āk-*^{i}). On the other hand, verbs like **h*$_1$*es*- 'to sit, to be', **d*^{h}*eh*$_1$- 'to put', **ueḱ*- 'to want', **ses*- 'to sleep' (Hitt. *eš-*^{zi}, *tē-*^{zi}, *uek*(*k*)*-*^{zi}, *šeš-*^{zi}) did not have a perfect in PIE: their semantic frames (states and changes of state with a result state of the *object*) did not fit expression in the perfect.

γίγνομαι 'to become' to εἰμί 'to be', in PIE perhaps e.g. **suep*- 'to fall asleep' and **ses*- 'to sleep', cf. García-Ramón 2002: 120-121). The difference between encoding a certain verbal meaning as a primary stative *mi*-verb with a derived ingressive and as an eventive pres.-aor. with a derived perfect will ultimately be related to the higher prominence or basicness of the meaning of the primary formation, both in terms of frequency and conceptually.

[101] For the semantics of the middle voice in ancient Greek see Allan (2003). For the creation of the secondary middle perfect, see Van Beek & Migliori (2019).

Even though the preceding observations already correctly predict the conjugation of most inherited Hittite lexemes that were not transferred for formal reasons, it is still probably not the whole story. Not all verbs that had a perfect will have shifted their main embodiment to the perfect in Anatolian. The new change-of-state preterite will not have fit every verb equally well. Probably, the more stretched out in time the event that led up to the state originally expressed with the perfect, the more prominent the original *mi*-formation will have been. For example, it is quite possible that **h₁ed-* 'to eat' had a perfect **h₁e-h₁od-* 'to have eaten',[102] but since 'to eat' is an event stretched out in time rather than an instantaneous event (an 'accomplishment' and usually even 'activity' rather than an 'achievement', in Vendlerian terms),[103] the *mi*-formation **h₁ed-ti* that described the process of eating rather than a single moment was prominent enough to prevent a new but not very useful change-of-state preterite from taking over. The same goes for **mer-* 'to vanish, disappear'. On the other hand, for verbs with punctual verbal meanings ('achievements') like 'to arrive', 'to die', 'to see', such atelic construals as justified the continued existence of the *mi*-formation in verbs like **h₁ed-* will not have been nearly as common, and may even have been non-existent (cf. Greek verbs lacking an imperfective stem, and therefore an eventive present tense, such as δει-σ- 'to get scared', perf. δε-δοι- 'to be afraid'). In such verbs, the punctual preterite that had developed from the perfect expressed the change of state that was the very essence of the eventive part of the verbal meaning. Accordingly, the perfect could also naturally become the

[102] Thus e.g. LIV^2 (s.v.). It is not completely certain that the forms on which the reconstruction is based (e.g. Hom. ἐδηδώς 'having eaten', Lat. *ēdī* 'I ate', PGm. **ēt-* 'ate') are not secondary, since the semantic frame in question is not prototypical for verbs with a perfect, in that the event is usually atelic (cf. also its status as a root present rather than an aorist in non-Anatolian IE), and when it is not, it also significantly affects the object. Nevertheless, the subject is clearly also affected, meaning that the basic requirement for expression in the perfect is fulfilled, as also appears from its occurrence in Homer: αἱματόεις ὥς τίς τε λέων κατὰ ταῦρον ἐδηδώς 'full of blood like a lion that has devoured a bull' (*Il.* 17.542; note the telicizing effects of κατά and ταῦρον).

[103] See n. 98.

morphological center of the verb, ousting the *mi*-formation and becoming the basis for a new present tense.[104]

During the shift from subject-stative-resultative through a present perfect to a simple past, the category may have inspired the occasional new creation, like later Sanskrit created perfects such as *āsa* 'has been', and post-classical Greek created forms like τέθηκα 'I have put' before merging its function completely with the aorist (and then abolishing it). Verbs with telic meanings that do not result in a state of the subject, such as *šipānt-*^{i} 'to libate', might reflect such a development. However, given the low number of verbs which possibly go back to a perfect, and especially in view of the fact that the original distribution between verbs with and without a perfect is still palpable, it appears not to have become too productive. Rather, the new preterites were soon functionally identified with the existing preterites, and were accordingly provided with a present tense through the addition of **-i* (on which see 4.3).

8 Summary and conclusion

We arrive at the following conclusions. In PIE, verbal meanings were by default expressed with a formation from the present-aorist system. This category is continued in the Hittite *mi*-conjugation. Verbs whose pres.-aor. meaning resulted in a state of the subject (e.g. 'to die') could express this state with the perfect. In a given instance of the perfect, an event leading up to the expressed state might or might not be implied (e.g. 'has died' or 'is dead').

In Anatolian, the perfect went down the pathway familiar from virtually all other IE branches by shifting its meaning from a resultative to a simple past (e.g. 'has died' > 'died'), essentially a shift from the expression of a resulting state to that of the event leading up to it, thereby losing its stative

[104] Cf. already Couvreur (1936: 552 n. 1), who gave the following characterization of the semantic tendencies of the two conjugations (albeit as a part of the usual semantic argument *against* an origin of the *ḫi*-conjugation in the perfect): "La distinction entre les deux conjugaisons, si distinction il y a, est d'un aspect tout autre. Les verbes en *-ḫi* (2^{e} conj.) sont perfectifs-ponctuels, ceux en *-mi* (1re conj.) ont l'aspect imperfectif-duratif.".

semantics. Now an eventive and telic past tense rather than a stative present tense, it was functionally equivalent to an aorist (and even took over the 2pl. *s*-aorist ending **-s-te*°, and later also **-s*(*-t*), remedying the inconveniences of the original endings **-é* and **-e*, respectively).

In those lexemes which had a perfect and more punctual semantics, i.e. when the event (leading up to a subject-state) expressed by the pres.-aor. was not stretched out in time, but rather a single change of state moment, the new aorist-like preterite, which now expressed exactly the change of state, i.e. the essence of the verb's meaning, became the morphological center of the verb.

The main morphological device for expressing tense differences in *mi*-verbs, viz. the addition of **-i* in the present tense, was now also applied to those verbs in which the perfect had become the center. Some of these verbs will not have had a *mi*-present in the first place, and for those that did, this innovation resolved the morphological imbalance, compared to the *mi*-conjugation, that existed between the present tense (< PIE present) and the preterite (< PIE perfect). Not only did the expression of tense already operate with a derived present tense in the *mi*-conjugation model; since the other category was a group of (punctual) change-of-state verbs, its members were more frequently expressed in the past tense than in the present tense (e.g. 'arrived' was more frequent than 'arrives'), rendering the innovation of the present tense based on the past tense, rather than the other way around, perfectly natural.

It is quite possible that the perfect inherited by Anatolian was originally reduplicated, and that it was generally dereduplicated after its development to a simple past (like e.g. in Germanic), and certainly when its form had become the unmarked expression of the lexeme.

The main distinctive feature of the new conjugation apart from its endings, its *o*-grade, was the basis for a morphological merger with all other *o*-grade formations. Most notably, it absorbed the **molH*-type iterative (e.g. **molH*- 'to grind', **b*^{h}*od*^{h}*h*$_2$- 'to dig'), as well as the *CoC-eie/o*-type causative-iterative (e.g. **log*^{h}*-eie/o*- 'to lay down', **srob*^{h}*-eie/o*- 'to slurp'), whose suffix had essentially been removed by sound law. In addition, any other formation whose *e*-grade had been colored by **h*$_2$ or **h*$_3$ to **a* or **o*, respectively, was also transferred to the

new conjugation. Apart from in root formations (e.g. **$d^{h}eh_1$- mi*-conj., **deh_3- ḫi*-conj.), this is reflected, for example, in the *n*-infixed formations, of which **-ne-K-* and **-ne-h_1-* stayed in the *mi*-conjugation, whereas **-ne-h_2-* and **-ne-h_3-* were the source of the *ḫi*-conjugation type in *-na-^{i}* (the *tarna*-type). Similarly, e.g. **-neu-* and **-eh_1-* remained in the *mi*-conjugation, but **-eh_2-* and **-seh_3-* received *ḫi*-endings. The purely formal transfers constitute the largest of the historical categories that ended up in the *ḫi*-conjugation.

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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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CHAPTER 6

The etymology of PIE *h_1es- ‘to be’

Abstract: In Hittite, the root formation continuing PIE *h_1es- / *h_1s- meant both ‘to be’ and ‘to sit’. I argue that it is likely that ‘to sit’ is the older meaning from which the copulative meaning developed by grammaticalization. Hittite *eš-^{a}* < *h_1e-h_1s- (Gr. ἧσται, Skt. *ā́ste*) further indicates that the older meaning of the reduplicated formation was ‘to sit down’. This suggests that the loss of the meaning ‘to sit’ for *h_1es-, the semantic extension of *h_1e-h_1s- to include ‘to sit’, and the introduction of *sed- to express ‘to sit down’ were post-Anatolian innovations.[1]

The PIE verb *h_1es- / *h_1s- ‘to be’ is reflected in all branches of Indo-European (Hitt. *e-eš-zi*, Skt. *ásti*, Gr. ἐστί, Lat. *est*, Goth. *ist*, etc. < PIE *h_1es-*ti*), where it serves as the main copula, in addition to being used absolutely (‘to be the case, to exist’).[2] In statements of a general nature, however, truisms with permanent or inherent value, without reference to a specific time or circumstance, we rather find nominal sentences, i.e. sentences without any overt verb form (see Praust 2003).[3] For example, the PIE way to state ‘X’s name is Y’ was “(of/to X) the name [*sc.* is] Y”.[4]

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[1] Thanks to Martin Kümmel and Daniel Kölligan for helpful discussion.

[2] Cf. also the participle *h_1s-*ont*- > Hitt. *ašant*- ‘existing, true’, Skt. *sant*- ‘real’, PGm. **sanþa*- ‘true; guilty’, Lat. *sōns* ‘guilty; criminal’ (i.e. “(s)he who is it”).

[3] Praust shows on the basis of Indo-Iranian, Greek and Armenian evidence that PIE had no morphological injunctive of *h_1es- ‘to be’. We only find augmented preterite forms, and in the other main context in which we normally find the injunctive, viz. general statements, we rather find zero.

[4] Praust (2003: 137) illustrates this with examples from Hittite (*ŠUM-an=šet* ^{URU}*Šudul* ‘its name (is) Sudul’), Old Persian (*Arxa nāma* ‘Arxa (is) his name’), Sanskrit (*havír asya nā́ma* ‘oblation (is) its name’), Old Irish *Mac Dathó a ainm* ‘Mac Dathó (is) his name’) and Greek (Ἀλπηνοὶ οὔνομα ‘Alpenoi (is) (its) name’). Praust is not certain about the antiquity of the Greek construction, as he believes that Homer only has this construction with an expressed copula. This is not the case, however, cf. e.g. Odysseus’ famous words to Polyphemus: Οὖτις ἐμοί γ’ ὄνομα ‘‘Nobody’ is my name’ (*Od.* 9.366). We may further add Latin evidence, e.g. *cantus … cui nomen Neniae* ‘a song whose name is Nenia’ (Cic. *Leg.* 2.24.26). Beside this PIE collocation,

This means that the verb **h₁es-* was used in statements of more specific, temporal, local or situational nature.[5]

We can also reconstruct **h₁eh₁s-* 'to sit' for PIE, which looks like a reduplication of a root **h₁es-*, i.e. **h₁e-h₁s-*.[6] LIV[2] s.v. **h₁eh₁s-* remarks: "Ungewöhnliche Wurzelstruktur, vielleicht liegt doch ursprünglich **h₁es-* (= 1. **h₁es-* 'sein'?) vor (das im aheth. Aktiv *es-*/*as-* erhalten sein könnte), mit Reduplikation dann **h₁e-h₁s-*." We find **h₁eh₁s-* in Greek, Indo-Iranian and Anatolian, in all of which it is a medium tantum: Gr. ἧσται 'sits', Skt. *ā́ste* 'sits', Hitt. *eša* 'sits down' < **h₁e-h₁s-(t)o*.[7] The meanings do not match completely, however: the Greek and Indo-Iranian verbs mean 'to sit', whereas the Old Hittite verb means 'to sit down'. In Greek and Indo-Iranian, 'to sit down' is rather expressed with descendants of the root **sed-* (Gr. ἕζομαι, Skt. *sīdati*). The normal way to express 'to sit' in Old

productive instances of the zero-copula are numerous. Again some examples from Praust (2003: 131-136): Lat. *omnia praeclara rara* 'all beautiful things are rare' (Cic. *Amic.* 79), Gr. οὕτω δὴ καὶ ἀνθρώπου κατάστασις 'such is also the condition of man' (Hdt. 2.173), Skt. *ahám rā́ṣṭrī* 'I am the woman in rule' (RV 10.125.3).

[5] A contrastive example from Praust (2003: 135): πίθεσθε καὶ ὔμμες, ἐπεί πείθεσθαι ἄμεινον 'you had better trust (me), too, because trusting is (generally) better' (*Il.* 1.273-274) vs. ὅ γε φέρτερός ἐστιν ἐπεὶ πλεόνεσσιν ἀνάσσει 'he (Agamemnon) is superior, because he rules over more men' (*Il.* 1.281). The first states a general truth, the second refers to Agamemnon specifically, and in his current situation of ruling over more men.

[6] Oettinger's (2004) suggestion, taken over by Melchert (2014: 254), that we should rather reconstruct **h₁ēs-*, is prompted by the idea that Luwian *i*, as found in the derivations HLuw. *i-sà-nu-wa/i-* 'to set', *i-sà-tara/i-ta-* 'seat', cannot go back to **-eh₁-* (which gives *ā*), only to **-ē-*. Probably **ē* does not give Luwian *i* either, however, but *ā* as well (cf. e.g. CLuw. *zārt-sa* 'heart' < **ḱērd*). Rather, these derivations probably simply reflect the bare root, **h₁es-*, in unaccented position (see Kloekhorst 2008: s.v. *eš-*$^{a(ri)}$). Moreover, the derivations are irrelevant for determining the shape of the basic verb meaning 'to sit', because this verb is actually attested in HLuw. 3pl.pret. (SOLIUM)*á-sa-tá* – with *a*, not *i*. In view of the ending of its 3sg.pres. form SOLIUM+*MI-sá-i*, this verb is likely to be the Luwian equivalent of Hitt. *eš-*^{a} rather than that of *eš-*^{zi} (for which cf. HLuw. *ásti*, Lyc. *esi* 'is' < **h₁es-ti*), meaning that ablaut is not expected (cf. Hitt. 3pl. *ešanta*). The Luwian word for 'to sit', then, also continues **h₁eh₁s-* or perhaps **h₁es-*, not **h₁ēs-*.

[7] Unless one prefers to reconstruct Hitt. *eša* as unreduplicated **h₁es-o* (thus Oettinger 2004: 494). This reconstruction is less probable in view of the separation from the Greek and Indo-Iranian comparanda it requires.

Hittite is with *eš-*^{zi} / *aš-* < *$*h_1es$- / *$*h_1s$- (see HW^2: s.v.).[8] Although LIV^2 remains on the fence,[9] this last fact can only mean that *$*h_1eh_1s$- is indeed to be analyzed as derived from *$*h_1es$-, i.e. as *$*h_1e$-h_1s-, with Hittite *eš-*^{zi} / *aš-* continuing a derivationally more primary formation, viz. the root formation on which *$*h_1e$-h_1s- is based.[10]

The identification of *$*h_1es$- ‘to sit’ with *$*h_1es$- ‘to be’ can hardly be doubted in view of the formal identity and close semantics.[11] Cf. Kloekhorst (2008: s.v. *eš-*$^{a(ri)}$): “This root *$*h_1es$- is identical to *$*h_1es$- ‘to be (present)’, indicating that ‘to sit’ is a development out of the meaning ‘to be present’.” Similarly, Willi (2018: 205 n. 179), dealing specifically with the reduplicated formation, claims that “‘sitting’ can be a temporally bounded form of ‘being’ (cf. *John sits ~ is on the floor*).” Although such a development is conceivable, the data show that ‘to be’ and ‘to sit’ must have been part of the semantics of *$*h_1es$- in PIE already, and the direction of change is therefore not immediately clear.

I would like to propose that the opposite development happened: that ‘to sit’ developed into ‘to be’. The development from a body posture verb (typically ‘to sit’, ‘to stand’, ‘to lie’) into a copula is a common pathway (cf. Heine & Kuteva 2002: 282). For ‘to sit’, see Heine & Kuteva (2002:

[8] Illustrations of *eš-*^{zi} / *aš-* and *eš-*^{a} from OH (see HW^2 II: 101): $^{\text{LÚ.MEŠ}}$*ÚBARU* LÚ-*aš kuiš kuiš* LUGAL-*u̯aš peran ēšzi n=e šarā tienzi* ‘the strangers and whoever sits in front of the king stand up’ (KBo 17.11+ i 5-6 // KBo 17.74+ i 5-6), LUGAL-*uš* MUNUS.LUGAL-*aš ešanda* ‘the king and the queen sit down’ (KBo 20.10 + 25.59 ii 9).

[9] Similarly Oettinger (2004: 493).

[10] The idea that *eš-* / *aš-* ‘to sit’ would reflect a derived formation *$*h_1ēs$- / *$*h_1es$- (Oettinger 2004: 493, Melchert 2014: 254) has no basis in the data, which rather contradict it (Melchert has to assume a replacement 3pl. **eš-anzi* >> *aš-anzi*). *eš-* / *aš-* ‘to sit’ is formally completely identical to *eš-* / *aš-* ‘to be’ < *$*h_1es$- / *$*h_1s$-. See also note 19.

[11] For the close semantics cf. HW^2 s.v. *eš-*$^{(2)}$ (‘to sit’): “Abgrenzung des Akt. gegen →*eš-*/*aš-*$^{(1)}$ in der Bed. ‘(irgendwo) sein’ bleibt öfter problematisch im Aheth. und Jheth.”.

278), where examples from Spanish[12], Imonda and Sango are provided.[13] The opposite is not true: copulas do not usually develop into verbs expressing specific body postures.[14]

One example of the development from a postural verb into a copula is Latin *stāre* 'to stand', which developed into a copula in western Romance (It. *stare*, Sp. *estar*). The older copula *esse* (It. *essere*, Sp. *ser*[15]) was not ousted. In Spanish, which shows the most progressed stage of grammaticalization,[16] the general difference between the two is that the modern counterpart of *esse* is used for more permanent or inherent qualities (e.g. names, occupations, inherent traits of physique or character, nationalities, origins, family relationships), while the descendant of *stāre* is applied to more temporary, changeable, non-inherent conditions (e.g. locations, positions, physical and mental states, emotions, ongoing actions).[17] An example of a minimal pair is Sp. *es alegre* '(s)he is a cheerful

[12] Namely *ser* 'to be' < Lat. *sedēre* 'to sit'. This is not the best example, however, since most forms subsumed under *ser* are still unambiguously those of older *esse*, and those that resemble *sedēre* are likely to be as well, since they have close counterparts in the other Romance languages in which *sedēre* remained separate: for the inf. *ser*, subj. *sea*, fut. *será* cf. It. *essere*, *sia*, *sarà*, reflecting (V)Lat. *esse*(*re*), *sit*, *esse*(*re*) *habet*. Although *sedēre* may have had some formal influence on the paradigm (cf. the Old Spanish infinitive *seer*), then, *ser* as a lexeme continues Lat. *esse* rather than *sedēre*. In addition, although *sedēre* did shift its meaning toward 'to be', its final merger with (or rather its being ousted by) *esse* 'to be', which had been adapted first to *éssere* (It. *essere*), and later further to *essére*, also had a formal component (cf. Corominas 1954-1957: s.v. *ser*: "Creo, pues, seguro que el golpe decisivo en la evolución semántica de SEDERE 'estar sentado' hasta 'estar' y 'ser', lo dió la confusión fonética con ESSERE"). The examples of Imonda and Sango, and that of *stāre*, elaborated upon below, are more straightforward.

[13] We can add Dutch, in which *zitten* 'to sit' can also mean 'to be located' and 'to be in a certain condition', e.g. *ik zit deze week in Ljubljana* 'I am in Ljubljana this week', *wat zit er in je zak?* 'what is in your pocket?', *deze schroef zit los* 'this screw is loose', *ik zit je te plagen* 'I am teasing you', *zo zit het* 'that is how it is'.

[14] These observations also make sense from a wider perspective: meanings tend to develop from concrete to abstract rather than the other way around.

[15] For *ser* as the continuation of *esse* rather than of *sedēre*, see note 12.

[16] If we leave out French, where the descendants of *stāre* and *esse* conflated into the single verb *être* 'to be' (impf. *était* < *stābat*).

[17] Examples, of *ser*: *yo soy Ricardo* 'I am Ricardo', *yo no soy marinero* 'I am not a sailor', *ella es una mujer especial* 'she is a special woman', *¿quieres ser madre?* 'do you want to be a mother?'; of *estar*: *está sentado en el sofá* 'he is sitting on the couch', *Tula está encendida* 'Tula is on fire', *mi camisa está empapada en sudor* 'my shirt is

person’ (personality trait) vs. *está alegre* ‘(s)he is in a cheerful mood’ (current state). The distribution between Sp. *ser* and *estar* is reminiscent of the PIE distribution between zero-copula and *h_1es-, with zero being used for more permanent or inherent states of affairs, and *h_1es- for more specific, temporal, local or situational cases of being.

It is likely, then, that *h_1es- originally meant ‘to sit’, and that it was later grammaticalized into a copula similar to *stāre* in western Romance.

This implies the following stages.

Stage	**‘to be’**	**‘to sit’**	**‘to sit down’**
Pre-PIE	–	*h_1es-	*h_1e-h_1s-
PIE I	*h_1es-	*h_1es-	*h_1e-h_1s-
PIE II	*h_1es-	*h_1e-h_1s-	**sed*-

Before its grammaticalization, *h_1es- only meant ‘to sit’, and *h_1e-h_1s- meant ‘to sit down’.[18] The grammaticalization of *h_1es- into a copula led to the second stage. In the following stage, the original meaning of *h_1es- ‘to sit’ was completely ousted by the new copular meaning. This can be seen as a next logical step in the grammaticalization process, further motivated by homonymophobia.[19] The semantic range of the reduplicated formation, originally only meaning ‘to sit down’, was extended to include ‘to sit’, just like in later Hittite.[20] The meaning ‘to sit down’, in turn, came to be expressed suppletively, with the verb **sed*-.[21] No trace of the root

drenched in sweat’, *me estás volviendo loco* ‘you are driving me crazy’. For a more detailed description and analysis of the difference see NGLE (2811-2826).

[18] For the middle voice of *h_1e-h_1s-*o* ‘to sit down’ cf. Gr. ἕζομαι ‘to sit down’.

[19] Cf. Oettinger (2004: 493). But note that his assumption of homonymophobia runs counter to his idea that ‘to sit’ was morphologically different from ‘to be’. His reference to a potential identical subjunctive does not further his cause much. It makes for a much more straightforward scenario to assume that these lexemes were completely formally identical, as we indeed observe in Hittite.

[20] *eš-* / *aš-* ‘to sit’ was in later Hittite replaced by *eš-*$^{a(ri)}$, which came to mean ‘to sit’ and ‘to sit down’, ultimately in accordance with the absence or presence, respectively, of the particle *=za*. Such a development seems also to have happened in Luwic, or in any case by late Luwian; cf. HLuw. SOLIUM+*MI-sá-i* ‘he sits’ ~ Hitt. *eša* (see note 6).

[21] For **sed*- we find several deviant meanings in the daughter languages that may be remnants of an older meaning, which may then have been in the realm of ‘going’. Cf.

**sed*- has so far been found in Anatolian. All references to 'sitting' are made using **h₁es*-, e.g. the causatives ('to seat, to set') Hitt. *ašāš-^{i}* / *aše/iš-* < **h₁s*(*e*)-*h₁os*- / **h₁s*(*e*)-*h₁s*- and HLuw. *i-sà-nu-wa/i-* < **h₁es-neu*-, and HLuw. (SOLIUM)*ása*- c. 'seat' < **h₁e*(*h₁*)*s-eh₂*- (cf. Skt. *āsa*- n. 'seat' < **h₁eh₁s-o*-). The fact that **h₁es*- 'to sit' survives only in relics in non-Anatolian, where anything related to 'sitting' is most productively expressed with **sed*-, again suggests a replacement of the former by the latter.

If it is accepted that **h₁es*- originally meant 'to sit', it provides more evidence for the Indo-Anatolian hypothesis. Anatolian descends from the second stage, PIE I, preserving the original meaning 'to sit' for **h₁es*-, whereas PIE II is the ancestor of the other Indo-European languages. The defining shared innovations for PIE II, i.e. non-Anatolian IE, are the continuation of the grammaticalization process of **h₁es*- by ousting the lexical meaning 'to sit', the concomitant expression of 'to sit' with the reduplicated formation **h₁e-h₁s*-, and the introduction of *sed*- into the complex to express 'to sit down'.

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CHAPTER 7

The etymology of IE *deh_3- 'to give'

Abstract: In this chapter it is argued that the verb *deh_3- did not mean 'to give' in PIE, but 'to take', as in Anatolian. Although the verb did not survive in any evident way in Tocharian and Germanic, the semantic shift to 'to give' is likely to be an innovation of post-Anatolian IE.[1]

The PIE verb *deh_3- / *dh_3- is continued in most Indo-European languages as the main expression of 'to give', e.g. Skt. *dā*- 'to give', Gr. δω- 'to give', Lat. *da*- 'to give', Lith. *duo*- 'to give', Arm. *ta*- 'to give', and derivatives meaning 'gift', etc., are ubiquitous, e.g. OIr. *dán*, Lat. *dōnum*, Gr. δῶρον, Arm. *tur*, etc. There can be no doubt that the common ancestor of these languages expressed 'to give' with *deh_3- / *dh_3-. We find different principal verbs for 'to give' in Hitt. *pai*- < *h_1p-*Vi*-, ToB *ay*-, ToA *āy*- < *h_2ei- (?), PGm. **geban*- < *g^heb^h- (?), *$k\acute{o}(m)$-h_1ep- (?), OAlb. *ep* 'gives' < *h_1op-*eie*- (?). OAlb. *dhae* 'gave' shows that the verb for 'to give' used to be *deh_3- in Albanian as well. Although the formal details are unclear, the ToB imperative *pete* 'give!' < *-deh_3 (?) may be a last trace in Tocharian (cf. Adams 2013: s.v. *ai*-). The verb has left no evident traces in Germanic.

Anatolian also has a direct continuation of *deh_3- / *dh_3-, which is indeed very frequent. However, its meaning is 'to take': Hitt. *dā*-^{i} / *d*- 'to take', CLuw. *lā*- / *l*- 'to take', HLuw. *la*- 'to take' < (pre-)PAnat.[2] **doH*- /

[1] I would like to thank David Sasseville for stimulating conversation, and Alwin Kloekhorst, Sasha Lubotsky, Xander Vertegaal and Chams Bernard for comments on earlier drafts.

[2] The Hittite evidence points to a generalization of a monophonemic outcome of **dH*- throughout the paradigm (Kloekhorst 2013). I suspect that the rather unexpected Luwian outcome *l*- may be explained by the same development, which suggests that it had already happened by Proto-Anatolian (which then had something like *$d^{\varsigma}\bar{o}$- / *d^{ς}-).

**dH*- ‘to take’.[3] In Hittite we also find the (post-PAnat.) preverbed instantiations *pēda-*^{i} ‘to bring (away)’ < **h₁pVi-deh₃*- and *uda-*^{i} ‘to bring (here)’ < **h₂ou-deh₃*-. Its formal identity and appurtenance to the same semantic realm leave no doubt that this is the same etymon. However, it has been unclear how we should account for the difference in meaning.

Given the meaning ‘to give’ in all other branches, it is commonly assumed that ‘to give’ developed into ‘to take’ in Anatolian. Several routes and parallels have been adduced to underpin this assumption. Tischler (HEG: s.v.) sees the essence of the development as a shift in the goal of the action (‘vorstellungsmäßigen Änderung des Zielpunktes’, after Kronasser 1956: 156), and lists parallels that have been adduced in earlier literature: Gr. φέρω ‘to carry away’ and ‘to bring here’; PGm. **geban*- ‘to give’ ~ OIr. *gaibid* ‘to take’; Gr. νέμω ‘to deal out, distribute’ ~ PGm. **neman*- ‘to take’; ToB *ay*- act. ‘to give’, med. ‘to take for oneself’ ~ Gr. αἴνυμαι ‘to take’; PGm. **fanhan*- ‘to fetch, get’ (Goth. *fahan* ‘to take’) ~ Old Norse *fá* ‘to take’ and ‘to give’; Skt. *ā-dā*- (med.) ‘to receive, get’, a preverbed version of *dā*- ‘to give’. Unfortunately, on close inspection, none of these parallels helps the case for an Anatolian development ‘to take’ > ‘to give’; quite the contrary. The basic meaning of φέρω is ‘to carry’, and so it does not have the inherent direction to another participant present in ‘to give’. PGm. **geban*- (< **g^{h}eb^{h}*-? **ǵo-h₁ep*-?)[4] and OIr. *gaibid* (< **g^{h}Hb^{h}*-) cannot be formally united. The connection between Gr. νέμω ‘to distribute’ and PGm. **neman*- ‘to take’ is possible, but there is a rivaling etymology (Kortlandt 1992: 104, Kroonen 2013: s.v.) by which **neman*- was metanalyzed from **ganeman*-, from **ǵom* + **h₁em*- (Lat. *em*- ‘to buy, acquire’). Those who accept the connection between Gr. νέμω and PGm. **neman*- assume that ‘to take’ developed from a middle voice counterpart with the meaning ‘to distribute to oneself’ (LIV^{2}: s.v.). Two complicating factors for this scenario are the fact that PGm. **neman*- is active rather than middle, and that Gr. νέμεσθαι means ‘to have and hold as one’s portion, to possess; to enjoy’, also ‘to graze, consume’ (the middle counterpart of νέμω ‘to pasture’) (LSJ: s.v.), rather than ‘to take’. Moreover, if the two are related, it is not evident which of the two

[3] On the secondary *ḫi*-inflection see below.
[4] For the latter reconstruction see Kortlandt (1992: 104-105), Kroonen (2013: s.v.).

meanings ‘to have as one’s portion’ and ‘to distribute’ is primary. In any case, if ‘to distribute’ is primary, the change to ‘to have as one’s portion’ is to be attributed to the middle voice. Similarly, for the pair ToB *ay*- ‘to give’ ~ Gr. αἴνυμαι ‘to take’ it is not clear whether the original meaning is ‘to take’ or ‘to give’. If the latter, the development to ‘to take’ also took place in a middle. Skt. *ā-dā-* (med.) ‘to receive, get’ is again middle, and likewise typically understood as having developed from ‘to give to oneself’ (LIV^2: s.v. n. 1). The remaining example is alarming. Since ‘to catch, get, take’ is the meaning of its PGm. predecessor (cf. Goth. *fahan* ‘to take’, Germ. *fangen* ‘to catch’, *entfangen* ‘to receive, get’), Old Norse *fá* ‘to take; to give’ is evidence for the exact opposite development, from ‘to take’ to ‘to give’ (more on this below).[5]

So far, then, the only development without any extra morphology that finds support in the parallels is one of ‘to take’ to ‘to give’. If any of the examples evidences the route from ‘to give’ to ‘to take’ at all, this seems at least to require a middle voice, which may turn the direction of the action towards the subject.

The communis opinio, going back to Eichner (1975: 93-94) and followed by e.g. Oettinger (1979: 500-501) and LIV^2 (s.v. *deh_3-), is indeed that the Anatolian meaning ‘to take’ is due to a middle. However, it is of course problematic that Hitt. *dā-* is not middle. Eichner (1975: 93-94) tries to solve this by assuming that the *ḫi*-inflection somehow goes back to middle inflection in this particular case. This is not only ad hoc, but indeed runs completely counter to expectation, with the middle surviving as such in Hittite (for this point, as well as formal criticism, see Kloekhorst 2008: s.v. *dā-*).[6] Rather, the verb was transferred from the *mi*- to the *ḫi*-conjugation due to its *o*-vocalism caused by *h_3 (Kloekhorst 2018: 99, and Chapter 4). The discovery of this mechanism is one of the

[5] Compare also those IE languages in which *deh_3- is not the main expression of ‘to give’ (see above): most of these are based on PIE *h_1ep- ‘to take’ (cf. Hitt. *epp-^{zi}* / *app*- ‘to take’), albeit through derivation rather than through a semantic shift of the base lexeme.

[6] Indeed, it is used in this very verb as well: 3sg.med. pres. *dattari* ‘is taken’, pret. *dattat* ‘was taken’.

main merits of the same article by Eichner.[7] He does not apply it in this case only because of the meaning.

Another analysis is found in Benveniste (1948: 8-9), who assumed that **deh₃-* meant both 'to take' and 'to give' according to the construction it was used in, with each language generalizing one of the two meanings. This further led him to ideas about an intertwined conception of giving and taking in Indo-European society.[8] His main typological parallel is English *to take*, which in the construction *to take from* means 'to take', but in the construction *to take to* means 'to bring, deliver', whose semantic relatedness to 'to give' is unmistakable.

Although the relevance of the parallel cannot be doubted, the same cannot be said about Benveniste's interpretation. His assumption of some ten innovations, namely one in each individual Indo-European branch, is not very economic, and can hardly be correct. Neither does the very skewed distribution of the semantics ('to give' everywhere except in one branch) find an explanation in this scenario.[9] Moreover, Benveniste's assumption that **deh₃-* meant both 'to take' and 'to give' does not appreciate the fact that in the English parallel 'to take' is the original and most basic meaning of the verb. In the most basic construction, A *takes* B, the verb only means 'to take', not 'to bring'. The latter meaning is only brought about through the addition of a Goal or Recipient constituent: A *takes* B *to* C. Similar states of affairs are found with various comparable

[7] Cf. similarly e.g. **peh₃-s- > pāš-^{i}* 'to gulp down', **su-ne-h₃- > šunna-^{i}* 'to fill', **molH- > mall-^{i}* 'to mill', **log^{h}-eie/o- > lāk-^{i}* 'to fell'. See Chapter 4 for an elaborate treatment of the phenomenon of transfers from the *mi-* to the *ḫi*-conjugation based on form.

[8] Following Benveniste's analysis, Householder & Nagy (1979: 774) even paraphrase the meaning of the verb as 'seize in order to engage in a social interaction'.

[9] An improvement of this aspect of such a scenario can be found in Boley (2007: 84-85), who assumes a shared non-Anatolian semantic narrowing from 'to give; to take' to 'to give', and a parallel Anatolian narrowing to 'to take'. Unfortunately, her arguments in favor of the existence of both meanings in PIE are not sound: she underpins her claim with a supposed "propensity of PIE … to express opposites by the same form" (Boley 2007: 84) and a derivation of **deh₃-* from a directionally ambivalent particle reconstructed on the basis of Latin *dē* 'from' and Greek -δε 'to' (Boley 2007: 85). Her additional belief (Boley 2007: 85-86) that *dā-*'s *ḫi*-inflection originally had middle value rather seems to echo Eichner's scenario by which 'to take' developed secondarily in the middle.

verbs in English,[10] and in numerous other languages.[11] Notably, one such language is Hittite, in which the directional preverbs *pē-* and *u-* were combined with *dā-*^{i} ‘to take’ to create verbs of conveyance: *pē-da-*^{i} ‘to take (somewhere), carry, transport’, *u-da-*^{i} ‘to bring (here)’.[12] When something is brought to a person, the semantics of these verbs come very close to ‘to give’, cf. e.g.:

nu EGIR-*pa* ^{d}UTU-*i ḫalukan pēdaš*
‘he brought the message back to the Sungod’
(KUB 17.10+ i 27-28)

kuiš=ma=šši uwāi pēdāi
‘whoever brings him woe/harm’
(KBo 4.10+ rev. 25)

nu=u̯a namma ḪUR.SAG^{MEŠ}*-aš ḫurnuu̯anzi ŪL pāi<ši>*
nu=u̯a=mu ŪL kuitki udatti
‘you do not go hunting in the mountains anymore,
and do not bring me anything’
(KUB 33.121+ ii 10-11)

šu=mu 1 ^{GIŠ}ŠÚ.A AN.BAR 1 PA.GAM AN.BAR *ḫengur udaš*
‘he brought me one iron throne and one iron scepter as a gift’
(KBo 3.22:75 // KUB 26.71 obv. 17 // KUB 36.98b+ rev. 4)

[10] Such as *to get, to fetch, to grab*, e.g. *could you ~ me that bag?*. This construction does not even require the preposition *to* to get the same meaning ‘to bring, hand’; in this case the directional element leading to this meaning is *me*.
[11] For example Italian *prendere* (e.g. *vai a prendermi gli occhiali* ‘go and get me my glasses’) and Biblical Hebrew *lāqaḥ* ‘to take’ (e.g. *qāḥem-nā ’ēlay wa’ăbārăḵēm* ‘bring them to me so I may bless them’, Genesis 48:9; I owe this parallel to Benjamin Suchard (p.c.)). The examples can easily be multiplied.
[12] Similarly, the simplex is occasionally combined with directional expressions, with a similar effect on its meaning, e.g. *anda dā-* ‘to take (something) into (a location)’ (~ *anda pēda-*, *pēḫute-*) and *āppa dā-* ‘to take (something) back to (a location)’ (~ *āppa pēda-*, *āppa pēḫute-*); see Tjerkstra (1999: 108, 117). It should be stressed that, like with *pēda-* and *uda-*, the directional elements *bring about* the different meaning. These constructions therefore do not preserve a more original meaning of *dā-*.

Old Norse *fá* 'to take; to give' has the same background. It normally means 'to take, fetch, get' (e.g. *hón hefir fengit einn stein* 'she has fetched a stone'), as still in the modern Scandinavian languages (e.g. Sw. *få* 'to get'), but takes on the meaning 'to give, deliver to one, put into one's hands' with a dative or directional constituent (e.g. *nú er hér eitt sverð, er ek vil fá þér* 'now here is a sword, that I want to give to you', *fá mér leppa tvá ór hári þínu* 'give me two locks of your hair', *var sá sveinn fenginn í hendr okkr* 'the boy was delivered into our hands').[13]

If the parallels offered by *to take to* and its equivalents are indeed the key to unraveling the semantic variation seen in **deh*$_3$- – and this is much more straightforward than the assumption of a development 'to give to oneself' > 'to take' in a lost middle voice –, this rather suggests the following scenario. The original meaning of the verb must have been 'to take'. The addition of a Goal or Beneficiary constituent could alter this meaning to 'to bring, convey, deliver'. When this constituent was animate, the meaning of the verb ('to bring something to someone') was very close to 'to hand, to give', and it could easily develop into this meaning by losing the idea of having to cross a distance before handing over the object.

The IE languages show different stages of this development. Anatolian only has the original meaning 'to take'. This means that Anatolian split off from the parent language before the development started. All other languages only show evidence for the secondary meaning 'to give', which must have been the result of the quite substantial development 'to take' > 'to bring' > 'to give', even to the extent that the original meaning 'to take' was completely ousted, and only 'to give' was left. Since it cannot be true that all languages underwent this development individually, it must have been part of a phase of development between PIE and the common ancestor of the non-Anatolian languages.[14] The verb **deh*$_3$- therefore provides additional evidence for the Indo-Anatolian hypothesis.

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[13] Meanings of *fá* and examples from IED (s.v.).

[14] Strictly speaking, there is no evidence that Germanic also underwent the development, and we may even entertain the possibility that PGm. **takan*- 'to take' somehow goes back to **deh*$_3$- / **dh*$_3$- (perhaps we could also identify **tōma*- 'empty' < **doH-mo*- as **doh*$_3$*-mo*- 'bereft, deprived'?). However, Germanic has so far not given us any reason to believe that it split off particularly early, and the safest assumption would therefore be that Germanic also descends from the post-change

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subnode, but lost the lexeme on the way to Proto-Germanic. Although Tocharian is usually seen as the second branch to have split off, it remains to be seen whether it is so different from the rest that its departure may have predated this substantial development, and the possibility that the imperative *pete* ‘give!’ contains *deh_3- is considerable.

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Summary and conclusions

The aim of the present work has been to further our understanding of Anatolian historical morphology and semantics, and, by extension, the reconstruction of Proto-Indo-European. The most important conclusions of the studies presented here are the following.

Chapter 1. A scrutinization of the Luwic '*i*-mutation' paradigm, here renamed (appellative) *i*-stem paradigm, showed its origin to be in the PIE PD *i*-stems (*-*i/ei*-). These lost their oblique suffix by sound law (loss of intervocalic *$\underset{\wedge}{i}$ and vowel contraction), and thus effectively became consonant stems with alternative direct case endings. This led to a paradigmatic merger with the original common gender consonant stems through a spread of the *i*-stem direct case endings, which were less aberrant than the original common gender consonant stem endings. Now a large category, the common gender *i*-stems further merged with the common gender *o*-stems, which were also identical except for the *-*o*- of the direct cases, which was replaced with *-*i*-. The lack of formal overlap with the *ā*-stems (< eh_2-stems) and *u*-stems prevented the *i*-stems from replacing these types as well (except that forms in *-($\breve{a}$)$\underset{\wedge}{u}$- were treated as consonant stems). The *ā*-stems became the Luwian *a*-stems ("without *i*-mutation"), as is apparent from the distribution of *a*-stems (abundant) and *e*-stems < *o*-stems (virtually non-existent) in Lycian, as well as from the dat.-loc. -*a*, which is identical to the Lyc. *a*-stem dat.-loc. -*a*, and from lexical correspondences. The Luwian *a*-stems (< eh_2-stems) should therefore not be equated with the Hittite *a*-stems (< *o*-stems).

Chapter 2. Proper names did not go through any of these developments, but instead went through a few changes of their own. Unlike in appellatives, in names the *ā*-stems were the most frequent type. This led to a restructuring of the genitive, dative-locative and ablative of the other stems after the *ā*-stem pattern (*-*V-osso* >> *-*V-sso*; *-(*V*-)*i* >> *-*V*; *-*V-odi* >> *-*V-di*). In addition, after the PD *i*-stems had annihilated all other types of *i*-stem in the appellatives, the non-ablauting *i*-stems were restricted to proper names, especially personal names, and their unique

dative ending *-*i̯o* was embraced as a characteristic of personal names, leading to the analogical creation of *-*āi̯o*, *-*oi̯o* and *-*ui̯o* in the other vocalic stem types. The *i*-stem dative *-*i̯o* was inherited as such from Proto-Anatolian. This was originally the allative ending, whose semantics were extended to include the domain of the dative-locative in *i*-stems, *oi/i*-stems and *io*-stems to avoid the unfortunate combination of the *-*i*- of the stem and the *-*i* of the dative-locative ending. This situation was preserved as such in Old Hittite, in which -*i̯a* is the regular dat.-loc. ending of these stem types. It is likely that the Luwian dat.-loc. of the genitival adjective, -*assan*, also has its roots in this practice (*-*osio*), and the same goes for the Luwian *i̯a/i*-stem dat.-loc. ending -*i̯a*, if this ending is real. The identification of PLuw. *-*i̯o* (with *-*o* on account of Lyc. -*e*) and Hitt. -*i̯a* shows that the PAnat. allative was *-*o*, as was already likely on the basis of Hitt. *parā* ~ Gr. πρό ~ Skt. *prá* < **pr-ó* 'forward'. The survival of the allative as a vigorous case in Anatolian vs. the mere petrified remnants in non-Anatolian IE constitutes evidence in favor of the Indo-Anatolian hypothesis.

Chapter 3. The Proto-Luwic genitive *-*V-sso* (HLuw. -*Vsa*, Lyc. -*Vhe*) was probably restricted to proper names; appellatives rather used an inflected pendant, the genitival adjective *-*V-sso/i*-. In chapter 3, the vowel of the genitival adjective was shown to correlate with the stem type in Lycian. Most importantly, A -*ahe/i*-, B -*ase/i*- is used with *a*-stems and A -*ehe/i*-, B -*ese/i*- with *i*-stems, *e*-stems and *e/i*-stems (there is no distinction between *i*-stems continuing consonant stems and *i*-stems continuing *o*-stems). Various phonological processes interfere with this morphological distribution. The effects of *a*-umlaut (*-*esa* > A -*aha*, B -*asa*) are always visible, whereas *i*-umlaut (**atlahi* > *etlehi*) was almost always restored (suggesting that *i*-umlaut is older). In addition, Lycian B appears to have had a progressive vowel harmony rule that turned *°*aC-es*° into °*aC-as*°. The *a*-stem variant A -*ahe/i*-, B -*ase/i*- < *-*ā-sso/i*- came into being as an *ā*-stem pendant to *-*osso/i*-, found in all other stem types. This situation is parallel to that of other elements of the paradigm, e.g. Lyc. abl. -*adi* (*a*-stems), -*edi* (elsewhere), dat.pl. -*a* (*a*-stems), -*e* (elsewhere). The PLuw. gen.adj. *-*osso/i*- is usually traced back to PAnat. *-*osio*-, which is confirmed by the Luwian gen.adj.dat.-loc.sg. -*assan* (see above). Its

uninflected pendant *-*osso* therefore most likely goes back to *-*osio*. Since this ending was given up in Hittite, whereas Luwic extended it to all stem types, it is unclear what the original locus in PAnat. was. One candidate are the *o*-stems, which is where we find *-*osio* in non-Anatolian IE. The findings constitute a caveat for the idea that *-*osio* was an innovation of non-Anatolian IE to remedy the internally reconstructable homonymy of the nom. and gen. in the *o*-stems (*-*os*), which is usually equated with the homonymy in Hitt. (nom., gen. -*aš*). This is still a possibility if the ending *-*osio* was restricted to the *o*-stems of a certain grammatical category, e.g. in the pronominal system.

Chapter 4. Moving from nominal to verbal morphology and semantics, we first deal with the "*vexatissima quaestio*" of Anatolian historical morphology: the origin of the *ḫi*-conjugation. The origin is here argued to be the PIE perfect. The first root of the division between the *mi*- and *ḫi*-conjugations is found in the fact that not all PIE verbs could form a perfect. This is for example the case for most *mi*-verbs with good word equations in other IE languages, such as *h_1es- 'to sit, to be', *d^heh_1- 'to put', *$g^{wh}en$- 'to kill', *$ue\acute{k}$- 'to want'. The perfect required a specific type of verbal meaning: in verbs that expressed a change-of-state event leading up to a state of the subject, the perfect expressed the latter state (e.g. pres.-aor. 'to die', perf. 'to be dead'). Apart from purely stative meanings ('to be dead'), the perfect could also have resultative value ('to have died'), and this was the seed for the development to a simple past ('has died' > 'died') found in virtually all IE languages. That Anatolian also went through this development is suggested by the emergence of the perfect endings as *preterite* endings, the eventive semantics (cf. 'is dead' > 'died'), and the syncretisms with the *s*-aorist (3sg. -*š*, 2pl. -*š-ten*, which remedied the inconveniences of the original endings 3sg. *-*e*, 2pl. *-*é*). After this development, the perfect did not express a present state resulting from a change of state in the past anymore, but rather the change of state in the past itself: it had become a change-of-state preterite. This new preterite now expressed the essence of verbs denoting punctual events ('achievements'), such as 'to die', 'to arrive', 'to see' (in the ingressive sense of 'to catch sight of'), which lacked an eventive part stretched out in time. Accordingly, the preterite form also became the morphological

center of the verb: the original *mi*-verb was ousted, and a present tense was created on the basis of the preterite through the addition of **-i,* which functioned as a present tense marker in the *mi*-conjugation (e.g. *(*He*-)*Hoḱ-e* 'is dead, has died' > 'died', whence **Hoḱ-e-i* 'dies'). The perfect reduplication was removed when it had become a typological anomaly after the perfect had become the main vehicle of expression for the relevant verbs. The new conjugation based on a nucleus of original perfects went on to absorb all other formations that contained morphological *o*-grade, as well as verbs whose *e*-grade was colored by **h*$_2$ or **h*$_3$. Thus, *o*-grade iteratives (e.g. **molH*- 'to grind, mill', **ue-uoḱ*- 'to wish'), *CoC-eie/o*-causatives and -iteratives (e.g. **log*^{h}*-eie/o*- 'to lay down', **srob*^{h}*-eie/o*- 'to slurp'), as well as verbs and suffixes with laryngeal-coloring (e.g. **deh*$_3$- 'to take', the factitive suffix **-eh*$_2$-, *n*-infixed verbs of the type *CC-ne-h*$_{2/3}$- such as **sn-ne-h*$_2$- 'to hide'), were all transferred to the *ḫi*-conjugation.

Chapter 5. Hittite verbs exhibit a striking ablaut imbalance between present and preterite. In the *mi*-conjugation, the present faithfully continues the PIE *e/*∅-ablaut, but the preterite shows full grade throughout the paradigm (e.g. *kun-anzi* 'they kill', *šaš-anzi* 'they sleep', but *kuen-er* 'they killed', *šēš-er* 'they slept'). This is clearly an innovation. There must be more to it than mere ablaut leveling; in Greek and Sanskrit, for example, as well as in the Hittite present, analogical extension of the full grade stem, if it happened at all, is usually restricted to the 'weaker' 1-2pl., and the 3pl. is left intact. In the *mi*-conjugation, however, all forms of the preterite have consistent full grade, and there are no exceptions. *A priori,* the most likely source for the analogy that must be at the basis of this innovation are the most frequent verbs of the category in question. These are **h*$_1$*es*- 'to sit, to be', **h*$_1$*ep*- 'to take', **h*$_1$*ed*- 'to eat' and **h*$_1$*eg*^{wh}- 'to drink'. It cannot be a coincidence that all of these start with a **h*$_1$. Moreover, the corresponding preterites of such verbs in Greek and Sanskrit also consistently lack zero grade (e.g. Skt. pres. *as*- / *s*-, pret. *ās*- 'to be', pres. *e*- / *i*-, pret. *āi*- 'to go'). In these languages, however, it is absolutely clear what the source of the lack of an ablaut alternation in the preterite is: the forms exhibit a long vowel that resulted from a fusion of the root and the augment, i.e. the preterite-marking prefix **h*$_1$*e*- (e.g. **h*$_1$*e-h*$_1$*es*- / **h*$_1$*e-h*$_1$*s*- > **ēs*-). The

identification of these states of affairs provides an explanation for the peculiar ablaut imbalance found in Hittite. This suggests that the last common ancestor of Anatolian, Greek, and Indo-Iranian, i.e. PIE, already featured the augment. In Anatolian, too, the vowel resulting from the merger of the augment and the relevant part of the root must originally have been long. The difference can no longer be directly observed in attested Hittite. Most spellings are ambiguous, and in non-final syllables of polysyllabic words without analogical support, **ē* and **e* merged in Hittite, possibly already before attested Hittite, and in any case by late OH, leaving too few attestations to point in any direction. The long **ē* did however probably leave a trace in the verb *uekk-* 'to want' (< **ueḱ-*), in the shape of lenition of the 3pl. preterite stem *uek-* 'to want', which points to **uēḱ-*. This stem was extended to the present to replace the undesired weak stem variant **ukk-*, thereby ensuring its survival and further spread through the verb. The preterite of *epp-* 'to take', the only other relevant verb with a lenitable consonant, lacked such support from the present and underwent an unsurprising analogical restoration. The vowel also spread to the preterite of structurally comparable members of the *ḫi*-conjugation. Although some resulting stems, e.g. *ḫēš-* 'opened', *ēk-* 'died', exhibit long vowels with lenited consonants, this does not necessarily mean that the vowel was still long in the donor category, the *mi*-conjugation, as well: it is also possible that the structure of such forms was kept from the earlier shapes of these stems (*ḫāš-*, *āk-*). Although the augment must now be considered of PIE date, its exact status in the proto-language remains to be determined. The oldest Greek and Sanskrit show that unaugmented preterites also still existed in PIE. These were mainly used in consecutive narrative, i.e. when the narrative had already been situated in the past, and this situation continued to be clear from the coherence of the narrated events. There is one systematic exception to this practice: **h₁es-* 'to be' was always augmented (cf. e.g. Skt. *ās-*, never ***as-*). The only reconstructable preterite of **h₁es-* is **h₁e-h₁es-*. If the oldest Greek and Sanskrit are representative of PIE, there are two possible scenarios that may explain the eventual restriction of the augment to roots beginning with **h₁* in Anatolian. The first is that unaugmented preterites ousted their unaugmented counterparts, leaving **h₁e-h₁es-*, which had no unaugmented

counterpart, as a relic (and perhaps other verbs beginning with *h_1 as well, if these had already taken over the same pattern). The second is that augmented preterites ousted their unaugmented counterparts (as for example in later Greek), after which the augment – functionally superfluous and therefore disposable – was generally removed from preterites, but remained as a relic in verbs starting with *h_1 because in these verbs it had merged with the root due to sound law. There is a third option. It is not unreasonable to hypothesize that the preterite of *h_1es- always featured the augment because it was in fact the *source* of the augment. Compare the Greek νῦ ἐφελκυστικόν, which only appears consistently in in the form from which it probably spread, ἦν 'was'. As this example illustrates as well, the verb 'to be' is by itself powerful enough to be the source of a large verbal innovation. Possibly, *h_1e-h_1es- was originally a reduplicated stem, with the element *h_1e- being reanalyzed as a preterite marker and spreading as such to other verbs. While the other two scenarios are still possible if this hypothesis is correct, it also allows for the possibility that Anatolian descends from the stage at which the augment was still restricted to *h_1es-, with its pattern later spreading to other verbs beginning with *h_1. In any case, since the preterite of *h_1es- was certainly *h_1e-h_1es-, one has to assume either that this form was the source of the augment, or that other verbs also already featured the augment in PIE.

Chapter 6. An argument in favor of the Indo-Anatolian hypothesis is provided by the semantics of the verb *h_1es-. This means 'to be' in all non-Anatolian IE languages, but the Anatolian cognate (e.g. Hitt. *eš-*^{zi}) means both 'to be' and 'to sit'. Since it is typologically common for body posture verbs to grammaticalize into a copula (e.g. Lat. *stāre* 'to stand' > Sp. *estar* 'to be (in some condition)'), and the opposite is not true, it is most likely that 'to sit' changed into 'to be'. An original meaning 'to sit' for *h_1es- can also explain its restriction to more situation-bounded and temporal contexts in many old IE languages, whereas statements of a more general and unchangeable nature did not feature an overt copula (cf. Sp. *estar* vs. *ser*). This suggests that Anatolian preserves an older meaning that was lost in the ancestor of the other IE languages. Undoubtedly driven by homonymophobia, the meaning 'to sit' was in non-Anatolian IE assigned to the derivation *h_1e-h_1s-^{to}, which had originally meant 'to sit down', as

evidenced by Anatolian (OH *eš-*^{a} 'to sit down'). The meaning 'to sit down', in turn, came to be expressed with a different lexeme, **sed-*, which may originally have been a verb of movement. These developments are paralleled in later Hittite, in which the meaning 'to sit' moved from *eš-*^{zi} to *eš-*^{a}. The meaning 'to sit down' was also still expressed with *eš-*^{a}, but came to be distinguished through additional use of the particle *=za*.

Chapter 7. The verb **deh*$_3$- also has a deviant meaning in Anatolian: it means 'to take' rather than 'to give' as in the rest of the family. The usually assumed scenario by which 'to take' developed from 'to give to oneself' through a lost middle voice is improbable. More attractive is the comparison with English *to take to*, which is one of many parallels exemplifying a change from 'to take' to 'to bring, hand', which may further develop to 'to give', through the addition of an element expressing a direction, a goal or a beneficiary. Another example is ON *fá*, which normally means 'to take', but 'to deliver, give' with a dative or directional constituent (e.g. *fá mér* X 'give me X'). If such a development is the key to the semantic discrepancy between Anatolian and non-Anatolian IE, it would mean that Anatolian preserved the original meaning, whereas the ancestor of the other languages not only developed the meaning 'to give', but also lost the meaning 'to take'. It is therefore an argument in favor of the Indo-Anatolian hypothesis.

Finally, we may reflect on the findings from a broader Indo-European perspective. On the whole, Anatolian has come to look more similar to non-Anatolian IE rather than more different. In many cases a deviant Anatolian state of affairs can be traced back to the situation as reconstructable for the other IE languages, against claims to the contrary: if my analyses are correct, the '*i*-mutation' phenomenon is a formally motivated spread of the well-known PIE PD *i*-stem type; the deviant inflection of Luwic names is wholly secondary; the genitive in **-osio* is also continued in Anatolian; the augment has to be reconstructed for pre-Anatolian; the *ḫi*-conjugation has its roots in the PIE perfect as best known from Greek; Anatolian inherited *CoC-eie/o*-causatives and -iteratives as well as **molH*-type iteratives, all as reconstructable on the basis of the other IE languages; there are traces of the *s*-aorist.

Nevertheless, some elements we have encountered do offer further support for the idea that Anatolian was the first branch to split off. The Anatolian allative case in *-*o* corresponds exactly to what we expect for a pre-stage of the reconstructable ancestor of the other IE languages on the basis of internal reconstruction. This suggests the loss of the allative case *-*o* between PIE and the ancestor of non-Anatolian IE. The fact that the Anatolian semantics of the nominal suffix *-*eh*$_2$- correspond to the more peripheral ones of non-Anatolian is in recent times often taken to suggest that its most characteristic non-Anatolian use in nouns with female referents, and consequently feminine agreement in adjectives and pronouns by means of this suffix, were post-Anatolian innovations (Anatolian does, however, show that PIE used at least the suffixes *-*sr*- and *-*ih*$_2$- to create nouns with female referents). Ablauting athematic *mi*-verbs are clearly the oldest morphological means for expressing basic verbal meanings; in Anatolian this is still the default type, in non-Anatolian IE it has become a receding category. Similarly, the athematic verbal suffix *-*ei*/*i*-, most probably continued in Hitt. -*ai*/*i*-, was quite prolific in Anatolian, while the non-Anatolian languages only show remnants. Most other indications that have come up here are lexical. Two lexemes discussed at some length here point to probable semantic innovations on the part of non-Anatolian IE: **deh*$_3$- 'to take' > 'to give' and the loss of the meaning 'to sit' for the root formation **h*$_1$*es*- 'to sit; to be', with concomitant extension of the semantics of **h*$_1$*e-h*$_1$*s*- and introduction of **sed*- into the complex. In addition, the Anatolian meaning 'to live, be alive' for **h*$_2$*ues*- may also be more original than 'to live, dwell, stay' as found in non-Anatolian, which rather expressed 'to live, be alive' with **g*^{w}*ieh*$_3$-. It is further quite likely that **h*$_2$*eu*- 'to perceive' (>> **h*$_2$*euis*-*ie/o*-), **Heḱ*- 'to die' (>> **mer*-) and **ues*- 'to buy' (>> **k*^{w}*rih*$_2$-) were lexically replaced.

Overall, then, the more drastic innovations that have come up (e.g. the emergence of the *ḫi*-conjugation, *i*-mutation, the restructuring of the onomastic inflection, the sweeping spread of the *-*osio*(-) genitive and genitival adjective, the spread of lengthened/full grade originating in the augment) are found within the Anatolian branch, both between PIE and Proto-Anatolian and between Proto-Anatolian and its descendants. This is

not too surprising given that the total existence of Anatolian as a separate branch, up to Proto-Luwic and attested Hittite, far exceeds the time between PIE and the ancestor of the non-Anatolian languages. It has to be stressed that no exhaustion has been strived for here, and that one particularly drastic innovation of non-Anatolian IE, which has not been thematized here, may well have been the development of an inflectional present-aorist opposition. And even some of the developments that have been touched upon here, especially the decline of athematic verbs, the semantic change of **deh*$_3$- and the loss of the allative case, probably already require several centuries of development. In general, however, I would caution against too enthusiastic an application of the Indo-Anatolian principle that the Anatolian data weigh as much as the rest combined: the difference between PIE and the last common ancestor of the non-Anatolian languages is not extreme, and during the numerous centuries of its existence, most of them prehistoric, Anatolian never stopped innovating.

Index

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Nederlandse samenvatting

In dit proefschrift bied ik nieuwe analyses en interpretaties van een aantal onderwerpen uit de historische morfologie en semantiek van de Anatolische talen. De eerste drie hoofdstukken gaan over naamwoorden, en zijn vooral gefocust op de tak van het Anatolisch waar het Luwisch en het Lycisch toe behoren, waarvoor ik hierbij de term 'Luws' in het leven roep (= Engels 'Luwic'). De laatste vier hoofdstukken gaan over werkwoorden en zijn meer op het Hittitisch gericht.

NAAMWOORDEN

Hoofdstuk 1 behandelt het Luwse fenomeen dat bekendstaat als '*i*-mutatie'. Veel commune naamwoorden die historisch gezien *o*-stammen en medeklinkerstammen waren, hebben in het Luwisch en het Lycisch een paradigma met een *i* in de directe naamvallen. In bijvoeglijke naamwoorden gaat dit paradigma in het onzijdig ook nog altijd vergezeld van een van deze twee stamtypes. Deze situatie is in het verleden geduid als het resultaat van een woekering van het PIE vrouwelijke suffix *-*ih*$_2$-, en als het resultaat van verscheidene ingewikkelde analogieën met als eerste stap het gebruik van *o*-stam-verbuiging ter vervanging van het onzijdig van *i*-stammen, dat op de een of andere manier problematisch zou zijn geweest. Mijn analyse wijst eerder op het volgende scenario. In *i*-stammen waarbij het suffix *-*i*- afwisselde met *-*ei*- in de oblique naamvallen (het proterodynamische type), ging de laatste allomorf verloren door wegval van **i* tussen twee klinkers. Hierdoor ontstond een type dat geanalyseerd kon worden als medeklinkerstammen met alternatieve uitgangen in de directe naamvallen. De commune medeklinkerstammen namen deze alternatieve uitgangen over, omdat ze, in tegenstelling tot de uitgangen die vervangen werden, voldeden aan het patroon dat ook in andere stammen te vinden was, en makkelijker uit te spreken combinaties opleverden. De uitgangen van het onzijdig waren onproblematisch en bleven ongewijzigd. Nadat de commune *i*-stammen op

deze manier een grote categorie geworden waren, viel dit type verder samen met de commune *o*-stammen, die ook identieke oblique naamvallen hadden. De *ā*-stammen en *u*-stammen bleef een dergelijke ontwikkeling bespaard, omdat er geen formele overlap was met het *i*-stam-paradigma. De Luwische *a*-stammen, die in het verleden vaak gezien werden als oude *o*-stammen die de *i*-stam-verbuiging niet overgenomen hadden, worden hier geïdentificeerd met de Lycische *a*-stammen, en dus geanalyseerd als oude *ā*-stammen, voornamelijk op basis van de gedeelde dativus-locativus-uitgang *-a* in plaats van de uitgang *-i* die elders te vinden is.

In **hoofdstuk 2** wordt gewezen op de afwijkende naamvalsvormen van namen (persoonsnamen, godennamen, plaatsnamen), en worden de verschillen met de vormen van reguliere zelfstandige en bijvoeglijke naamwoorden ('appellatieven') verklaard. Om te beginnen hebben namen de ontwikkelingen zoals in hoofdstuk 1 beschreven niet meegemaakt. Medeklinkerstammen en *o*-stammen bestonden hier nog, en *i*-stammen waren niet van het proterodynamische, maar van het niet-ablautende type: de oblique naamvallen hadden niet de vorm **-ei-*, maar, net als de directe naamvallen, **-i-*. Verder kwam in namen het *ā*-stam-paradigma veel vaker voor dan in appellatieven. Dit leidde ertoe dat de dativus-locativus, de genitivus en de ablativus van de andere stamtypen het patroon van het *ā*-stam-paradigma overnamen: op basis van de dat.-loc. **-ā* werd in de *o*-stammen **-i* door **-o* vervangen, in de *i*-stammen **-i̯i̯o* door **-i* en in de *u*-stammen **-ui* door **-u*. Daarnaast werden naar het voorbeeld van gen. **-āsso* en abl. **-ādi*, en de *o*-stam-equivalenten **-osso* en **-odi*, in de *i*-stammen **-i̯i̯osso* en **-i̯i̯odi* vervangen door **-isso* en **-idi*, en in de *u*-stammen **-u̯u̯osso* en **-u̯u̯odi* door **-usso* en **-udi*. Persoonsnamen ontwikkelden daarnaast nog een eigen dativus op basis van de geërfde *i*-stam-dativusuitgang, **-i̯i̯o*, die aanleiding gaf tot het creëren van de equivalenten **-āi̯i̯o*, **-oi̯i̯o* en **-ui̯i̯o* in de andere stammen. Deze uitgang **-i̯i̯o* was in het Proto-Anatolisch in *i*-stammen en *io*-stammen ontstaan door semantische uitbreiding van de allativusvorm, omdat de dativus-locativus van deze typen door de samensmelting van de **-i-* van de stam en de **-i* van de uitgang ongemarkeerd geworden was. De beperking van het gebruik van de allativus in plaats van de dativus-locativus tot deze stamtypen is in het Hittitisch bewaard gebleven. Mogelijk vinden we in het

Luwisch ook nog sporen in de *i̯a/i*-stammen, als de slecht geattesteerde dat.-loc.-uitgang *-i̯a* echt is, en in de dat.-loc. van het genitivische bijvoeglijke naamwoord *-assa/i-*, waarvan de dat.-loc. *-assan* waarschijnlijk op *-*osio* teruggaat, de dat.-loc. van *-*osio-*. De herleiding van de Luwse dativus van persoonsnamen tot de allativus van de *i*-stammen bewijst dat de Proto-Anatolische allativus de vorm *-*o* had: de Lycische vorm kan niet op een *a*-kleurige klinker teruggaan. Dit betekent dat de Anatolische allativus niet met vormen als Grieks χαμαί 'op de grond' vergeleken moet worden, maar veeleer met vormen als πρό 'vooruit' < **pró*. Tegen de communis opinio in was dit altijd al waarschijnlijk, omdat de laatste vorm een directe tegenhanger heeft in de Hittitische allativus *parā* 'vooruit' < **pró*. Het feit dat het Anatolisch de allativus als een nog levende naamval bewaart, terwijl de andere talen alleen versteende restanten laten zien, wijst erop dat in de voorouder van de andere talen de allativus verloren gegaan is, en dat het Anatolisch dus als eerste afgesplitst is.

Hoofdstuk 3 gaat over het Lycische suffix van het bijvoeglijke naamwoord dat in appellatieven als een genitivus gebruikt wordt. Hiervan bestaan twee vormen: *-ahe/i-* en *-ehe/i-*. In dit hoofdstuk worden gegevens verzameld die laten zien dat de vorm *-ahe/i-* de *a*-stam-variant is, en *-ehe/i-* de variant van *i*-stammen en *e/i*-stammen. Deze verdeling wordt tot op zekere hoogte verstoord door klinkerassimilaties: in het Lycisch A komt naast *atlahi* 'van hemzelf' ook een keer *etlehi* voor, met onherstelde *i*-umlaut, en in het Lycisch B lijkt een *a* in de stam de suffixvorm met *-a-* aan te trekken waar morfologisch eerder de vorm met *-e-* verwacht zou worden. Het suffix wordt hier herleid tot Proto-Anatolisch *-*osio-* (zie ook Luwisch *-assan* <(<) *-*osio* in het voorgaande hoofdstuk), dat in *-ehe/i-* voortgezet is. De variant met een *-a-* is analogisch gevormd bij *a*-stammen, en gaat virtueel dus terug op "*-*eh*$_2$*sio-*". Het suffix *-*osio-* is een verbogen pendant van de PIE *o*-stam-genitivusuitgang *-*osio*, die naar alle waarschijnlijkheid voortleeft in de Lycische genitivus, *-ehe* – en de analogisch daarnaar gevormde uitgangen *-ahe*, *-ihe*, *-uhe* – die in namen gebruikt wordt. Dit betekent dat een voorloper van het Hittitisch de uitgang *-*osio* ook gehad moet hebben, en die vervangen heeft door een andere uitgang. Deze conclusie ondermijnt de bewijskracht van de Hittitische *a*-

stam-uitgang *-aš* < *-*os* voor de Indo-Anatolische hypothese: vaak wordt aangenomen dat *-*osio* zich pas na de afsplitsing van het Anatolisch in de *o*-stammen genesteld heeft om de, in het Hittitisch dan bewaarde, identiteit van nominativus en genitivus te verhelpen. Dit is nog altijd wel een mogelijkheid, maar dan moet de genitivus *-*osio* zich in het Proto-Anatolisch in een andere categorie dan de *o*-stam-appellatieven bevonden hebben, bijvoorbeeld in de voornaamwoorden, en van daaruit in het Luws zijn gaan woekeren.

WERKWOORDEN

In **hoofdstuk 4** ga ik in op de veelbesproken Hittitische *ḫi*-conjugatie. Naast een *mi*-conjugatie, die overeenkomt met athematische praesens-aoristus-vervoeging in de andere Indo-Europese talen, heeft het Hittitisch een *ḫi*-conjugatie die morfologisch overeenkomt met het Indo-Europese perfectum. Desondanks worden de *ḫi*-conjugatie en het perfectum tegenwoordig vaak niet met elkaar gelijkgesteld, omdat de functionele verschillen als onoverbrugbaar gezien worden: het perfectum is een afgeleide aspectcategorie die een toestand uitdrukt; de *ḫi*-conjugatie is een zelfstandige conjugatie met werkwoorden die vaak juist eventieve betekenissen hebben. In dit hoofdstuk betoog ik dat de *ḫi*-conjugatie toch direct op het Indo-Europese perfectum teruggaat. Het perfectum drukt niet zomaar een toestand uit, maar een toestand die het gevolg is van een voorafgaande handeling; de handeling zelf wordt met een praesens-aoristusvorm uitgedrukt (bijv. praes.-aor. ‘sterven’, perf. ‘gestorven zijn, dood zijn’). In vrijwel alle Indo-Europese talen is de betekenis van het perfectum verschoven van een toestand in het heden die het gevolg is van een handeling in het verleden naar die handeling in het verleden zelf, bijv. ‘is gestorven’ > ‘stierf’. Dit is waarschijnlijk ook in het Anatolisch gebeurd: de uitgangen van het perfectum duiken op als verledentijdsuitgangen, een aantal uitgangen zijn door die van de *s*-aoristus vervangen, en de overwegend eventieve betekenis van de conjugatie vindt zo ook direct een verklaring. Met deze *a priori* al haast te verwachten ontwikkeling is het betekenisverschil dus al verklaard. Het perfectum heeft

vervolgens bij bepaalde lexemen de oorspronkelijke verleden tijd(en) verdrongen, en is het uitgangspunt geworden voor een nieuwe tegenwoordige tijd, die van het perfectum afgeleid werd door toevoeging van *-*i*, naar voorbeeld van de *mi*-conjugatie. Zo werd het perfectum in bepaalde lexemen de kern van het werkwoord, en ging het een eigen conjugatie vormen. De verdeling tussen lexemen die in de *mi*-conjugatie bleven en lexemen die verder gingen als verzelfstandigd perfectum hangt samen met verbale semantiek. Om te beginnen moest een werkwoord überhaupt een perfectum hebben om dat later als kern te kunnen gebruiken. Alleen werkwoorden waarvan de uitgedrukte handeling uitmondde in een toestand van het onderwerp hadden een perfectum (en het perfectum staat dan ook vaak naast een mediale praesens-aoristus). Dit verklaart de voortgezette *mi*-vervoeging van de meeste duidelijk geërfde *mi*-werkwoorden, bijv. *eš-*^{zi} ‘zitten, zijn’, *kuen-*^{zi} ‘slaan, doden’, *šeš-*^{zi} ‘slapen’, *uek-*^{zi} ‘willen, eisen’, *tē-*^{zi} ‘stellen, zeggen’: deze werkwoorden hadden in het PIE niet het juiste profiel om een perfectum te vormen. Daarnaast speelde de tijdsduur van de handeling een rol: als die uitgestrekt was in de tijd, was het perfectum, dat nu de overgang naar de resulterende toestand uitdrukte, minder prominent, waardoor het oorspronkelijke *mi*-werkwoord zich kon handhaven, bijv. *ed-*^{zi} ‘eten’, *mer-*^{zi} ‘verdwijnen’. Bij handelingen die zich in één moment voltrekken, zoals ‘aankomen’, ‘sterven’, ‘zien’, drukte het perfectum juist de kern van de betekenis uit. Hierdoor was het perfectum voor deze werkwoorden een logische basis voor een nieuwgevormde tegenwoordige tijd. Dit verklaart de *ḫi*-vervoeging van prominente *ḫi*-werkwoorden als *ār-*^{i} ‘aankomen’, *āk-*^{i} ‘sterven’, *au-*^{i} ‘zien’. Toen de *ḫi*-conjugatie eenmaal als zodanig bestond, begon die andere formaties met vergelijkbaar vocalisme aan te trekken: andere formaties met *o*-trap, zoals de causatief-iteratief *CoC-eie/o-* (bijv. **log^{h}-eie/o-*, causatief van **leg^{h}-* ‘liggen’, > *lāk-*^{i} ‘neer laten gaan, vellen’) en iteratieve *o*-praesentia (bijv. **molH-* > *mall-*^{i} ‘malen’), en ook *mi*-werkwoorden en zelfs suffixen die oorspronkelijk *e*-trap gehad hadden, maar door klankwettige kleuring van een aangrenzende **h_2* of **h_3* respectievelijk *a*- en *o*-vocalisme gekregen hadden (bijv. **deh$_3$-* > *dā-*^{i} ‘nemen’, **peh$_3$-s-* > *pāš-*^{i} ‘opslokken’, **-eh$_2$-*, factitief suffix, > *-aḫḫ-*^{i}, werkwoorden met een nasaalinfix van het type **-ne-h$_{2/3}$-*, bijv. **tr-ne-h$_2$-* > *tarna-*^{i}). Voormalige

mi-werkwoorden die om deze puur formele reden van conjugatie gewisseld zijn, vormen de grootste van alle historische soorten werkwoorden waar de *ḫi*-conjugatie uit bestaat.

Hoofdstuk 5 biedt een verklaring voor de ablaut van *mi*-werkwoorden. Waar het PIE nog een regelmatige afwisseling van *e*- en nultrap had, laat het Hittitisch dit ablautpatroon alleen in de tegenwoordige tijd zien. De verleden tijd heeft voltrap in het hele paradigma (bijv. *ēš-zi* 'is', *aš-anzi* 'zijn', maar *ēš-ta* 'was', *eš-er* 'waren', in plaats van ***aš-er*). Dat is frappant: waarom zou voltrapgeneralisatie – de gebruikelijke verklaring – alleen de verleden tijd treffen, en dat in een ongekende mate vergeleken met andere IE talen, terwijl de tegenwoordige tijd en zelfs de gebiedende wijs een dergelijke ontwikkeling niet of nauwelijks laten zien? Ik stel de volgende verklaring voor. Het is *a priori* waarschijnlijk dat de innovatieve ablaut zich vanuit de meest frequente *mi*-werkwoorden verspreid heeft. Dit zijn *eš-*^{zi} 'zijn', *epp-*^{zi} 'pakken', *ed-*^{zi} 'eten' en *eku-*^{zi} 'drinken'. Het kan geen toeval zijn dat al deze werkwoorden met *e*° < **h₁e*° beginnen. En inderdaad laten precies werkwoorden van deze structuur ook in andere IE talen een gebrek aan ablaut in de verleden tijd zien, bijv. Skt. *ás-ti* 'is', *s-ánti* 'zijn', maar *ā́s-īt* 'was', *ā́s-an* 'waren', Gr. εἶ-σι 'gaat', ἴ-ασι 'gaan', maar ἦι-ε 'ging', ἦϊ-σαν 'gingen'. In deze talen is het volstrekt helder waarom de verleden tijd geen klinkerwisseling laat zien: de klinker die door het hele paradigma te vinden is, is het resultaat van een samensmelting van het eerste deel van de stam met het *augment*, een verledentijdskenmerk met de structuur **h₁e*- (Gr. ἐ-, Skt. *á*-). Concreet gaat het om een klankwettige verandering van zowel **h₁é-h₁eC*- als **h₁é-h₁C*- in **éC*-. De aanname dat ook het Anatolisch een dergelijke ontwikkeling ondergaan heeft, kan de afwijkende ablaut van de verleden tijd onmiddellijk verklaren. De oorspronkelijke lengte van de Hittitische klinker kan maar moeilijk vastgesteld worden: in de meeste gevallen is de spelling ambigu, en in meerlettergrepige woorden en niet aan het woordeinde zijn **ē* en **e* mogelijk al voor het geattesteerde Hittitisch samengevallen. Wel zouden we eventueel nog een indirect effect kunnen verwachten, omdat **ē* een volgende medeklinker voor een klinker (m.n. relevant in de 3pl.) zou leniëren. Er zijn echter maar twee werkwoorden met een lenieerbare medeklinker, *epp*- 'pakken' en *uekk*- 'willen, eisen',

wat de kans dat een dergelijke leniëring niet naar het voorbeeld van alle andere werkwoorden hersteld zou zijn erg klein maakt. Inderdaad vinden we de 3pl. *e-ep-pe-er*, niet ***e-pe-er* – maar *uekk-* laat wel degelijk gelenieerde vormen zien, o.a. in de 3pl. *ueker*, wat op een stam **uéḱ-* wijst. Dit kan moeilijk anders geïnterpreteerd worden dan als de **é* die de voorgaande analyse al voorspelde. De gelenieerde stamvariant bleef in dit werkwoord bewaard omdat hij zich naar de tegenwoordige tijd verspreid had, met als resultaat de vorm *uek-anzi*, om de ablaut *u̯ekk-* / ***ukk-*, met een ongeoorloofde afwisseling tussen *u̯* en *u*, te verhelpen. De hier uiteengezette analyse impliceert dat een voorstadium van het Anatolisch het augment kende, en dat het augment dus al bestond in het allervroegste PIE. Dit gaat in tegen de communis opinio, die het augment beschouwt als een innovatie van de talen waarin het duidelijk bewaard gebleven is (Grieks, Indo-Iraans, Armeens en Frygisch). Hoewel die opvatting nu op losse schroeven staat, kan over de precieze status van het augment in het PIE nog wel gediscussieerd worden. In ieder geval laten het oudste Grieks en het oudste Sanskrit zien dat er naast geaugmenteerde verledentijdsvormen ook (nog) augmentloze equivalenten bestonden, die met name gebruikt werden in vertellingen van opeenvolgende gebeurtenissen: door de logische opeenvolging van deze gebeurtenissen hoefde niet elk daarvan steeds opnieuw als in het verleden plaatsvindend gemarkeerd te worden. Er is één systematische uitzondering op deze praktijk: de verleden tijd van **h₁es-* 'zijn' was altijd geaugmenteerd (bijv. Skt. *ás-*, nooit ***ás-*). Als de situatie in het oudste Grieks en Sanskrit de status van het augment in het PIE weerspiegelt, zijn er twee mogelijke scenario's die geleid kunnen hebben tot de situatie in het Anatolisch, waarin alleen werkwoorden die met **h₁* begonnen de geaugmenteerde vorm bewaarden, die zich vervolgens over alle *mi*-werkwoorden verspreid heeft. De eerste mogelijkheid is dat de augmentloze vormen hun geaugmenteerde equivalenten verdrongen hebben, behalve in **h₁es-* (en naar voorbeeld van **h₁es-* misschien al andere werkwoorden die met **h₁* begonnen), waar geen augmentloze variant van bestond. De tweede mogelijkheid is dat het Anatolisch, net als bijvoorbeeld het latere Grieks, juist de augmentloze verledentijdsvormen verdrongen heeft. In een volgende stap moet het (in feite overbodige) augment dan van alle

verledentijdsvormen verwijderd zijn – behalve waar dat niet mogelijk was omdat het augment klankwettig met de wortel samengesmolten was, nl. in wortels die met *h_1 begonnen. Er is nog een derde mogelijkheid. Het feit dat de verleden tijd van *h_1*es*- 'zijn' altijd geaugmenteerd was (*h_1*e*-h_1*es*-), kan betekenen dat in deze vorm de *oorsprong* van het augment ligt. Vergelijk de Griekse νῦ ἐφελκυστικόν, die alleen in de waarschijnlijke oorsprongsvorm ἦν 'was' altijd verschijnt. Zoals ook uit dit voorbeeld blijkt, is het werkwoord 'zijn' in zijn eentje sterk genoeg om de bron van een grote werkwoordelijke verandering te zijn. Mogelijk was *h_1*e*-h_1*es*- in feite een redupliceerde stam, maar werd het element *h_1*e*- op een gegeven moment opgevat als een verledentijdskenmerk, en verspreidde het zich in die hoedanigheid naar andere werkwoorden. In dit scenario zijn de hierboven toegelichte scenario's nog steeds mogelijk, maar zou het ook zo kunnen zijn dat het Anatolisch afstamt van het stadium waarin alleen *h_1*es*- zijn verleden tijd nog kenmerkte met het voorvoegsel *h_1*e*-. Ook dit zou de kern van woorden die met *h_1 beginnen kunnen verklaren. In ieder geval: aangezien de verleden tijd van PIE *h_1*es*- zeker geaugmenteerd was, zal men, als men niet bereid is aan te nemen dat de oorsprong van het augment hier ligt, moeten aannemen dat het augment in het PIE ook in andere werkwoorden voorkwam, en dat het augment zoals dat in het oudste Grieks en Sanskrit geërfd is dus al in het PIE bestond.

In **hoofdstuk 6** staat het PIE werkwoord voor 'zijn', *h_1*es-ti* / *h_1*s-enti* (Hitt. *ēš-zi* / *aš-anzi*, enz.), opnieuw centraal, nu vanwege de betekenis. In het Anatolisch betekent dit werkwoord niet alleen 'zijn', maar ook 'zitten'. De communis opinio gaat ervan uit dat 'zitten' secundair is aan 'zijn'. Ik beweer in dit hoofdstuk dat het omgekeerde veel waarschijnlijker is. Het komt in talen in het algemeen heel vaak voor dat de betekenis 'zijn' zich ontwikkeld heeft uit een lichaamshouding. Denk bijvoorbeeld maar aan het Nederlandse *zitten* in zinnen als *ik zit deze week in het buitenland* en *zo zit dat*. Een ander voorbeeld is het Spaanse *estar* 'zijn', dat zich uit het Latijnse *stāre* 'staan' heeft ontwikkeld. Interessant is dat het Spaans *estar* gebruikt voor niet-inherente, tijdelijke toestanden, zoals locaties, gemoedstoestanden, en aan de gang zijnde handelingen ('is aan het …'). Voor meer inherente, definiërende eigenschappen, zoals namen, familierelaties, karaktereigenschappen en beroepen, gebruikt het Spaans

ser. Een dergelijke tweedeling vinden we ook terug in de oudste Indo-Europese talen: **h₁es-* is te vergelijken met *estar*, terwijl meer algemeen geldige uitspraken geen expliciet koppelwerkwoord hadden (een voorbeeld uit Homerus is Οὖτις ἐμοί γ' ὄνομα 'mijn naam [is] Niemand'). Dit versterkt het vermoeden dat **h₁es-* een vergelijkbare achtergrond heeft als *estar*. Voor **h₁es-* is de betekenis 'zitten' alleen in het Anatolisch te vinden. Naast **h₁es-* > Hitt. *eš-^{zi}* 'zitten' bestaat ook de afleiding **h₁e-h₁s-* (med.) > Hitt. *eš-^{a}* 'gaan zitten'. In de rest van het Indo-Europees (Gr. ἧσται, Skt. *ā́ste*) heeft deze afleiding de betekenis 'zitten' overgenomen, ongetwijfeld uit zgn. 'homoniemenvrees', omdat **h₁es-* nu in eerste instantie 'zijn' betekende. Voor de betekenis 'gaan zitten' werd nu een ander lexeem gebruikt: **sed-* (vanwaar *zitten*). Deze laatste twee ontwikkelingen heeft het Anatolisch niet meegemaakt, wat betekent dat het Anatolisch zich vóór alle andere takken van de taalfamilie afgesplitst heeft.

Hoofdstuk 7 behandelt eveneens een betekenisontwikkeling. Het PIE werkwoord **deh₃-* betekent 'geven' in alle dochtertalen die het nog hebben (bijv. Gr. δίδωμι, Lat. *dō*) – behalve in het Anatolisch, waar het 'nemen, pakken' betekent. De meest gangbare verklaring hiervoor is dat 'geven' in het Anatolisch in 'nemen' veranderd is, en wel via het medium ('aan jezelf geven' > 'nemen'). Maar de parallellen die hiervoor aangedragen worden zijn twijfelachtig of onjuist, en het is bovendien problematisch dat het Hittitische werkwoord helemaal niet mediaal is. Ik betoog dat de omgekeerde ontwikkeling waarschijnlijker is, dus dat 'nemen' in 'geven' veranderd is. Dit is te vergelijken met Engels *to take* 'nemen, pakken', dat door toevoeging van een constituent die een richting of een begunstigde aanduidt de betekenis 'brengen naar' aanneemt (*to take* X *to* Y 'X naar Y brengen'). Van 'brengen naar' is het een kleine stap naar 'geven'. De hele ontwikkeling kent een parallel in het Oudnoords: daarin krijgt *fá* 'nemen, pakken' in combinatie met constituenten die een richting of een begunstigde aanduiden de betekenis 'brengen, leveren, geven' (bijv. *fá mér* X 'geef mij X'). Als een dergelijke ontwikkeling de sleutel is tot de verschillende betekenissen die **deh₃-* laat zien, wat mij waarschijnlijk lijkt, dan zou dat betekenen dat de exclusieve betekenis 'geven', zoals die in het niet-Anatolische deel van het Indo-Europees te vinden is, het resultaat is van een ontwikkeling waarbij het werkwoord voor 'nemen' niet

alleen in bepaalde syntactische constructies ‘brengen’ en daarna ‘geven’ is gaan betekenen, maar vervolgens ook de oorspronkelijke betekenis ‘nemen’ door de nieuwe betekenis ‘geven’ heeft laten verdringen. In het Anatolisch is er nog geen sprake van deze ontwikkeling: de enige betekenis van *deh_3- > Hitt. $d\bar{a}$-^{i} is ‘nemen, pakken’. Dit wijst er wederom op dat het Anatolisch zich vóór alle andere takken van de taalfamilie heeft afgesplitst.

Curriculum vitae

Stefan Norbruis werd op 9 november 1986 geboren in Almelo. Van 1998 tot 2004 bezocht hij het gymnasium op het Geert Groote College ~ Etty Hillesum Lyceum in Deventer. In 2004 begon hij aan de Vrije Universiteit in Amsterdam aan de studie Griekse en Latijnse Taal en Cultuur. Daarnaast volgde hij Myceens en Indo-Europees aan de Universiteit van Amsterdam en gaf hij bijles Latijn. In 2008 behaalde hij zijn bachelordiploma, met als specialisatie de historische fonologie van het Italisch. Tussen 2008 en 2014 volgde Norbruis een grote hoeveelheid vakken bij Griekse en Latijnse Taal en Cultuur in Amsterdam en Leiden, bij Vergelijkende Indo-Europese Taalwetenschap in Leiden, en bij Nieuwgriekse Taal en Cultuur in Amsterdam. Daarnaast werkte hij mee aan publicaties over Griekse historische taalkunde en over Nederlandse dialecten. In 2014 studeerde Norbruis *cum laude* af bij de Amsterdamse onderzoeksmaster Classics and Ancient Civilizations, met een scriptie over aspectmorfologie en -gebruik in Homerus. In 2015 studeerde hij in Leiden *summa cum laude* af bij de master Comparative Indo-European Linguistics, met als specialisatie de historische taalkunde van het Fries. Tussen 2015 en 2020 werkte Norbruis in Leiden aan dit proefschrift, gaf hij college over Indo-Europees, Anatolisch en Grieks en privéles Italiaans en Nederlands, en werkte hij mee aan het Grieks/Nederlands Woordenboek van AUP. Momenteel doet Norbruis als postdoc in Leiden onderzoek naar het Tochaars.