The Hittite Inherited Lexicon

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PART ONE

TOWARDS A HITTITE HISTORICAL GRAMMAR

INTRODUCTION

This part consists of two chapters. In the first chapter, called *Historical Phonology*, I will first give an overview of the phonological systems that I reconstruct for Proto-Indo-European and Proto-Anatolian. Then I will treat in detail the arguments on the basis of which a thorough phonetic and phonological analysis of the cuneiform script in which Hittite is written can be made, which results in the establishment of the Hittite phoneme inventory. The last step is that the phonological changes that took place between Proto-Indo-European and Hittite as attested are described in detail.

The second chapter, *Aspects of Historical Morphology*, mainly deals with two issues: the prehistory of the Hittite pronominal system and the morphological and historical interpretation of the Hittite verbal system. I am well aware that a discussion of the nominal system is lacking, but this can be explained by the fact that not only recently an extensive treatment of the Hittite nominal system has appeared (Rieken's *Untersuchungen zur nominalen Stammbildung des Hethitischen* (1999a)), but also because within Part Two each noun has received an extensive etymological treatment, including a detailed analysis of its morphological prehistory (cf. e.g. *ḫāššā-* 'hearth', *ḫuḫḫa-* 'grandfather', *keššar- / kiššer- / kišr-* 'hand', *šīu̯att-* 'day', *tēkan / takn-* 'earth', etc.). Moreover, each nominal ending is etymologically treated under its own lemma. See at the treatment of nom.pl.c.-ending *-eš* for an account of the prehistory of *i-* and *u*-stem adjectives.

CHAPTER 1

HITTITE HISTORICAL PHONOLOGY

1.1 PROTO-INDO-EUROPEAN PHONEME INVENTORY

In the present book I have worked with the following reconstruction of the Proto-Indo-European phonological system (based on Beekes 1995: 124):

stops	*p*	*t*	*ḱ*	*k*	*k*^{w}
	b	*d*	*ǵ*	*g*	*g*^{w}
	b^{h}	*d*^{h}	*ǵ*^{h}	*g*^{h}	*g*^{wh}
fricative	*s*				
laryngeals	*h*$_{1}$	*h*$_{2}$	*h*$_{3}$		
liquids	*l*	*r*			
nasals	*m*	*n*			
semivowels	*i*	*u*			
vowels	*e*	*o*			
	ē	*ō*[11]			

[11] Note that I do not reconstruct a PIE phoneme "*a*" or "*ā*": all PIE forms for which some scholars reconstruct **a* or **ā* should be interpreted otherwise. For an extensive treatment of most of these words, cf. Lubotsky 1989. Eichner 1988: 132-3 adduces a few more forms that in his view must contain PIE **a* or **ā*, but these are incorrect as well. (1) "**nă̄s-*" 'nose' must reflect **neh*$_{2}$*-s-*, **nh*$_{2}$*-es-*, **nh*$_{2}$*-s-* (cf. Kortlandt 1985: 119). (2) "**kă̄rh-*" 'to proclamate' is based on Skt. *kārú-* 'singer' and *kīrtí-* 'fame'. The former may reflect **keh*$_{2}$*rú-*, the latter **krh*$_{2}$*-tí-* with metathesis from **kh*$_{2}$*r-tí-* (Schrijver 1991: 4). (3) "**h*$_{1}$*iaǵ-*" 'to praise' is based on Gr. ἁγνός, ἅγιος 'holy' besides Skt. *yajñá-* 'sacrifice'. The former two words reflect **ih*$_{2}$*ǵ-* (cf. Beekes 1988c: 24-5) and the latter **ieh*$_{2}$*ǵ-nó-* (with loss of laryngeal before media + consonant, cf. Lubotsky 1981: 135). (4) "**h*$_{2}$*u̯ap-*" 'to harm' is

It should be noted that despite the fact that I have used the traditional symbols for the reconstructed stops, I follow Kortlandt (2003: 259) who argues that the traditional 'voiceless' series (**p*, **t*, **ḱ*, **k* and **k^{w}*) in fact were plain fortis stops [p:, t:, k^{j}:, k:, k^{w}:], the traditional 'voiced' series (**b*, **d*, **ǵ*, **g*, **g^{w}*) were lenis (pre-)glottalized stops [ʔp, ʔt, ʔk^{j}, ʔk, ʔk^{w}] and the traditional 'aspirated voiced' stops (**b^{h}*, **d^{h}*, **ǵ^{h}*, **g^{h}*, **g^{wh}*) were plain lenis stops [p, t, k^{j}, k, k^{w}]. Note that the stops therefore have "neither voicedness nor aspiration as distinctive features" and that "[t]he phonetic distinction between fortes **T:* and lenes **T* was probably a matter of consonantal length" (ibid.).

1.2 PROTO-ANATOLIAN PHONEME INVENTORY

Although in this book it was not my aim to provide a historical treatment of the Anatolian family as a whole, it is in some cases convenient to use Proto-Anatolian reconstructions, especially when a word can be reconstructed for the Proto-Anatolian stage, but not for Proto-Indo-European. I work with the following phoneme inventory.[12]

stops	fortis	*p*	*t*	*ḱ*	*k*	*k^{w}*
	lenis	*b*	*d*	*ǵ*	*g*	*g^{w}*
fricative[13]		*s*				

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based on "heth. *huapzi* 'schädigt' (mit grundstufigem *ă*)" besides PGerm. **ubilaz* 'evil'. The cited form, *ḫuu̯apzi*, is the NH secondary replacement of an original *ḫi*-conjugated form *ḫuu̯appi*. Because all *ḫi*-verbs reflect **o/Ø*-ablaut, the Hitt. stem *ḫuu̯app-* must reflect **h$_2$uoph$_1$-* with *o*-grade (cf. the lemmas *ḫuu̯app-^{i} / ḫupp-*). (5) "*ku̯as-*" 'to kiss' is based on "heth. *ku̯ašzi* 'küßt' mit grundstufigem *ă*". As I show under its lemma, the Hittite verb in fact is *ku̯aššzi* with geminate *-šš-*, which cannot be explained by a reconstruction **kuaš-*. I therefore reconstruct **kuens-*, which would explain the vowel *-a-* as well as the geminate *-šš-* by regular sound laws. Note that the nasal is visible in Gr. κυνέω 'to kiss' as well.

[12] For the possibility of the existence of a PAnat. phoneme */tˢ/ as well (thus Melchert 1994a: 53, 63), cf. footnote 196.

[13] Melchert (1994a: 53, 63) works with PIE *[z] > PAnat. *[z] as well, a "voiced allophone of */s/", giving e.g. "Hitt. *ḫašduēr* 'twigs, brush' < (virtual) **h$_2$o-zd-wér*" as an example. Since I do not see any indication of voicedness as a distincitive feature in Proto-Indo-European, PAnatolian or Hittite (see especially § 1.3.2 below), I will not follow him in this regard.

‘laryngeals’	*ʔ*	*H*	H^w
liquids	*l*	*r*	
nasals	*m*	*n*	
vowels	*i*, *ī*		*u*, *ū*
	e, *ē*		*o*, *ō*
		a, *ā*	

The reconstruction of only two rows of stops is based on the fact that in none of the Anatolian languages evidence can be found for a distinction between the PIE ‘voiced’ and ‘aspirated’ series, which makes it likely that these merged in the pre-PAnatolian period already. The PIE palatovelars and normal velars have different outcomes in Luwian and Lycian (e.g. **ḱ* > Luw. *z*, Lyc. *s* vs. **k* > Luw. *k*, Lyc. *k*), and therefore must have been distinct in PAnatolian as well.

In Kloekhorst fthc.c I have elaborately treated the outcome of the PIE laryngeals in initial position in the Anatolian languages. There I have shown that for PAnatolian there is only evidence for two ‘laryngeals’ word-initially, namely */ʔ/ and */H/, which is valid for word-internal position as well. Moreover I have shown that because the Hittite phoneme /H^w/ < **h_2u* corresponds to the Lycian phoneme *q* = [k^w] < **h_2u* it is likely that this phoneme, /H^w/, was PAnatolian already.

Because the old PIE laryngeal system collapses (**h_2* and **h_3* merge in **#He-* and **CRHV* to PAnat. */H/; **h_3* and **h_1* merge in all other position as PAnat. */ʔ/), the allophonic colouring of pre-PAnat. **e* due to adjacent **h_2* and **h_3* becomes phonemicized, yielding the PAnat. phonemes */a/ and */o/ (the latter ultimately merging with the reflex of PIE **o*). Note that Lycian shows different reflexes of **a* (namely *a*) and **o* (namely *e*), which proves that at the PAnatolian level the vowels /o/ and /a/ were distinct.

1.3 HITTITE PHONEME INVENTORY

1.3.1 Cuneiform script

The history of the cuneiform scripts starts with the Sumerians' desire to keep track of business transactions: around 3200 BC the first economic records and inventories were made on lumps of clay by drawing pictures of specific objects together with strokes and cones to represent numbers. Although these pictographs were initially used only as a one-to-one representation of the objects they depicted, in the course of time they not only received a broader semantic notion (e.g. the sign 'mouth' could be used for 'to speak' and 'word' as well), but also could be used more or less phonetically (e.g. the sign 'mouth' was pronounced *ka*, and could be used for writing words with a similar phonetic shape). Together with the fact that the pictographs became more and more stylized and in the end were not well recognizable as the original object anymore, a breeding ground was laid for this system's development into a phonetic script. Around 2350 BC the Sumerian script was adopted by the Akkadians, who reshaped it into a writing system in which the phonetic representation of the language served as the basis, although logograms, i.e. signs that represent a certain notion without referring to it phonetically (the abstracted descendants of the Sumerian pictographs), were still used on a large scale.[14]

The cuneiform script that is used by the Hittite scribes is derived from an Old-Babylonian cursive type that is known from Northern Syria (e.g. Alalaḫ). How exactly the practice of writing found its way from there to Ḫattuša is not fully clear.[15] Just as in Akkadian, the writing system is basically phonetic.[16] Nevertheless, a word can be written logographically with so-called sumerograms (i.e. the logograms that are derived from the Sumerian script,[17] e.g. DINGIR

[14] Cf. Coulmas 2003: 41-9; Fischer 2001: 47-57.

[15] It has often been claimed that "diese Form der Keilschrift [= the Old-Babylonian cursive] im Zusammenhang mit Kriegszügen des hethitischen Großkönigs Ḫattušili I. nach Nordsyrien (um 1550 v. Chr. gemäß der Kurzchronologie) von dort nach Ḫattuša [...] gelangt sei" (HZL: 15). The discovery of a text (Kt k/k 4) at Kültepe (Kaniš) that palaeographically occupies "eine Position zwischen dem "Normal-aA [= altassyrischen]" Duktus einerseits und dem altsyrischen und dem althethitischen andererseits" (Hecker 1990: 57) shows that the transfer of the Syro-Babylonian scribal tradition into Asia Minor may have been a more gradual proces that predates the Hittites' occupation of Ḫattuša.

[16] In transliteration, phonetic signs are given in small italics.

[17] Sumerograms are transliterated in Roman capitals.

'god') or with akkadograms (i.e. as if in Akkadian,[18] e.g. *Ú-UL* 'not'). It is likely that in both cases the Hittites read these logographically written words with their Hittite counterparts, as can be seen by the use of phonetic complements (i.e. the addition of phonetic signs to spell part of the word underlying the logographic writing, usually to indicate the proper ending, e.g. DINGIR-*uš* = nom.sg. *šīuš* 'god'). To complicate matters, sumerograms sometimes could be extended by an Akkadian phonetic complement, e.g. DINGIR^{LUM},[19] which functions as a sort of sumerographic writing of Akk. *ilum* 'god', which itself must be regarded as an akkadographic writing of the Hittite word *šīuš* 'god'. Moreover, the cuneiform writing system makes use of so-called determinatives, i.e. logograms that indicate a certain semantic sphere of the word next to which they are placed.[20] For instance, GIŠ 'wood' can be used with words that denote objects that are made of wood (e.g. ^{GIŠ}*niniḫal-* 'cradle'), É 'building' can be used with words that denote buildings (e.g. ^{É}*ḫištā* 'mausoleum(?)'). Although usually placed in front of a word, some determinatives can be placed at the end of a word (e.g. MUŠEN 'bird' as in *ḫāran*^{MUŠEN} 'eagle').

For the linguist interested in the Hittite language this complicated system has some disadvantages: certain words are only attested with a sumerographical spelling and never with phonetic signs, which means that we do not know the Hittite rendering of these words. This is not only the case with some rare words, but also with certain words that belong to the basic vocabulary. For instance, 'son' is attested with the sumerogram DUMU only; 'daughter' is only spelled DUMU.MUNUS[21]; the Hittite reading of the sumerogram MUNUS 'woman' is disputed[22]; we do not know the Hittite words for ḪUR.SAG 'mountain', GUŠKIN 'gold', KÙ.BABBAR 'silver' or numerals like 'five', 'six', 'eight', etc. Nevertheless, we must not forget that exactly the usage of these sumerograms has played a key-role in deciphering the Hittite language and that even nowadays the best evidence for the meaning of a rarely attested word is when a parallel text or copy is found with this word duplicated by a sumerogram.

Despite the wide use of logograms, the Hittite writing system is basically a phonetic one. The phonetic signs are all syllabic, which means that they possess a value *V*, *CV*, *VC* and *CVC* only (in which *V* = vowel and *C* = consonant).

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[18] Akkadograms are transliterated in italic capitals.

[19] Note that the Akkadian phonetic complement is transliterated in superscript.

[20] Determinatives are transliterated in superscript as well.

[21] But cf. ^{MUNUS}*duttariḫata/i-*.

[22] See the discussion under the lemma **kuu̯an-*.

Herewith, the script was not very well equipped for writing Hittite. As an Indo-European language, Hittite uses words that often contain large consonant clusters, which are difficult to render with a syllabic script: if one wants to write word-initial or word-final consonant clusters or internal clusters of three or more consonants with syllabic signs, one cannot avoid to write vowels that are neither phonetically nor phonologically real. For instance, the word /parHtˢi/ 'he chases' is spelled *pár-aḫ-zi* as well as *pár-ḫa-zi*. In this case, the alternation between *pár-aḫ-zi* and *pár-ḫa-zi* proves that these *a*'s are "empty". In other cases, determining whether a vowel grapheme is phonetically and/or phonologically real can be quite difficult, however.

In the following sections I will discuss in detail the peculiarities of the cuneiform script as used by the Hittites in order to determine the Hittite phonological system. I will first look at consonants and then move on to the vowels.

1.3.2 Stops

The Old-Babylonian cuneiform syllabary that functioned as the source of the syllabary used in Boğazköy originally had distinct signs for voiced and voiceless stops, e.g. BA vs. PA, DA vs. TA, GI vs. KI, etc.[23] Nevertheless, the Akkadian texts from Boğazköy do not use these contrasting pairs to express a distinction between voiced and voiceless stops. For instance, the sign PA is used as *pa* as well as *bá*, whereas BA is used as *ba* as well as *pá*. Similarly, TA is used as *ta* as well as *dá*; DA as *da* as well as *tá*; TI as *ti* as well as *dì*; DI as *di* as well as ti_4, etc.

In the Hittite texts, the contrasting pairs are not used for voice distinctions either. They are largely interchangeable instead: e.g. *ba-i-iš* = *pa-iš* = /páis/ 'he gave'; *da-it-ti* = *ta-it-ti* = /táiti/ 'you place'; *gi-nu-uz-zi* = *ki-nu-uz-zi* = /kinṹtˢi/ 'he opens up'.[24] It must be admitted that certain words show an almost consistent spelling with e.g. DA whereas others are spelled exclusively with TA (e.g. *dāi* 'he puts' is consistently spelled with the sign DA; the sentence initial conjunction *ta* is consistently spelled with TA), but all attempts to interpret these cases as

[23] Durham 1976: 364.

[24] Some signs are hardly used in the Hittite texts: e.g. BA predominantly occurs in names; GU is attested only once in a phonetic value ([*p*]*a-an-gu-uš* (StBoT 25.13 ii 9 (OS))); BE is used with the values *pát*, *pít* or *pét* only.

pointing to a phonemic opposition in voice,[25] have failed.[26] We rather have to interpret these cases as spelling conventions.

Nevertheless, it cannot be denied that the Hittite scribes did distinguish between two series of stops which were expressed by single (*V*-C_1*V*) vs. geminate spelling (*V*C_1-C_1*V*). Sturtevant (1932a) was the first to describe this phenomenon and showed that from an etymological point of view the single spelled stops correspond to the PIE 'voiced' and 'voiced aspirated' series **D* and **D*^{h}, whereas the geminate spelled stops etymologically correspond to the PIE 'voiceless' series **T* ('Sturtevant's Law'). The exact phonetic interpretation of the single spelling (which is often termed 'lenis') vs. the geminate spelling (often termed 'fortis') is difficult, however.

In Hurrian, we find a similar system, namely a distinction between stops that are spelled *V*-C_1*V* and stops that are spelled *V*C_1-C_1*V*. On the basis of Hurrian texts from Ugarit that are written in an alphabetic script, we are much better able to interpret these spellings phonetically, however. According to Wegner (2000: 40), Hurrian shows a phonemic distinction between short (= single spelled) and long (= geminate spelled) stops, which are both voiceless. The short stops became phonetically voiced in some environments (namely intervocalically and after resonant), but these should be regarded as mere allophones.

Kimball (1999: 54) assumes that the Hittites took over the cuneiform script from the Hurrians and states that "[s]cribes adapting the syllabary for Hittite, if they were native speakers of Akkadian, which had phonemic voicing, or native speakers of Hittite, which probably had phonemic voicing, would have tended to hear and spell Hurrian single intervocalic stops as voiced and to hear and spell double stops as voiceless, and, unless they themselves were acquainted with the Old Babylonian values, they would have spelled Hittite voiceless stops with double stops and voiced stops with single stops". Apart from the fact that this reasoning is rather circular (using the assumption that Hittite probably had phonemic voicing in an argumentation to show that the Hittite spelling reflects phonemic voicing), it would predict that Boğazköy Akkadian would use the same spelling convention to distinguish between voiced and voiceless stops. This is not the case, however: "[t]here seems to be no trace of this orthography [i.e. a system of distinction between stops spelled *VC-CV* (voiceless(?)) and those spelled *V-CV*

[25] E.g. Oettinger 1979a: 551f.

[26] Cf. Melchert 1994a: 13-4: "While a great number of words are spelled consistently with either the voiceless or voiced sign, this usage does not correspond in any meaningful way with the voicing quality of the sounds being indicated, based on their expected inherited value".

(voiced(?))] in Bo[ğazköy] Akk[adian]" (Durham 1976: 371). Moreover, there are spelling conventions in Hurrian that are not used in Hittite, e.g. the use of the sign GE/I as having the *e*-vowel only (/ke/) vs. the use of the sign KE/I as having the *i*-vowel only (/ki/) (Wegner 2000: 37-8). This shows that the Hittites cannot have adopted the cuneiform script directly from the Hurrians.

Melchert (1994a: 20) interprets the Hittite 'fortis' stops as long and voiceless (-*TT*-), whereas the 'lenis' stops are short and voiced (-*D*-). Furthermore, Melchert assumes that secondarily a third series arose, namely stops that are long as well as voiced (-*DD*-) (the result of e.g. *-Dh_2-). The existence of this last series must be abandoned, however: there is not a shred of evidence for a distinction in spelling between "-*TT*-" and "-*DD*-", and therefore a phonetic and phonological distinction between the two cannot be proven. Moreover, Melchert does not give any evidence for the view that the long stops were voiceless and the the short ones voiced.

In my view, voice cannot have been a distinctive feature between the geminate spelled and the single spelled stops. If voice really was a phonological feature of one of these series, why did the Hittite scribes not use the voice-distinction available in the Akkadian syllabary? Even in writing Akkadian, of which we know that it had phonemic voicing, a distinction in voice is not expressed in spelling, which suggests that the Hittite scribes just were not able to distinguish voiced from voiceless stops. Moreover, as we saw above, the fact that in Boğazköy Akkadian the system of single vs. geminate spelling is not used, shows that the 'fortis/lenis'-distinction cannot be compared phonetically to the distinction in voice known from Akkadian.

The fact that the Hittite scribes used the orthographically awkward distinction between geminate vs. single spelling in writing Hittite can only mean that the phonetic distinction between the two series of stops was length. This is supported by the following observations.

First, in certain phonetic developments where it is significant whether a syllable is closed or open, a geminate spelled stop counts as a closing factor. For instance, the form *kitta* 'he lies' < *$kíi̯ta$ < *$ḱéito$ shows the 'shortening' of *$ii̯$ in a closed syllable,[27] which shows that -*tt*- closes the syllable and therefore must be regarded as phonetically long [t:].

Second, if voice was a distinctive feature, we would expect to find voice-assimilation. So, if a word like *e-ku-ud-du* 'he must drink' would really contain a

[27] Compare *ki-iš-ḫa* 'I become' /kísHa/ < *$kíi̯sHa$ < *$ǵéis$-h_2o vs. *ki-i-ša* 'he becomes' /kísa/ < *$kíi̯sa$ < *$ǵéis$-o.

cluster [-g^{w}t-] with a voiced stop [g^{w}] before a voiceless stop [t], I do not see why neither the [g^{w}] was devoiced because of the following [t] to **[-k^{w}t-] (spelled ***e-ek-ku-ud-du*), nor the [t] was voiced because of the preceding [g^{w}] to **[g^{w}d] (spelled ***e-ku-du*). Since neither of these assimilations took place, we are bound to conclude that voicedness is neither a phonemic nor a phonetic feature of the Hittite stops.

I therefore conclude that the 'fortis' consonants (spelled with a geminate) were phonetically long and the 'lenis' consonants (spelled single) were short and that there is no evidence for a distinction in voice. So *VppV* = [p:] vs. *VpV* = [p]; *VttV* and *VddV* = [t:] vs. *VtV* and *VdV* = [t]; etc. Nevertheless, I have chosen to adopt the following phonemic spelling throughout the book:

Fortis	/p/	/t/	/k/	/k^{w}/
Lenis	/b/	/d/	/g/	/g^{w}/

The choice of these symbols for the phonological representation of the stops is a matter of convenience. It does **not** indicate that I consider voicedness a phonemic feature at any point in the history of Hittite.

It should be noted that the phonetic change of a fortis stop into a lenis stop or vice versa (which can happen in certain phonetic environments) should consequently not be called 'voicing' or 'devoicing', but rather 'lenition' and 'fortition'.[28] For instance, the fact that impf. *ak-ku-uš-ke/a-* 'to drink' shows a fortis /k^{w}/ whereas the basic verb has /g^{w}/ (*eku-^{zi} / aku-*) is due to fortition of /g^{w}/ to /k^{w}/ in front of /-ske/a-/, and not due to devoicing.[29]

Since in word-initial position no orthographic distinction between geminate and single stop could be made, it is unclear whether the two series are distinct in this position or have merged. Since there is not a single spelling practice in Hittite (nor in Palaic and CLuwian, for that matter) that even attempts to indicate a distinction between initial **T* and **D* / **D^{h}*, I cannot but assume that in initial position this distinction has been lost. Nevertheless, the distinction must have been present in Proto-Anatolian, as is indicated by the fact that initial **ti-* yielded Hitt. *z-* and **di-* > Hitt. *š-*, whereas they merged in Luwian as *ti-*. So, if the two series have merged in Hittite in initial position, this must be a post-Proto-

[28] Similarly, I use the term *fortited* for describing an original lenis stop that has become a fortis one (in analogy to *lenited*).

[29] Contra e.g. Melchert 1994a: 92, who calls this phenomenon a "regressive voicing assimilation".

Anatolian development.[30] On the basis of reduplicated forms like *kikkiš-*$^{tta(ri)}$, the imperfective of *kīš-*$^{a(ri)}$ */ kiš-* 'to happen, to become'< *$^{(ʔ)}$*ǵeis-*, it has been assumed that in Hittite the initial stops merged in the fortis series /p, t, k and k^{w}/.[31] Since the moment of the creation of this reduplicated form is unknown, it does not shed too much light on the situation in Hittite, however.[32] On the contrary, the stem *ḫatug-* 'terrible', which probably reflects **h*$_2$*tug-*, shows lenition of PIE **t* to Hitt. /d/ in the initial cluster **h*$_2$*t-*[33] and therefore could be used as an argument for the opposite view, namely that all initial stops merged into the lenis series. Again this example is non-probative, however, because the fact that /d/ is a lenis stop does not prove anything regarding the status of initial *ḫ-*. All in all, the matter cannot be decided. Since merger equals absence of a phonemic distinction, the matter may not be very interesting from a phonological point of view. In this book I will cite initial stops with their fortis variant in phonological interpretations, so /p-/, /t-/, /k-/ and /k^{w}-/.

We could assume that in word-final position a similar merger has taken place, and Melchert (1994a: 85) states that "[v]oiced stops ha[ve] been generalized in word-final position", giving "*pa-i-ta-aš* = /páyd-as/ 'went he'" as an example. This example is non-probative, however, since the enclictic personal pronoun *=a-* may have had a leniting effect on the preceding consonant (just as the enclitic particle *=(m)a* 'but' had, in contrast with the fortiting enclitic particle *=(i̯)a* 'and'). It is moreover contradicted by the words *takku* /tak^{w}/ and *nekku* /nek^{w}/ that show a fortis /k^{w}/ in word-final position. When compared with 2sg.imp.act. *e-ku* /ʔég^{w}/ 'drink!', which unmistakingly has a lenis stop in word-final position, we must conclude that the fortis and lenis stops remained distinct word-finally.

For the phonemicity of the labiovelars, compare the spellings *e-ku-zi*, *e-uk-zi* 'he drinks' and *tar-ku-zi*, *tar-uk-zi* 'he dances' that point to a monophonemic /g^{w}/ and /k^{w}/ and not to /gu/ and /ku/. Moreover, *a-ku-e-ni* 'we drink' contrasts with *ar-nu-me-ni* 'we transport' which shows that the former is /ʔg^{w}uéni/ < **h*$_1$*g*^{wh}*-*

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[30] Melchert (1994a: 20) is aware of this and therefore calls the "devoicing of word-initial stops", which he assumes for Hittite as well as for Palaic and CLuwian, "an areal feature across Anatolia".

[31] Cf. Melchert 1994a: 19.

[32] It is for instance possible that *kikkiš-* was created at a (post-Proto-Anatolian) period when the initial stops had merged into the fortis series, but that later on all initial stops became lenis again, so that attested *kikkiš-* in fact represents /gikis-/.

[33] Which implies that we must assume that in forms like *ḫappeššar* 'limb' < **h*$_3$*p-éh*$_1$*sh*$_1$*r*, *ḫattant-* 'clever' < **h*$_2$*t-ént-*, or *appanzi* 'they seize' < **h*$_1$*pénti*, where the fortis stop at first sight seems to have been retained in a similar initial cluster, these consonants were in fact restored on the basis of the full-grade stems **h*$_3$*ep-*, **h*$_2$*et-* and **h*$_1$*ep-*.

u̯éni, whereas the latter is /ʔrnuméni/ < *h_3*r-nu-u̯éni*, where *-uu̯-* yielded *-um-*. A third argument is that *e-ku-ut-ta* 'he drank' shows the postconsonantal allomorph *-tta* of the 3sg.pret.act.-ending (cf. e.g. *e-ep-ta* 'he took'), whereas e.g. *ar-nu-ut* shows the postvocalic variant *-t*. Compare also the fact that 1sg.pret.act. *e-ku-un* 'I drank' shows the postconsonantal ending *-un* which contrasts which the postvocalic variant *-nun* as visible in e.g. *ar-nu-nu-un* 'I settled'.

All in all, with regard to the stops, the Hittite phonological system nicely matches the Proto-Indo-European phonological system. If we compare the two systems, we see that between PIE and Hittite only three major developments took place. First, the loss of glottalization in the glottalized lenis series (the traditional 'voiced' series) caused this series to merge with the plain lenis series (the traditional 'voiced aspirated' series). Note that there is no indication that anywhere in the development between PIE and Hittite voice or aspiration has been a phonological or even phonetic feature. Secondly, the PIE palatovelars and the plain velars (which were still separate phonemes at the Proto-Anatolian stage) merged into Hitt. /k/ and /g/. Thirdly, word-initially the lenis and fortis series seem to have merged.

1.3.3 Glottal stop

In Kloekhorst fthc.c, I have argued that in word-initial position Hittite possesses a phonemic glottal stop /ʔ/. This is apparent e.g. in the spelling difference between *ú-u̯a-a-tar* 'inspection' and *u̯a-a-tar* 'water', where the former reflects **Hu-ótr* and the latter **uódr*. This means that *ú-u̯a-a-tar* represents /ʔuā́dr/[34] and *u̯a-a-tar* stands for /uā́dr/. A word-initial glottal stop also clarifies the symmetry between *ša-ša-an-zi* 'they sleep' /ssántˢi/ < **ssénti* and *a-ša-an-zi* 'they are' /ʔsántˢi/ < **$h_1$sénti*.[35]

OS spellings like *ne-e-a* 'turns' < **néi$h_{1/3}$-o* and *ḫé-e-a-u-e-eš* 'rains' < **$h_2$éih_3-eu-* show that in the oldest period the glottal stop was still present in intervocalic position: /néʔa/ and /HéʔauesH/. Younger spellings like *ne-e-i̯a* (MH/MS) and *ḫé-e-i̯a-u-e-š=a* (OS), which must represent /néa/ and /HéauesH/ respectively, show that intervocalic glottal stop was lost in the late OH period.

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[34] Cf. Durham 1976: 109 for the observation that in the Akkadian texts written in Boğazköy the sign Ú could be used as $'u_x$, i.e. with initial 'aleph = [ʔ].

[35] Ibid.: 117 for the sign A as $'a_x$.

In the position **CRh$_1$V*, the glottal stop was retained as such throughout Hittite as can be seen by spellings like *pa-ri-pa-ra-a-i* 'he blows' which must represent /pripr$\acute{\text{a}}$i/ < **pri-prh$_1$-ói-ei*.[36] Note that if **h$_1$* would have been lost in this position, we would expect a spelling ***pa-ri-ip-ra-a-i* = **/pripr$\acute{\text{a}}$i/.

1.3.4 Affricate

It is generally assumed that the consonant *-z-*[37] must be phonetically interpreted as an affricate [t͡s],[38] which for instance follows from the fact that the outcome of nom.sg.c. **-ent-s* is spelled *-an-za*. To which extent this affricate [t͡s] must be regarded as a single phoneme instead of a sequence of the phonemes /t/ and /s/ is less clear. A major source for *-z-* is the assibilation of **-t-* in front of **-i-*. Nevertheless, the outcome of **-ti-* is not identical to the outcome of **-Tsi-*, as we can tell from the fact that 2sg.pres.act. **h$_1$édsi* 'you eat' yields a form spelled in Hittite as *e-ez-ši*, whereas the 3sg.pres.act.-ending of *-i̯e/a-* and *-ške/a*-verbs, **-e-ti*, yields a form spelled in Hittite as *-ez-zi* or *-Ce-zi*, but never as ***-ez-ši*. In my view, this shows that the former form, *e-ez-ši*, represents /ʔédSi/,[39] whereas the latter forms represent /-et$^{\text{s}}$i/, with a monophonemic sound that I have rendered with the symbol /t$^{\text{s}}$/ throughout this book. It must be noted, however, that I do not interpret every spelling of *-z-* without a following *-š-* as a spelling of the phoneme /t$^{\text{s}}$/. In cases where synchronically an analysis of *t* + *s* or *d* + *s* is obvious, I just write /ts/ or /ds/.[40] Note that I also interpret the outcome of **-tt-* or **-dt-* as /-tst-/ and /-dst-/. This is indicated by spellings like *az-za-aš-te-ni* /ʔdsténi/ 'you eat' <

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[36] See under the lemma *parai-^{i} / pari-* 'to blow' fur further treatment.

[37] Spelled with the signs ZA, ZE/I, ZÉ, ZU, AZ, E/IZ, UZ, GAZ, ZUL and ZUM, which in Akkadian are used for the emphatic *ṣ*: *ṣa*, *ṣé/í*, *ṣe/i*, *ṣú*, *aṣ*, *e/iṣ*, *uṣ*, *gaṣ*, *ṣul* and *ṣum* respectively.

[38] Cf. Kouwenberg (2003: 83) who states that Akk. "emphatic" *ṣ* in fact was glottalized /š/, which was realized as an affricate /t͡š/. Kimball's suggestion (1999: 107) that "it is possible that °Z° represents a voiced pre- or postconsonantal /z/ resulting from voicing assimilation (e.g. *za-ma-an-kur* "beard" = [zmã(n)kur] (?) < IE **smókʷr̥* "beard" [...])" is entirely *ad hoc*: cf. cases where Hitt. *ša-mV* reflects etymological **ṣmV*.

[39] With /S/ as visible in [*e-ez-za-a*]*š-ši*, cf. § 1.4.4.2.

[40] E.g. *ḫur-za-ke/a-* = /Hortske/a-/, which is the imperfective in *-ške/a-* of *ḫuu̯art-^{i} / ḫurt-* (cf. the one spelling *ḫur-za-aš-ke/a-*), or *-an-za* = /-ants/, which is a nom.sg.c. in *-s* of the suffix *-ant-* (cf. the spelling *-an-za-aš-ša* /-antSa/ = *-anz* + *=(i̯)a*).

h_1d-th$_1$é and *e-ez-za-aš-ta* /ʔédsta/ ‘he ate’ < *$h_1$éd-t(o)*. This also makes it unnecessary to assume a variant /d^s/ besides /t^s/.

Yoshida’s attempt (2001) to show that in the oldest texts there was an opposition between geminate spelled *-zz-* and single spelled *-z-* that reflects PAnat. *-*ti*- vs. *-*di*- and therefore must be interpreted as an opposition between fortis /t^s/ and lenis /d^s/ fails to convince me.[41]

1.3.5 Fricatives

I assume the following phonemic fricatives:

Fortis	/H/	/H^w/	/S/
Lenis	/h/	/h^w/	/s/

The difference between fortis and lenis is expressed by geminate vs. single spelling. In initial position, we cannot decide whether we are dealing with the fortis or the lenis variant, and I therefore write /H-/, /H^w-/ and /s-/ initially. For the phonemicity of the labialized laryngeals /H^w/ and /h^w/, see Kloekhorst fthc.c, where I argued that a spelling variation like *tar-ḫu-zi*, *ta-ru-uḫ-zi* and *tar-uḫ-zi* ‘he conquers’ points to a phonological form /tárH^{w}t^{s}i/.[42]

1.3.6 Resonants

The following resonants are in my view phonemic:

Fortis	/R/	/L/	/N/	/M/
Lenis	/r/	/l/	/n/	/m/

[41] The only secure examples of assibilation of **di-* in Hittite show an outcome *ši-*, namely ^{d}*šīuš* ‘god’ < **diḗus* and *šīu̯att-* ‘day’ < **diéu̯ot-*.

[42] /H^w/ is the regular outcome of PIE *-*h$_2$u-*. On the basis of the fact that *-*h$_2$u-* yielded the Lycian monophoneme *q* = [k^w]$^?$, I conclude that /H^w/ was already phonemic at the Proto-Anatolian stage.

Again, the difference between fortis and lenis is expressed by geminate vs. single spelling. Since this difference is not visible in word-initial position, I arbitrarily write /l-/, /n-/ and /m-/ here. Note that /r/ does not occur word-initially, which is a direct result of the PIE constraint that no word could start in **r-*.[43]

1.3.7 Syllabic resonants

Although the fact that a PIE sequence **CRC* yields the Hittite spelling *CaRC* is well-established, the exact phonetic and phonological interpretation of this spelling is not fully clear. Usually, the spelling *CaRC* is phonologically interpreted as /CaRC/, having a real vowel /a/.[44] That this cannot be correct, is deducible from the verb *ārš-^{zi} / arš-* 'to flow'. Here we find a distribution between the strong stem that is spelled *a-ar-aš-* and the weak stem that is spelled *ar-aš-* or *ar-šº*. As I have argued under its lemma, we expect that the strong stem reflects **$h_1$ers-*, which suggests that the spelling *a-ar-aš*º phonologically must be interpreted as /ʔarS-/, containing the vowel /a/.[45] This means, however, that the weak stem *arš-*, which must reflect **$h_1$rs-*, cannot contain the vowel /a/, since we then would have expected the same spelling for strong and weak stem. This forces us to look for another solution. There are two options: on the one hand we can assume that in **CRC* an anaptyctic vowel emerged that, although it did resemble /a/, was not identical to it. We could think of [ə] or [ɐ] or similar, which by default was spelled with *-a-*. This would mean that we would have to assume a phonemic vowel that I will write as /ə/: so **CrC* > Hitt. /CərC/, spelled *CarC*.

On the other hand, we could also envisage that these 'vocalic' resonants in fact were underlyingly still identical to their consontal counterparts, /r/, /l/, /m/ and /n/, and that their syllabicity was a pure phonetic feature that is predictable on the basis of the phonetic environment. This would mean that PIE **CrC* yields Hitt. /CrC/, phonetically realized as [CərC] or [CɐrC], spelled *CarC*.

Problematic, however, is that the Hittite texts offer arguments for both options. For instance, the verb *appat(a)riia/e-^{zi}* 'to confiscate', which is a derivative in *-ia/e-* of the noun *appātar* 'seizing', is spelled *ap-pa-at-ri-ez-zi* (OS), *ap-pa-ta-ri-*

[43] So all PIE roots that seemingly had an initial **r-*, must in fact have had either **h_1r-*, **h_2r-* or **h_3r-*, the regular outcomes of which in Hittite were /ʔr-/, /Hr-/ and /ʔr-/, spelled *ar-*, *ḫar-* and *ar-*, respectively.

[44] E.g. Melchert 1994a: 125.

[45] Note that the 'plene' spelling in this case does not indicate vowel length, but rather must be read as *ʾa-ar-aš-* with the sign A = *ʾa*$_x$.

ez-zi (OH/MS?), as well as *ap-pát-ri-i̯a-az-zi* (MH/NS). The first and last attestation seem to point to phonetic [ʔp:atrié/á-], whereas the second points to phonetic [ʔp:atr̥jé/á-] or [ʔp:atərjé/á-]. Phonemically, this verb must be interpreted as /ʔpadrié/á-/, which subsequently shows that the noun *appātar* must represent /ʔpā́dr/, without a phonemic vowel /ə/.

In § 2.2.2.2.f, I argue that the *ḫi*-verbs that show a synchronic *ā/i̯*-ablaut, e.g. *ga-ra-a-pí / ka-ri-pa-an-zi* = /krā́bi / kri̯bánt^{s}i/, must ultimately go back to the normal **o/Ø*-ablaut, in this case **ǵ^{h}róbh$_{1}$-ei / *ǵ^{h}rbh$_{1}$-énti*. Because the phonetically regular outcome of these verbs, Hitt. *CRāCi / **CaRCanzi* < **CróC-ei / *CRC-énti*, shows a synchronic Schwebe-ablaut *CRāC- / CaRC-*, the weak stem form was altered by inserting the epenthetic vowel /i̯/ on the place of the strong stem vowel: *CRi̯C-* in analogy to **CRāC-*. This scenario implies, however, that the vowel of ***CaRC-* < **CRC-* was at least phonetically real. Moreover, we would be inclined to think that this vowel must have been phonemically real as well in order to trigger a replacement by the secondary stem *CRi̯C-*.

In word-initial position we encounter forms like **nsós* > *an-za-a-aš* 'us' vs. **lǵ^{h}ént-* > *la-ga-an-t-* 'felled'. Here it is quite clear that the outcome *la-ga-an-t-* cannot be regular: we should expect ***al-ga-an-t-*, just as **nsós* yielded *an-za-a-aš*. Quite obviously, the form *la-ga-an-t-* has been influenced by full-grade forms like **lóǵ^{h}ei* > *la-a-ki*. This indicates that here we really should assume a phonemic vowel /ə/, and subsequently interpret *la-ga-an-t-* as /ləgánt-/. A similar concept explains *u̯a-al-ḫa-an-zi*, *u̯a-al-aḫ-ḫa-an-zi* 'they hit' < **ulh$_{3}$-énti*. In analogy to the strong stem **uélh$_{3}$-ti* > Hitt. /uálHt^{s}i/, *u̯a-al-aḫ-zi* 'he hits', the weak stem, which should have regularly yielded /ulHánt^{s}i/, was changed to /uəlHánt^{s}i/.

The vowel /ə/ is also necessary for the interpretation of *ku-u̯a-aš-ke/a-*, the imperfective of *kuen-^{zi} / kun-* 'to kill, to slay'. As I have shown in Kloekhorst fthc.e, a sequence **CuRCC* or **K^{w}RCC* yields Hitt. *Cuu̯aRCC* (whereas **CuRCV* or **K^{w}RCV* yields *CuRCV*). This means that *ku-u̯a-aš-ke/a-* reflects /k^{w}əske/a-/ < */k^{w}n̥ske/a-/, the regular outcome of **g^{wh}n-sḱé/ó-*.

All in all, I will in principle treat the 'syllabic' resonants phonemically as their consonantal counterparts and assume that any phonetic realization with an epenthetic vowel is automatically determined by the environment. So the pair *ārszi / aršanzi* in my view represents phonological /ʔarS- / ʔrS-/. Nevertheless, some words where the vocalization of a resonant is analogically altered or where the buccal part of the vocalized resonant has been lost, can only be analysed as containing a phonemic vowel /ə/ (e.g. *la-ga-an-t-* /ləgánt-/ << **lǵ^{h}ént-*, *ma-ak-nu-*

/məgnu-/ << *mǵ-nu-*, *u̯a-al-ḫa-an-zi* /uəlHánt^{s}i/ << **ulh$_3$énti* and *ku-u̯a-aš-ke/a-* /k^{w}əske/a-/ < **g^{wh}nské/ó-*). The vowel /ə/ is rather marginal, however.

1.3.8 Semi-vowels

It is usually assumed that Hittite possessed two semi-vowels or glides, namely /y/ and /w/. This implies that these are phonologically different from the vowels /i/ and /u/. Let us look at several phonetic environments to see if this is really the case.

In the case of **TiT* and **TuT* (in which *T* = any stop), it is quite clear that in Hittite there is no phonological difference between /TiT/ and /TuT/ on the one hand and /TyT/ and /TwT/ of the other. In the case of **ViV* and **VuV*, it is also clear that in Hittite there is no phonological distinction between /ViV/ and /VuV/ on the one hand and /VyV/ and /VwV/. So in these environments it is not useful to distinguish between /i/ and /y/ and between /u/ and /w/. The question becomes more interesting when dealing with cases like **CuV / *CiV* and **CuRC* and **CiRC*.

Let us first look at **CuV* and **CiV*. We may ask ourselves if a form like *la-ak-nu-an-zi*, *la-ak-nu-u̯a-an-zi* 'they fell' < **lǵ^{h}-nu-énti* is phonologically to be interpreted as /ləgnuánt^{s}i/, as /ləgnwánt^{s}i/ or even as /ləgnuwánt^{s}i/. The last option is impossible, since Hittite has a synchronic sound law that *-uu̯V-* yields *-umV-*,[46] so we must choose from either /ləgnuánt^{s}i/ or /ləgnwánt^{s}i/. It is clear that this latter option is impossible as well, since we then would have expected a phonetic realization [ləgn̩wánt^{s}i] or [ləgənwánt^{s}i], spelled ***la-ga-nu-u̯a-an-zi* (vocalization of *-n-* in between consonants). So we must conclude that /ləgnuánt^{s}i/ is the only correct phonological interpretation. It is likely, however, that the sequence /CuaC/ was phonetically realized with a glide [u̯], so [Cu$^{u̯}$aC], but we must keep in mind that this glide did not have a phonemic status.

The case of *ap-pa-at-ri-ez-zi* is similar: should we analyze this as /ʔpadriét^{s}i/, /ʔpadryét^{s}i/ or /ʔpadriyét^{s}i/? Although in principle the last option cannot be disproven (there are no indications that a sequence *-iu̯V-* would undergo a

[46] One could argue that this rule has ceased to operate at the time that /ləgnuwánt^{s}i/ has become the phonemic form, but this is incorrect: the development "/uw/" > /um/ is synchronically still operative as can be seen from e.g. *aumeni* 'we see'. This form is a MH creation that replaced OH *umēni*: if at that time the development /uw/ > /um/ had ceased to operate, the secondary form *au-* + *-u̯eni* should have yielded ***auu̯eni*.

phonetic change), it is inevitable that here as well we should choose for the analysis /ʔpadriétˢi/. We therefore can conclude that in the case of **CuV* and **CiV*, the outcomes must be phonologically interpreted as /CuV/ and /CiV/ and not as **/CwV/ and **/CyV/.

The case of **CuRC*, including **#urC* and **Cur#*, is very interesting, however. For instance, the suffix *-u̯ar*, which forms verbal nouns, always has the form *-u̯ar*, no matter if a consonant or a vowel precedes. Under its lemma, we will see that *-u̯ar* reflects **-ur*, however. The idea is that on the basis of postvocalic positions, e.g. **-i̯é-u̯r* or **-sḱé-u̯r*, the variant **-u̯r* was generalized, also when following a consonant, e.g. *ḫinkuu̯ar*. The question now is, does this form synchronically represent /Hínkwr/, or should we analyse it as /Hínkuər/? This latter form would show the position /CuV/ of which we have seen that here no distinction between /CuV/ and /CwV/ is visible.

A similar question can be asked with regard to *u̯alḫ-*^{zi} 'to hit'. As we will see under its lemma, this verb must have undergone some levelling. The PIE paradigm **uélh₃-ti*, **ulh₃-énti* should regularly have yielded ***ualzi*, **ullanzi*, which is quite different from the attested forms: *u̯a-al-aḫ-zi*, *u̯a-al-ḫa-an-zi*. In order to explain these forms, we should assume the following scenario: (1) prevocalic **u* is phonemicized as /w/: **uélh₃ti* > **u̯élh₃ti*; (2) **u̯* spreads over the paradigm, replacing **ulh₃énti* by **u̯l̥h₃énti*; (3) at the moment that interconsonantal laryngeals drop, **h₃* is restored in **u̯élh₃ti* in analogy of **u̯l̥h₃énti*, where it was retained; (4) **u̯élh₃ti*, **u̯l̥h₃énti* yields Hitt. *u̯a-al-aḫ-zi*, *u̯a-al-ḫa-an-zi*. As we see, in the prehistory of Hittite it is of crucial importance to assume a phonological difference between /w/ and /u/. The question is whether this in synchronic Hittite is the case as well. If 3pl. *u̯a-al-ḫa-an-zi* < **u̯l̥h₃énti* is to be phonologically interpreted as /wlHántˢi/, we should certainly assume a separate phoneme /w/, because /ulHántˢi/ would have been spelled ***ul-ḫa-an-zi*.[47] If however, *u̯a-al-ḫa-an-zi* is to be phonologically interpreted as /uəlHántˢi/, as was suggested above (§ 1.3.7), we are dealing with a sequence **#uV*, of which it is likely that it does not show a distinction between /#uV/ and /#wV/ (in analogy to **CuV*).

Compare also the example of *ú-ra-a-ni* 'burns'. As we will see under its lemma, this form reflects **urh₁-óri*, and I therefore phonologically interpret *ú-ra-a-ni* as /urʔa̋ni/. From MH times onwards, this form is spelled *u̯a-ra-a-ni*,

[47] At least in OS texts, cf. the regular development of OH *ú-ra-a-ni* /urʔa̋ni/ > MH/NH *u̯a-ra-a-ni* = /uərʔa̋ni/ 'burns'.

however. Does this form represent /wrʔáni/, with a real /w/, or should we assume /uərʔáni/, with initial /uV/?

As we see, in cases where **u* is adjacent to a syllabic resonant, the phonological interpretation is a matter of taste. If one wants, one could assume a phoneme /w/ in these positions, but I would rather analyse these cases as /uəR/, in which no distinction between /u/ and /w/ has to be made.

All in all, I do not think that it is necessary to assume a phonological distinction between the semi-vowels /y/ and /w/ on the one hand and the real vowels /i/ and /u/ on the other.[48] I will therefore only use the vowels /i/ and /u/ in my phonological system (and consequently write /ViV/ and /VuV/ as well).

Note that with the elimination of phonemic /w/, the rule */uw/ > /um/ and */wu/ > /mu/ should be reformulated as */uuV/ > /umV/ and */VuuC/ > /VmuC/. For instance: /ʔau-/ + /-ueni/ > */ʔáuueni/ > /ʔáumeni/.[49]

1.3.9 Vowels

Because of the deficiency of the cuneiform script, the reconstruction of the Hittite vowel system is not easy.

As I stated above (§ 1.3.1), the fact that the script only contains signs with the value *V*, *CV*, *VC* and *CVC* makes it impossible to write word-initial or word-final consonant clusters or internal clusters of three or more consonants without writing vowels that are neither phonetically nor phonologically real,[50] e.g. /parHtˢi/ 'he chases' which is spelled *pár-aḫ-zi* as well as *pár-ḫa-zi* in which the underlined *a*'s must be 'empty'. Unfortunately, it is not always clear when a written vowel is real or empty or if we have to reckon with a difference between a phonetically real and a phonologically real vowel (cf. for instance the status of the spelling of *-a-* in reflexes of **CRC* as discussed in § 1.3.7 above). It therefore can

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[48] A special case is the verb *tar(k)u-zi* 'to dance'. As I will show under its lemma, this verb reflects **terkʷ-*, of which the buccal part of **kʷ* is lost in the cluster **rkʷC* (compare e.g. *ḫarzi* 'he has' < **h₂érkti*). So **térkʷti* > Hitt. *tar-ú-zi* and, more importantly, impf. **trkʷské/ó-* > OH *ta-ru-uš-ke/a-* > NH *tar-ú-iš-ke/a-*. Does the NH form *tar-ú-iš-ke/a-* have to be interpreted as /trwiské/á-/ and therefore OH *ta-ru-uš-ke/a-* as /trwské/á-/ and *tar-ú-zi* as /tárwtˢi/? Or can we assume that in NH *tar-ú-iš-ke/a-* the NH suffix-variant /-iské/á-/ has been secondarily introduced and that OH *ta-ru-uš-ke/a-* can be interpreted as /truské/á-/ and *tar-ú-zi* as /tárutˢi/?

[49] Which incidentally shows that */VuuV/ yields /VumV/, and not **/VmuV/).

[50] Except clusters that include labiovelars or the phoneme /Hʷ/: e.g. *ku-ra-an-zi* 'they cut' = /kʷrántˢi/, *tar-ḫu-uz-zi* 'he conquers' = /tárHʷtˢi/.

be informative to look at spellings of Hittite words in other languages. For instance, in the Old Assyrian texts from Kültepe (Neša / Kaniš),[51] we find the Hittite word *išparuzzi-* 'rafter, roof batten' attested as *išpuruzzinnum*, which points to a pronunciation [isprut^{s}i-], just as we would expect on the basis of its etymology, **spr-uti-*; the (hypothetical) Hittite word **laḫuzzi-* 'vessel for pouring' is attested as *luḫuzzinnum*, a vessel, pointing to [lhut^{s}i] < **lh$_2$u-uti-*; the Hittite word *ḫaluka-* 'message' is attested as *ḫulugannum / ḫilugannum*, pointing to [hluga-] < **h$_2$l(e/o)ug^{h}o-*. Although the OAss. words are attested in texts predating the Hittite texts with a few centuries, I do not see why these forms would not have been pronounced with initial clusters in synchronic Hittite as well. I would therefore interpret *išparuzzi-* as /ɬsprut^{s}i-/ and *ḫaluka-* as /Hluga-/.

1.3.9.1 Plene spelling

A second problem we encounter is the practice of 'plene spelling', i.e. the extra writing of the vowel of a *CV* or *VC*-sign by its own separate sign, e.g. *la-a-ḫu-i*, *a-aš-šu*, *ma-a-ar-ka-aḫ-ḫi*. The function of plene spelling has been and still is a hotly debated topic in Hittitology. For an excellent overview of the views on plene spelling throughout the history of Hittitology, I refer to Kimball 1999: 54-68. It is very important to bear in mind that "[p]lene writing was never used with absolute consistency in texts of any period" and that "[a]s a general rule, plene writing is more frequent in early texts (texts in OH ductus and many MH texts) than it is in original compositions of the NH period" (Kimball 1999: 55).

In my view, plene spelling can have several functions. The most common function is that it denotes phonetic length of a vowel, e.g. *ne-e-pí-iš* in which the plene *-e-* denotes a long *ē*, which is the phonetically regular outcome of an underlying accentuated /e/ in open syllable. So *ne-e-pí-iš* denotes phonetic [né:pis] = phonological /nébis/.[52]

Although a long vowel is usually the result of accentuation, a plene spelled vowel cannot automatically be regarded as accentuated.[53] For instance, a word like *la-a-ḫu-u̯a-a-i* cannot have had two accents. In my view, it represents /lāh^{w}ā́i/, a secondary adaptation of original *la-a-ḫu-i* = /lā́h^{w}i/ into the productive *tarn(a)*-class.

[51] All examples are taken from Dercksen fthc.

[52] Note that this word often is spelled *ne-pí-iš* as well, without a plene *-e-*.

[53] Moreover, not every accentuated vowel gets lengthened, as we will see in the treatment of the historical phonological developments below.

In word-initial position, a plene vowel can denote an initial glottal stop, and does not necessarily indicate vowel length: e.g. *a-ar-aš-zi* = *'a-ar-aš-zi* = /ʔárSt^{s}i/; *e-eš-zi* = *'e-eš-zi* = /ʔést^{s}i/; *a-a-an-ši* = *'a-a-an-ši* = /ʔā́nsi/, etc. In the case of *-e-* and *-i-*, a plene vowel can also be used to disambiguate an ambiguous sign (see below).

It should be noted that the sequence ḪU-U- occurs so often in MS and NS texts in contexts where a long vowel would be unexpected that this plene spelling must be interpreted otherwise. Kimball (1983: 566-7) remarks that the signs ḪU and U in these texts are written close together as a ligature (𒄩𒌅), which would support Rosenkranz' idea (1959: 420, 426[10]) that the writing of U is used to more clearly distinguish the sign ḪU (𒄩) from the closely resembling sign RI (𒀸). Since such a disambiguation could have been achieved by writing ḪU-Ú- (𒄩𒌅𒍪) as well, which is virtually never attested, there must have been additional reasons to write ḪU-U-. Below it will be argued that this sequence denotes /Ho/, and that the sign U indicates the phoneme /o/ here.

It is important to realize, however, that no theory about plene spelling will be able to explain every single instance of plene spelling as attested in the Hittite texts. For instance, in my text files, the word *ta-ga-a-an* 'on the earth' occurs spelled thus 30 times (of which 5 times in OS texts), as *ta-ga-an* 3 times (once in an OS text), as *ta-ka-a-an* once, as *da-ga-a-an* 21 times, and as *da-ga-an* 7 times. These spellings can safely be phonologically interpreted as /tgā́n/, the phonetically regular outcome of an endingless loc.sg. **d^{h}ǵ^{h}-ṓm*. Nevertheless, in NH texts, we find three aberrant spellings, namely *da-a-ga-an* (KUB 43.17, 6 (NH)), *ta-a-ga-an* (KUB 34.120, 7 (NH)) and *da-a-ga-a-an* (KUB 40.46, 9 (NH)), all with a plene vowel *-a-* where we would not expect it. Especially the third spelling, *da-a-ga-a-an*, is remarkable because of its two plene spellings. One could offer several *ad hoc* solutions in order to explain these spellings,[54] but the fact is that aberrant spellings exist and one must accept that they are not always explicable in an orthographic or phonetic sense.

[54] One could assume that these spellings are scribal errors (*da-a-ga-an* for *da-ga^{1}-a^{1}-an* and *ta-a-ga-an* for *ta-ga^{1}-a^{1}-an*), but this does not explain *da-a-ga-a-an*. One could alternatively assume that these spellings reflect phonetically real forms, e.g. with anaptyxis in the initial cluster and accent retraction (so /tágan/), but this is hardly credible and still does not explain *da-a-ga-a-an*.

1.3.9.2 E/I-Ambiguity

A third problem is the fact that many signs are ambiguous regarding their vocalic value: they can be read with either *-e-* or *-i-*.[55] The only unambiguous signs are E, I, TE, TI, ḪÉ (but ḪI can be read ḪE as well), ME, MI (which in principle can be read MÉ as well), NE, NI (which in principle can be read NÉ as well), ŠE, ŠI, ZÉ (but ZI can be read ZE as well), EL, IL, EN, IN, EŠ, IŠ, MEŠ and MIŠ.

When an ambiguous sign is used together with an unambiguous sign, we can safely read the vowel of the unambiguous sign (e.g. KE/I-*eš-šar* = *ke-eš-šar* = /kéSr/ 'hand'), but this is not always the case (e.g. *ḫar*-KE/I-E/IR can in principle be read *ḫar-ki-ir*, *ḫar-ke-er*, *ḫar-ki-er* and *ḫar-ke-ir*). Fortunately, sometimes we are offered a helping hand by plene spellings that indicate the appropriate vowel (in this case, the spelling *ḫar*-KE/I-*e*-E/IR, which must be read as *ḫar-ke-e-er*, shows that *ḫar*-KI/E-E/IR must be read *ḫar-ke-er* /Hárger/ 'they perished').

Because of the complicated situation regarding the spelling of the vowels *e* and *i*, it is not always easy to distinguish between these vowels on a phonological level either. This has led some scholars to the idea that within the Hittite period the vowels *e* and *i* are merging. For instance, CHD L: xvi states that "[i]t is well-known that the vowels *e* and *i* often interchange in the spelling of Hittite words. It is quite likely that the two vowels, still kept distinct in Typical Old Script, began to merge in later Old Hittite, and certainly had completed their merger by the Empire period".[56] Melchert (1984a: 78-156) has carefully examined the spelling and phonemic status of *e* and *i* throughout the Hittite period and arrives at a different conclusion, however, namely that "[t]he vowels /e/ and /i/ are phonemically distinct at all stages of Hittite. Any mergers or free variation between the two are conditioned".

Nevertheless, Kimball (1999: 78-9) states that despite Melchert's statements "[t]he evidence is consistent with a phonemic distinction between /ē/ and /ī/ in the earliest language that was lost through merger by the NH period". She even goes

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[55] This goes for the signs PÉ/Í, DE/I, GE/I, KE/I, ḪE/I, RE/I, LE/I, U̯E/I$_5$, ZE/I, E/IP, E/IT, E/IK, E/IḪ (which can be read AḪ and UḪ as well), E/IR, E/IM, E/IZ, KE/IP/, KE/IR, KE/IŠ, KE/IT$_9$, LE/IK, LE/IŠ, NE/IR, PE/IR, PE/IŠ, ŠE/IR, TÉ/ÍN, DE/IR, TE/IR and TE/IŠ, whereas the sign NI can be read NÉ as well and MI likewise MÉ (in spite of the separate signs NE and ME).

[56] Which has led the editors of CHD to the unfortunate choice to consider the two vowels equivalent for the purpose of alphabetization and to list them in the *i* position. Note that in the revised preface of CHD L-N: xii the tone is milder: "It is well-known that the vowels *e* and *i* often interchange in the spelling of Hittite words. In the earliest texts scribes clearly sought to maintain a distinction. What consistency underlies later usage and whether the post-OH spelling conventions also reflect a continuing phonological distinction between *e* and *i* are matters of controversy".

as far as claiming that "[e]ven the limited variation in OH texts may indicate the beginning of merger; or it may point to the existence of a scribal tradition predating the OH texts of Boğazköy, suggesting that Hittite was first committed to writing at a time somewhat before the date of the earliest texts that have been recovered when the language did distinguish high and mid front vowels, but that even by the time the Boğazköy texts in typical old ductus were written that distinction was on its way to oblivion". She bases her view on spellings like *i-eš-zi* 'he is' (KUB 34.115 iii 5 (OS)) instead of normal *e-eš-zi*, which she calls "[c]ompelling evidence for merger". In my view, however, taking this attestation[57] as more significant than the more than 1400 examples in my text files (ranging from OS to NH texts) of attestations where the verb 'to be' is consistently spelled with an initial *e-*, is undesirable.[58]

In this book I therefore have made a phonological distinction between /e/ and /i/ for all periods of Hittite. It should be noted, however, that several environments can be identified in which OH /i/ is regularly lowered to /e/ from the MH period onwards, cf. 1.4.8.1.d. Moreover, there are several instances where indeed a spelling *-e-* alternates with *-i-*, but these cases are to be regarded as showing the epenthetic vowel /i̯/ for which see § 1.3.9.6.

1.3.9.3 Plene spelling of E *and* I

Since the vowel signs E and I can be used to disambiguate an ambiguous sign, it is not always clear whether their use can be interpreted as indicating length. For instance, the spelling *ḫar-ke-e-er*, as we saw above, hardly reflects /Hárgēr/, but rather /Hárger/ < **h*$_3$*érg-ēr*, which means that its plene E is used to disambiguate the signs KE/I and E/IR; *pí-i-ú-e-ni* 'we give' cannot denote /pīuéni/, but must stand for /piuéni/ < **h*$_1$*p-i-u̯éni*, which shows that the plene I is used to disambiguate the sign PÉ/Í.

Nevertheless, there remain some forms in which the plene E or I can hardly have been used for disambiguation. For instance, in *še-e-er* 'above', the unambiguous sign ŠE would have been enough to disambiguate the ambiguous sign ER/IR (and the spelling *še-er* therefore does occur as well), so the plene E in

[57] Note that the line reads (5) *ku-iš-ki i-eš-zi*, in which the preceding *-i-* of *kuiški* may have triggered this scribal error.

[58] Note that Kimball is not always careful in citing her examples. For instance, on p. 68-9 she cites the OS forms "*a-ne-e-mi* StBoT 25, 3 II 2, *a-ne-ę-[nu-un* KBo III 22 Rs, 48" as examples of words where the sign NE is used instead of NI. This is incorrect: the words are in fact *a-ni-e-mi* and *a-ni-ę*[*-nu-un*], and therewith are spelled just as all the other forms in the paradigm of *aniu̯e/a-*^{zi}, namely with the sign NI.

that sense is superfluous. Similar, and more clear, are the cases of *te-e-eš* 'you said', where both TE and EŠ are unambiguous signs, *še-e-eš* 'sleep!', where ŠE and EŠ are unambiguous signs and *ne-e-pí-iš* 'heaven', where NE is unambiguous. As we will see below under the treatment of the outcome of PIE **e*, **ē*, **ei* and **eh$_1$* (§ 1.4.9.1, § 1.4.9.2), in accentuated position these vowels all yield Hitt. /é/ which is spelled plene in open syllables and in monosyllabic words and therefore probably was phonetically long in these positions.

Plene spellings of the type *Ci-i-iC* are quite rare, but do occur: *ḫu-ur-ki-i-il* 'perversity', *li-i-ik* 'swear!', *na-ak-ki-i-iš* 'important', *ni-i-ik* 'quench!', *zi-i-ik* 'you'. Although some of these cases seem to show an underlying short **i* that is accentuated and therefore lengthened,[59] some seem to show a real accentuated long /ī/.[60]

1.3.9.4 The signs U *and* Ú

Hittite uses two phonetic signs that are traditionally transliterated with the vowel *u*, namely 𒌅 = U and 𒍑 = Ú.[61] From the beginning of Hittitology, it has been noticed that in many words these two signs are kept distinct. For instance, *lūli-* 'pond', when spelled with a plene vowel, is consistently spelled *lu-ú-li-* and never ***lu-u-li-*; *kūša-* 'daughter-in-law' and its derivative *kūšāta-* 'bride-price' are always spelled *ku-ú-šº* and never ***ku-u-šº*; *ḫūmant-* 'all, every' is consistently spelled *ḫu-u-ma-an-t-* and never ***ḫu-ú-ma-an-t-*, etc. It therefore has been proposed that these two signs represent phonologically distinct sounds. Already Weidner (1917: 2-13) suggested that the sign U indicates the sound [o] and the sign Ú the sound [u]. Such a distinction is not unparalleled in cuneiform traditions: it is known from Hurrian (cf. Wegner 2000: 37), but also from e.g. some Old Babylonian lexical lists from Nippur (Westenholz 1991). Despite some claims in favour of this interpretation,[62] it has never gained a broad acceptance.[63]

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[59] Certainly in *li-i-ik* < **h$_1$léngʰ*.

[60] Thus *zi-i-ik*, which reflects **tíH-ge* (cf. chapter 2.1).

[61] The sign Ù (𒌋𒆪) only occurs akkadographically as the conjunction *Ù* 'and' and sumerographically as Ù 'dream' and in LIBIR.RA (= Ù.RA) 'old'; the sign U$_4$ (𒌋) only occurs as such in the sumerogram U$_4$.SAKAR 'crescent of the moon' (its normal value in Hittite is *ut*, UD or UTU); U$_5$ (𒌋𒌋𒌋) is only used in ^{GIŠ}*LE-U$_5$* 'wooden tablet'; U$_8$ (𒌋𒄩) is only used as part of the sumerogram USDUḪA (= U$_8$.LU.ḪI.A) 'sheep and goats'; U$_{19}$ (𒍑) is only used as such in the sumerograms DUMU.(NAM.)LÚ.U$_{19}$.LU 'human being', IM.U$_{19}$.LU 'southwind, south', LÚ.(NAM.)U$_{19}$.LU 'human being' and NAM.LÚ.U$_{19}$.LU 'humanity' (its normal value in Hittite is URU).

[62] E.g. Hart 1983: 124-132; Eichner 1980: 156f.

Most recently, Rieken (2005) has attempted to revive this theory, however. According to her, the sign U denotes a vowel /o/ that is the result of lowering of an older *u* in certain phonetic environments.[64] She assumes that the vowels /u/ and /o/ originally were allophones, but were marginally phonemicized in Hittite. Although the bulk of Rieken's observations seem correct to me, I do not agree with all details.[65]

An important clue regarding the idea that U and Ú could reflect different sounds is the fact that the preverb *u-* 'hither' (the antonym of *pe-* 'thither') is spelled with both U and Ú, but that the choice for one of these signs is always consistent within the attestations of each verb. We come accross the following spellings: *u-uC-C°* (in *ūnna-^{i} / ūnni-* 'to drive (here)'), *uC-C°* (in *uppa-^{i} / uppi-* 'to send (here)'), *ú-uC-C°* (in *ūššiḫe/a-^{zi}* 'to draw open (curtains)') and *ú-CV°* (in *uda-^{i} / ud-* 'to bring (here)'). At first sight, we seem to be dealing with three different spellings, namely *u-uC-C°*, *uC-C°* and *ú-uC-C°* (assuming that *ú-C°* is equivalent to *ú-uC-C°*). It must be noted, however, that the only verb that is spelled *ú-uC-C°*, namely *ūššiḫe/a-^{zi}*, occurs as *uš-ši-* as well. Moreover, the spelling *ú-uš-ši-* occurs in OS texts only, whereas the spelling *uš-ši-* is attested in MS and NS texts. Since the only verb that is consistently spelled *uC-C°*, *uppa-^{i} / uppi-*, is not attested in OS texts, but only in MS and NS texts, it is in my view quite likely that this verb must be compared to *ūššiḫe/a-^{zi}*, and that we are allowed to assume that in OS texts this verb would have been spelled ***ú-up-p°*.[66]

So in fact we are dealing with two different spellings, namely *ú-uC-C°* (OS) = *uC-C°* (MS and NS) = *ú-C°* versus *u-uC-C°*. Since these spellings eventually must go back to the same etymon, namely *$*h_2ou$-*, I agree with Rieken that some phonetically conditioned split must have taken place. Apparently, *$*h_2ou$-* developed into two different forms, one spelled with the sign U and the other with Ú.

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[63] E.g. Melchert 1994a: 26 states that "[c]ontrary to a number of claims, there is no good evidence that the Hittites use the signs *u* and *ú* to indicate phonemically distinct vowels".

[64] As a comparable phonomenon, Rieken refers to the 'breaking' of **u* to *ɔ* in front of *r*, *h* and *hv* in Gothic.

[65] For instance, Rieken assumes that in front of *-s-* an old /u/ remains /u/ and therefore is always spelled with Ú (*a-šu-ú-ša-, a-ú-li-ú-šº*, *ḫa-pu-ú-šº*, etc.). This is contradicted by *ku-u-uš* and *a-pu-u-uš*, however, which are both attested thus hundreds of times. She acknowledges that these forms form "eine wirkliche Ausnahme" and states that "[e]ine überzeugende Erklärung hierfür sich nicht erkennen läßt".

[66] Note that all alleged instances of a spelling *u-up-p°* of this verb and its derivatives are false: cf. at the lemma *uppa-^{i} / upp-*.

For a phonetic interpretation of the difference between U and Ú, we should look at the paradigm of *au-^{i} / u-* 'to see' in comparison to the *dāi/tiia̯nzi*-class verbs, in this case *pai-^{i} / pi-* 'to give':

1sg.	*u-uḫ-ḫi*	< **Hóu-$h_2$ei*	*pé-e-eḫ-ḫi*	< **$h_1$pói-$h_2$ei*
2sg.	*a-ut-ti*	< **Hóu-th_2ei*	*pa-it-ti*	< **$h_1$pói-th_2ei*
3sg.	(*a-uš-zi*)		*pa-a-i*	< **$h_1$pói-ei*
1pl.	*ú-me-e-ni*	< **Hu-uéni*	*pí-ú-e-ni*	< **$h_1$pi-uéni*
2pl.	*uš-t*[*e-e*]*-ni*[67]	< **Hu-sténi*	*pí-iš-te-ni*	< **$h_1$pi-sténi*
3pl.	*ú-u̯a-an-zi*	< **Hu-énti*	*pí-i̯a-an-zi*	< **$h_1$pi-énti*

We clearly see that the spelling with U corresponds to *-e-* in the paradigm of *pai-^{i} / pi-*, whereas Ú corresponds to *-i-*. On the basis of this comparison alone, it is attractive to assume that U stands for /o/, whereas Ú stands for /u/. The fact that this outcome perfectly matches the Hurrian practice to spell /o/ with U and /u/ with Ú makes this interpretation very likely to be correct. I therefore phonologically interpret the above forms as follows:

u-uḫ-ḫi	= /ʔóHi/,	cf.	*pé-e-eḫ-ḫi*	= /péHi/
a-ut-ti	= /ʔáuti/		*pa-it-ti*	= /páiti/
(*a-uš-zi*)			*pa-a-i*	
ú-me-e-ni	= /ʔuméni/ < */ʔuuéni/		*pí-ú-e-ni*	= /piuéni/
uš-t[*e-e*]*-ni*	= /ʔusténi/		*pí-iš-te-ni*	= /pisténi/
ú-u̯a-an-zi	= /ʔuántˢi/		*pí-i̯a-an-zi*	= /piántˢi/

This means that the *u*-preverbed verbs as mentioned above must be phonologically interpreted as follows: *ūnna-^{i} / ūnni-* 'to drive (here)', spelled *u-un-n°*, = /ʔoNa/i-/, *ūšii̯e/a-^{zi}* 'to draw open (curtains)', spelled *ú-uš-ši-* and *uš-ši-*, = /ʔuSié/á-/, *uppa-^{i} / uppi-* 'to send (here)', spelled *up-p°*, = /ʔupa/i-/, and *uda-^{i} / ud-* 'to bring (here)', spelled *ú-d°*, = /ʔud(a)-/.

In the following section I will carefully study the use of the signs U and Ú in specific phonetic environments, in order to determine (1) if a complementary distribution between U and Ú can be established for this environment, and if so, (2) how we can should interpret this distribution phonetically and historically.

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[67] In accordance with the view expressed above, we may expect that the oldest spelling of this form must have been ***ú-uš-te-e-ni*, cf. impf. *ú-uš-ke/a-* (OS).

1.3.9.4.a Word-initially before vowels

_*aC* : Here we basically find only the spellings *u̯a-* and *ú-u̯a-*. The spellings *ú-a°* and *u-a°* are extremely rare,[68] whereas the spelling *u-u̯a-* occurs in the middle paradigm of *au-^{i} / u-* 'to see' only.[69] As I stated under § 1.3.3 as well, I believe that the spelling *u̯a-* reflects phonological /ua-/ (e.g. *u̯a-a-tar* /uáːdr/ 'water' < **uódr*);[70] the spelling *ú-u̯a-* = /ʔua-/ (e.g. *ú-u̯a-a-tar* /ʔuáːdr/ 'inspection' < **Huótr*;[71] the spelling *u-u̯a-* represents /ʔoa-/ (e.g. *u-u̯a-aḫ-ḫa-at* /ʔoaHat/ 'I have become visible', cf. *au-^{i} / u-* for treatment).

_*eC* : Here we only find the spelling *ú-e-*, which denotes /ue-/ (e.g. *ú-e-ek-zi* /uékt^{s}i/ 'wishes' < **uéḱti*).

_*i̯C* : Here we find the spellings *ú-e°*, *ú-i°* and *ú-u̯i$_{3}$-*, which can stand for both /ui̯-/ as well as /ʔui̯-/. For instance, *ú-i-te-e-ni*, *ú-e-te-ni* 'to the water' = /ui̯déni/ < **u̯déni* << **udéni* and *ú-u̯i$_{3}$-te-na-aš* 'of the water' = /ui̯dénas/ < **u̯dénos* <<

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[68] To my knowledge, the spelling *ú-a°* only occurs in *ú-ar-aš-ḫa-an-zi* (KUB 10.66 vi 4), which duplicates *u̯*[*a-ar-aš-ḫa-an-zi*] (KBo 7.48, 12), and in *ú-a-i̯a-at-ten* 'you must send' (KUB 14.14 ii 36), which clearly is an error for normal *u-i-i̯a-at-ten* (see at the lemma of *ui̯e-^{zi} / ui̯-* 'to send'). The spelling *u-a°* is only attested in KBo 24.11 rev.$^{?}$ (10) [...]x-*še-eš u-an-za an-na-n*[*e-k°*], in which the interpretation of *u-an-za* (or 10-*an-za*?) is unclear.

[69] The attestation "*u-u̯a-al-lu-uš*" (KUB 29.1 iv 9) in my view is better read as 10 *u̯a-al-lu-uš* (see at ^{UZU}*u̯alla-, u̯alli-*). The spellings *u-u̯a-al-ḫ°* and *u-u̯a-al-aḫ-°* are found in one text only, KBo 16.50 obv. 10, 15, 20, and are so exceptional when compared to the other spellings of *u̯alḫ-* (±300 times with *u̯a-* in my files) that we can safely disregard them.

[70] Or /uə-/, e.g. *u̯a-ra-a-ni* = /uərʔǎni/ 'burns' or *u̯a-al-ḫa-an-zi* = /uəlHánt^{s}i/ 'they hit'.

[71] Of words that are normally spelled with *u̯a-*, we find only a few forms that show *ú-u̯a-*: *ú-u̯a-an-ti-u̯a-an-ta-az* 'lightning(?)' (KUB 17.10 ii 3) instead of normal *u̯a-an-t°* (see at *u̯ant-, u̯antae-, u̯antii̯e/a-*); *ú-u̯a-ar-ra* 'help' (KUB 31.4 obv. 3) instead of normal *u̯a-ar-r°* (see at *u̯arri- / u̯arrai-*); *ú-u̯a-ar-ka-an-ta-an* 'fat' (KBo 3.60 ii 3) instead of normal *u̯a-ar-k°* (see at *u̯arkant-*); *ú-u̯a-ar-ša-ma-an* 'firewood' (KUB 32.129 iv 3) instead of normal *u̯a-ar-š°* (as attested in ibid. 4, see at ^{GIŠ}*u̯aršma-*); and *ú-u̯a-aš-ta-i* 'offends' (KBo 3.28 ii 10) instead of normal *u̯a-aš-t°* (see at *u̯ašta-^{i} / u̯ašt-*). Since these are all unique forms that cannot compete with the manyfold attestations with *u̯a-* of the words to which they belong, I disregard them. The spelling *ú-u̯a-aḫ-nu-u̯a-ar* (KBo 3.2 i 66 *passim*), instead of correct *u̯a-aḫ-nu-mar* is clearly due to the fact that the author of this horse-training text is non-native. The only word that shows genuine alteration is *(u)u̯āi-* 'woe': *u̯a-a-i-in* (StBoT 25.3 iv 14, 40, StBoT 25.7 iv 9); *ú-u̯a-a-i-in* (StBoT 25.4 iv 27, 35, StBoT 25.7 iv 5); *ú-u̯a-a-i* (KBo 3.6 i 29, StBoT 24 i 34, iii 56, KUB 21.12+ iii 39, Bronzetafel iv 9, 16, 27, KUB 26.32 i 14, KUB 22.70 obv. 16); and *ú-u̯a-i* (VSNF 12.125 obv. 5, 10, 11, KUB 16.10, 7, KUB 23.1+ ii 32). Because this word is clearly onomatopoetic, it is irrelevant here.

**udéns*, whereas the spellings *ú-iš-ke/a-*, *ú-i-iš-ke/a-* and *ú-e-iš-ke/a-*, imperfectives of *u̯e-*^{zi} / *uu̯a-*^{zi} 'to come', must stand for /ʔuɨské/á-/ (a synchronic derivation of the stem /ʔué/á-/).

_iC : Here I only know of the spellings *ú-i*° and *u̯i*$_5$- that always stand for /uiC-/: *ú-i-it-t*° and *ú-it-t*° 'year' stand for /uit-/ < **uet-*; *ú-i-t*° and *u̯i*$_5$*-t*° stand for /uid-/ 'water' < **uedo-*.

All in all, in absolute word-initial position before vowels (note that *ú-u̯a-* = /ʔua-/ and *u-u̯a-* = /ʔoa-/ in fact belong to word-internal position), there is no distinction to be found between /u/ and /o/.

1.3.9.4.b Word-initially before consonants

There are only a few examples here.[72] The verb *ur-*$^{\bar{a}ri}$, which reflects **urh*$_1$*óri*, is in OS texts consistently spelled *ú-ra-a-ni*, pointing to /urʔáni/.[73] The verb *uš(ša)niu̯e/a-*^{zi} is always spelled *uš-(ša-)ni-*. I see no reason not to interpret this verb as /uSnie/a-/ < **usn-u̯e/o-*.

As we see, there is no trace of a distinction between /u/ and /o/ in absolute word-initial position before consonants.

1.3.9.4.c Word-internally between consonant and vowel

C_a : The spelling *Cu-a*° is quite common, especially in older texts (e.g. *ar-nu-an-da-an* = /ʔrnuántan/). The spelling *Cu-u̯a*° is the most common spelling, especially in younger texts (e.g. *ar-nu-u̯a-an-zi* = /ʔrnuántˢi/). The spelling *Cu-u-a*° is quite rare, but does not seem to differentiate from *Cu-a*° and *Cu-u̯a-* (e.g. *ar-ku-u-ar* = *ar-ku-ar* = *ar-ku-u̯a-ar* = /ʔrkʷuər/). This spelling occurs quite often when the sign ḪU precedes, the reason for which we will see below,[74] e.g. *ḫu-u-ap-* = *ḫu-u̯a-ap-*. The spelling *Cu-ú-a*° only occurs in *ka-ru-ú-a-ri-u̯a-ar*, which is a secondary form (see at the lemma *kareu̯ariu̯ar*). The spelling *Cu-u-u̯a-* is rather uncommon and is also predominantly found with a preceding sign ḪU (e.g. *ḫu-u-u̯a-ap-*, *ḫu-u-u̯a-an-za*, *iš-ḫu-u-u̯a-i*, etc.). Other examples are: *kap-pu-u-u̯a-an-zi* (= *kap-pu-u̯a-an-zi*), *kar-šu-u-u̯a-aš* (= *kar-šu-u̯a-aš*), *ka-ru-uš-ši-i̯a-*

[72] All other seeming examples like *ui̯e-*^{zi} / *ui̯-* 'to send', *ūk* 'I', *ūnna-*^{i} / *ūnni-* 'to send (here)', *uni* 'that', *unu-*^{zi} 'to decorate', *ūpp-*^{zi} 'to come up (of the sun)', *uppa-*^{i} / *uppi-* 'to send (here)', *ūrki-* 'trace', *ūššiu̯e/a-*^{zi} 'to open (curtains)' and *uda-*^{i} / *ud-* 'to bring (here)' reflect **H(V)uC*°, and therefore are treated under the paragraph 'Word-internally between consonants' (§ 1.3.4.9.f).

[73] From MH times onwards, this verb is spelled *u̯a-ra-a-ni* = /uərʔåni/, but that is irrelevant here.

[74] Namely that every /u/ following /H/ or /h/ automatically turns into /o/.

nu-u-u̯a-an-zi (= *ka-ru-uš-ši-i̯a-nu-u̯a-an-zi*), etc. The spelling *Cu-ú-u̯a-* is rare: it is attested in *a-ru-ú-u̯a-iz-zi* (= *a-ru-u̯a-iz-zi* and *a-ru-u-u̯a-iz-zi*), *ka-ru-ú-u̯a-ri-u̯a-ar* (which is a secondary form, see at *kareu̯ariu̯ar*), *ša-ak-ru-ú-u̯a-an-zi* (= *ša-ak-ru-u̯a-* and *ša-ak-ru-u-u̯a-*), *šu-ú-u̯a-i*° 'to spy' (= *šu-u̯a-i*°), *šu-ú-u̯a-ru-* 'heavy' (= *šu-u̯a-ru* and *šu-u-u̯a-ru*) and *šu-ú-u̯a-* 'to push' (= *šu-u̯a-* and *šu-u-u̯a-*).

I conclude that the spellings *Cu-a*°, *Cu-u̯a-*, *Cu-u-a*° and *Cu-u-u̯a-* are equivalent and denote phonological /Cua/. The spelling *Cu-ú-a*° as found in *ka-ru-ú-a-ri-u̯a-ar* is unique and is probably orthographically influenced by *ka-ru-ú*. The interpretation of the spelling *Cu-ú-u̯a-* is less clear since it is quite rare and the etymological interpretation of the words in which it occurs is controversial. Nevertheless, on the basis of the fact that *a-ru-ú-u̯a-iz-zi* is also spelled *a-ru-u̯a-iz-zi* and *a-ru-u-u̯a-iz-zi*, I conclude that in the sequence *C_a* the difference between the sign U and Ú does not denote a distinction between /o/ and /u/.

Note however, that as we see in § 1.3.9.4.a above, there is a distinction in the sequence *#ʔ_a*, namely *ú-u̯a-* = /ʔua-/, e.g. *ú-u̯a-a-tar* /ʔuā́dr/ 'inspection' < **Huótr*, and *u-u̯a-* = /ʔoa-/, only attested in the middle paradigm of *au-*^{i} */ u-* 'to see', e.g. *u-u̯a-aḫ-ḫa-at* /ʔoaHat/ 'I have become visible'. Since these middle forms are recently created (see at *au-*^{i} */ u-*), the phonemic difference between /ʔua-/ and /ʔoa-/ must be a recent innovation as well.

C_e : The spellings *Cu-e*°, *Cu-u-e*° and *Cu-ú-e*° are all used in equal environments, which shows that they should be regarded phonologically equal as well: e.g. *ak-ku-e-ni* = *ak-ku-u-e-ni* = /ʔkuéni/ 'we die', [*a*]*p-pu-ú-e-ni* = *e-ep-pu-e-ni* = *e-ep-pu-u-e-ni* = /ʔpuéni, ʔépueni/ 'we grab', *ḫa-aš-šu-ú-e-ni* = *ḫa-aš-šu-e-ni* = /HSuéni/ or /HəSuéni/ 'we open', *še-ek-ku-e-ni* = *še-ek-ku-u-e-ni* = *še-ek-ku-ú-e-ni* = /sékueni/ 'we know', etc. Again, there is no indication that the signs U and Ú denote a difference between /o/ and /u/ in this environment.

C_i : The spellings *Cu-i*°, *Cu-u-i*°, *Cu-ú-i*°, *Cu-u̯i*$_5$- and *Cu-u-u̯i*$_5$- are used in equal surroundings, e.g. *ḫa-ap-pu-i* = *ḫa-ap-pu-u-i* = *ḫa-ap-pu-ú-i* /Hapui/, *pár-ku-iš* = *pár-ku-u-iš* = *pár-ku-ú-iš*$^{!}$ = /prk^{w}is/; *pa-aš-šu-i* = *pa-aš-šu-u-i* = *pa-aš-šu-ú-i* = *pa-aš-šu-u̯i*$_5$ = /paSui/; *ḫu-i-ša-u*° = *ḫu-u-i-ša-u*° = *ḫu-u-u̯i*$_5$*-ša-u*° = /H^{w}isau-/, which shows that in this position the signs U and Ú do not represent distinct phonemes. The spelling *Cu-u-i*° occurs especially often when the sign ḪU precedes (see below). The form *ka-ru-ú-i-li-* 'former' is a synchronic derivative in *-ili-* of the adverb *ka-ru-ú* 'early, formerly' and therefore probably

represents /krṹili/. The words *šūil* ‘thread’ and *mūil* ‘spade(?)’ are treated under *C_?*.

C_u : The only word that seems to belong here, viz. *šūu- / šūu̯au̯-* ‘full’, in fact reflects **souH-u-* and therefore will be treated under *C_?*.

1.3.9.4.d Word-internally between vowels

a_a : We find the spellings °*a-u-a*°, °*a-u̯a-*, °*a-ú-u̯a-* and °*a-u-u̯a-* in equal positions: e.g. *a-ra-u-aš* = *a-ra-u-u̯a-aš* = *a-ra-u̯a-aš* = /ʔarauas/; *ḫar-na-a-u-aš* = *ḫar-na-a-u̯a-aš* = *ḫar-na-ú-u̯a-aš* = *ḫar-na-a-u-u̯a-aš* = /Hrnā̆uas/. It must be admitted, however, that the spelling °*a-ú-u̯a-* is quite rare, and seems to have a special function in the paradigm of *auri-* ‘look-out’. Here we find gen.sg. *a-ú-ri-i̯a-aš* besides *a-ú-u̯a-ri-i̯a-aš* for phonological /ʔaurias/ < **Hou-ri-os*, which could either be phonetically realized as [ʔauriʲas] spelled *a-ú-ri-i̯a-aš*, or as [ʔawɾ̥jas] spelled *a-ú-u̯a-ri-i̯a-aš*. Note that the sequence °*a-ú-a*° is only attested in KBo 30.51 iv[?] (1) [...*(-)g*]*a*[?]*-ú-a*[*n(-)*...], if this is the correct reading.

a_e : In this position we predominantly find the spelling °*a-u-e*°. The spelling °*a-ú-e*° is rare, but when attested, it is identical to °*a-u-e*°: *a-aš-ša-ú-e-et* = *a-aš-ša-u-e-et*; *ḫal-zi-i̯a-ú-en* = *ḫal-zi-i̯a-u-en*; compare [*z*]*i-in-na-ú-e-ni* to e.g. *a-ri-i̯a-u-e-ni*.[75]

a_i : Although the spellings °*a-ú-i*° and °*a-u-i*° are occasionally interchangeable (e.g. *ḫar-na-(a-)ú-i* (often) = *ḫar-na-u*[*-i*] (1x); *i-ta-a-la-ú-i* (1x) = *i-da-a-la-u-i* (often)), some words are consistently spelled °*a-ú-i*°: e.g. *nāu̯i* ‘not yet’ is spelled *na-a-ú-i* (OS), *na-ú-i* (OH/NS), *na-a-u̯i*$_5$ (OH?/NS, MH/NS), *na-u̯i*$_5$ (NH) and *na-u-u̯i*$_5$ (OH?/NS), but never ***na-a-u-i*; *šāu̯idišt-* ‘yearling’ is spelled *ša-a-ú-i*° and *ša-ú-i*°, but never ***ša-a-u-i*° or ***ša-u-i*°; ^{SI}*šāu̯ītra-* ‘horn’ is spelled *ša-a-ú-i*° and *ša-ú-i*° but never ***ša-a-u-i*° or ***ša-u-i*°. It is remarkable that Ú almost consistently occurs when a long /ā/ is preceding, whereas U is used after a short /a/. So *Ca-a-ú-i*° = *Ca-ú-i*° = /Cāui°/, whereas *Ca-u-i*° = /Caui/ (or /Caoi/?). The exact reason for this distribution is unclear to me.

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[75] In *a-ú-e-er* and *a-ú-er* (never ***a-u-e-er*) ‘they saw’ and *ma-ú-er* (never ***ma-u-er*) ‘they fell’, the spelling with *-ú-* is influenced by the spelling of the diphthong /au/, which in these verbs is always spelled °*a-ú-CV*°. The word *la-la-ú-e-ša-* ‘ant’ (never ***la-la-u-e-ša-*) is the Luwian variant of Hitt. *la-la-ku-e-ša-*.

e_a : Here we predominantly find the spellings °*e-u̯a-*, °*e-u-a*° and °*e-u-u̯a-*, which are interchangeable: *me-mi-iš-ke-u̯a-an* = *me-mi-iš-ke-u-an* = *me-mi-iš-ke-u-u̯a-an* = /memiskéuən/; *e-u̯a-an* = *e-u-u̯a-an* = /ʔéuan/; *ne-e-u̯a-an* = *ne-e-u-u̯a-an* = /néuan/. The spelling °*e-ú-u̯a-* only occurs in *ka-re-ú-u̯a-ri-u̯a-ar*, which is spelled *ka-re-u̯a-ri-u̯a-ar* as well, and in [*k*]*u-re-ú-u̯a-nu-uš*, which is spelled *ku-re-e-u̯a-n*° and *ku-re-u̯a-n*° as well. The spelling °*e-ú-a*° is not attested at all.

e_e : In this position we only find the spelling °*e-u-e*°: *ku-e-u-e-en* 'we killed', *da-aš-ke-e-u-e-ni* 'we are taking', *ḫé-e-u-e-eš* 'rains'. The spelling °*e-ú-e*° to my knowledge does not occur.

e_i : The only cases known to me are *ne-e-u-it* (instr.) 'new' and *ú-e-u-iš-ke-u-an* (KBo 24.5 ii 10) 'crying'. The spelling °*e-ú-i*° does not occur.

i_a : The normal spelling is °*i-u̯a-*, e.g. *i-u̯a-ar*, *a-ši-u̯a-an-t-*, *mi-iš-ri-u̯a-an-t-*, *ka-ru-ú-u̯a-ri-u̯a-ar*, etc. Very rarely, we find the spellings °*i-u-u̯a-* (*ḫa-aḫ-li-u-u̯a-an-za*, *na-an-ni-u-u̯a-an-zi*, *ti-u-u̯a-an-zi*, *ka-ru-ú-u̯a-a-ri-u-u̯a-ar*), °*i-ú-u̯a-* (*me-mi-ú-u̯a-an-zi*, *ši-ú-u̯a-at-ti* = *ši-u̯a-at-ti*, *ar-ki-ú-u̯a-az* = *ar-ki-i-ú-az*), °*i-ú-a*° (*ar-ki-i-ú-az* = *ar-ki-ú-u̯a-az*) and °*i-u-a*° (*zi-in-ni-u-an-zi*, *ka-ru-ú-u̯a-ri-u-ar*). There is no indication against the assumption that all these spellings denote phonological /Ciua/.

i_e : We find both the spelling °*i-ú-e*° and °*i-u-e*° in the same environments, although °*i-ú-e*° seems to occur more often than °*i-u-e*°: *me-mi-u-e-ni*, *mi-iš-ri-u-e-eš-zi* vs. *ḫal-zi-ú-en*, [*ḫu-et-*]*ti-ya-an-ni-ú-e-ni*, *mi-im-mi-ú-en*, *pí-i-ú-e-ni*, *pí-ú-e-ni*, *pé-en-ni-ú-e-ni*, etc. Once we even find °*i-ú-u-e*°, in *pa-i-ú-u-en* (KBo 3.60 iii 1). It is clear that all spellings denote /Ciue/.

i_i : This position is not well attested in native Hittite words. We find a spelling °*i-ú-i*° in *ú-i-ú-i-iš-ke/a-*, the imperfective of *u̯iu̯ai-*^{i} / *u̯iu̯i-* 'to scream' and in *u̯i*$_5$*-ú-i-da-a-i* (KBo 5.4 rev. 29) = *ú-i-u̯i*$_5$*-ta-*[*a-i*] (KBo 5.4 rev. 36). Other cases are the city name ^{URU}*Ku-li-ú-iš-na* (also spelled ^{URU}*Ku-li-u̯i*$_5$*-iš-na*), dat.-loc.sg. ^{É}*ar-ki-ú-i* 'vestibule(?)' and *ḫa-az-zi-ú-i* 'ritual' (also spelled *ḫa-az-zi-u̯i*$_5$). A spelling °*i-u-i*° is found in [^{É}*ḫ*]*a-le-ti-u-i* and [^{É}]*ḫa-le-en-ti-u-i*, dat.-loc.sg. of ^{É}*ḫalent(i)u-* 'palace' only.[76] It is quite possible that in these words the spelling °*i-ú-i*° and °*i-*

[76] The spelling *ni-u-i-i*[*t*] (KUB 31.91, 5), instr. of *nēu̯a-*, must represent the same form as the spelling *ne-e-u-it*, and therefore should be read *né-u-i-i*[*t*].

u-i° represent phonetically different forms. Since the stem of ^{É}*ḫalent(i)u-* is consistently spelled *ḫa-le-en-ti-u*, it probably was /Halentio/. This makes it likely that the spelling *ḫa-le-en-ti-u-i* stands for /Halentioi/. It must be noted that ^{É}*ḫalentiu-* is not a native Hittite word, and that we have no evidence for other instances of a sequence /ioi/.

1.3.9.4.e Word-internally between vowel and consonant

a_C : First, we should distinguish between *a_CV* and *a_C# / a_CCV*: the former must be spelled °*a*-U-*CV* or °*a*-Ú-*CV*, whereas the latter can be spelled °*a-uC(-CV)*.

In the case of *a_CV*, we find many words that show a consistent spelling °*a-ú-CV*, e.g. *a-ú-me-ni* 'we see', *a-ú-me-en* 'we saw' (never **a-u-me-), *a-ú-ri-* 'lookout' (never **a-u-ri-), *a-ú-li-*, a certain organ (never **a-u-li-), *an-na-ú-li-* 'of equal rank' (never **an-na-u-li-), *ša-ú-di-iš-t*°, *ša-a-ú-ti-iš-t*° 'weanling' (never ***ša(-a)-u-Ti-*). In some other words, we do find both U and Ú, however, e.g. *pár-ta-ú-na-aš = pár-ta-u-na-aš*, *a-ša-ú-ni = a-ša-u-ni*, e.a. It is remarkable that this situation occurs in front of *-n-* only, and that there seems to be a chronological distribution between the forms: in OS texts we only find °*a-ú-n*°,[77] in MS texts predominantly °*a-ú-n*° and occasionally °*a-u-n*°,[78] in NS texts predominantly °*a-u-n*°.[79] This seems to point to a change of OH °*a-ú-n*° to NH °*a-u-n*°, which then must be phonologically interpreted as OH /Caun/ > NH /Caon/.

In the case of *a_C# / a_CCV*, the situation is less clear, mainly because the number of plene *u*-spellings is so low. It is perhaps best to look at the cases one by one. The spelling °*a-u-uC(-CV)* is found in the following forms:

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[77] *a-ša-ú-ni* (KBo 6.2+ iii 49 (OS)), *pár-ta-ú-ni-t=u-uš* (KBo 17.1 i 6 (OS)), [*pá*]*r-ta-ú-na-aš* (KUB 36.49 i 8 (OS?)).

[78] *a-ša-ú-ni* (KBo 6.3 iii 53 (OH/NS)), *a-ša-ú-na-az* (KUB 30.10 obv. 15 (OH/MS)), *pár-ta-ú-ni-it* (KUB 32.122, 6, 7 (MS?)) vs. *a-aš-ši-ia-u-ni-it* (KUB 33.62 ii 20 (OH/MS)) and *ḫu-et-ti-ia-u-ni* (KUB 15.34 iv 61 (MH/MS)).

[79] *a-ša-u-ni* (KUB 13.5 ii 22 (OH/NS)), *a-ša-u-na-az* (KUB 13.4 iv 59 (OH/NS), KUB 24.3 ii 12 (MH/NS)), *pár-ta-u-na-az* (KBo 8.155 ii 9 (NS)), *pár-da-u-na-az* (KBo 27.163, 7 (MH/NS)), *pár-da-a-u-na-za* (KBo 33.188 iii? 14 (MH/NS)), *pár-ta-a-u-ni-it* (KBo 4.2 i 4 (OH/NS), KUB 15.31 i 35, ii 40 (MH/NS)), *pár-ta-u-ni-it* (KUB 15.32 i 37 (MH/NS), KBo 15.48 ii 6, 27 (MH/NS)), *pár-ta-u-na-aš* (VBoT 125, 3 (NS)), *ša-ra-u-na-an-za* (KUB 18.11 rev. 5 (NH)) vs. *ḫar-ša-ú-n*[*i*] (175/w obv. 8 (NS)), *ḫar-ša-ú-na*[*-aš*] (KBo 6.34 ii 39 (MH/NS)) and *pár-ta-ú-ni-it* (KUB 33.8 ii 16 (fr.), 17 (fr.) (OH/NS)).

pa-a-u-un 'I went': this spelling is found multiple times, but only in NS texts, and contrasts with the spelling *pa-a-ú-un* that is found in MS texts. The neutral spelling *pa-a-un*, without a plene *u*-vowel, is attested in OS, MS and NS texts. In my view, the spelling change of *pa-a-ú-un* > *pa-a-u-un* again points to the change of OH and MH /pa̯un/ to NH /pa̯on/ (cf. above).

i-i̯a-u-un 'I did' (KBo 4.10 obv. 50) can hardly be correct and must probably be emended to *i-i̯a-nu*$^{!}$*-un*.

acc.pl.c. [*ḫal-*]*lu-ú-u̯a-u-uš* (KBo 3.8 iii 4 (OH/NS)), *ḫal-lu-u̯a-u-uš* (KBo 26.135, 2 (OH/NS)) and *pár-ga-u-uš* (KBo 3.8 iii 22 (OH/NS)) are to be regarded as grammatically incorrect forms showing *-au̯uš* instead of correct *-amuš* as attested in e.g. *ḫal-lu-u̯a-mu-uš* (KBo 12.86 obv. 19, KUB 17.10 i 26, etc.) and *pár-ga-mu-uš* (KUB 17.10 i 24, KUB 12.63 i 30, etc.). Since the sign U is used 'intervocalically' here, the forms are irrelevant for our discussion.

ta-ḫa-a-ta-u-uš-ša-aš (KBo 25.112 ii 7 (OS)) is a hapax of non-IE origin (cf. the single *-ḫ-*) and therefore irrelevant here.

da-ra-a-u-ur (KBo 22.186 v 2 (OH/NS)) 'handful(?)' stands in development between *ta-ra-a-ur* (KBo 17.74+ i 53 (OH/MS)) and *ta-ra-a-u-u̯a-ar* (KUB 44.64 i 5, 10 (NS)).[80] The first two spellings point to a phonological interpretation /tra̯or/, whereas *ta-ra-a-u-u̯a-ar* = /tra̯uər/. In my view, the word /tra̯or/, for which I know no convincing etymology, and which may be of a foreign origin, has been reinterpreted as an abstract noun in *-u̯ar*, and secondarily changed to /tra̯uər/ in younger times.

ti-e-ra-u-ur-ta-an (KBo 3.2 lower edge 2, KBo 3.5+ ii 37) and *ti-e-ru-u-ur-ta-an-na* (KBo 3.5+ iii 17) 'for three rounds' is also spelled *ti-e-ra-u̯a-ar-ta-an-na* (KBo 3.2 obv. 65) and *ti-e‹-ra›-u̯a-ar-ta-an-na* (KUB 1.11+ iv 35). Because it is of foreign origin (< Indo-Aryan **tri-vartana-* vel sim.) it is irrelevant here.

The spelling °*a-ú-uC(-CV)* is found in the following forms:

a-ú-um-me-ni 'we see' and *a-ú-um-me-en* 'we saw' are clearly NH adaptations of older *a-ú-me-ni* and *a-ú-me-en*.

a-ú-uš-ta (KBo 3.60 i 8 (undat.)) 'he saw' is a combination of the normal spelling *a-uš-ta* and other forms of the verb *au-*^{i} / *u-* that are spelled *a-ú-* (like *a-ú-me-ni* and *a-ú-me-en* above).

[80] Cf. Rieken 1999: 352.

ḫar-na-a-ú-uš (KUB 9.22 ii 40) is a mistake for *ḫar-na-iš* 'sap', and therefore irrelevant.[81]

ḫar-na-ú-un (ABoT 17 ii 9 (MH/NS)) seems to denote /Hrnā́un/. Although this is not impossible in a NS text (especially since it is a copy of a MH text), we would rather have expected /Hrnā́on/, spelled ***ḫar-na-u-un*.

acc.pl. ^{NINDA}*ḫar-ša-ú-uš* (KBo 17.4 ii 17 (fr.) (OS), KUB 7.8+ ii 11 (NS)) 'thick-bread' is equivalent to ^{NINDA}*ḫar-ša-uš* and ^{NINDA}*ḫar-ša-a-uš* and must represent /HárSāus/ < */HárSaius/.

iš-ḫu-na-ú-uš (KBo 32.14 ii 49 (MH/MS)) 'upper arm' is equivalent to *iš-ḫu-na-a-uš* (KBo 32.14 rev. 44, l.edge 1 (MH/MS)), *iš-ḫu-na-uš*[!] (text: *-aš*, KUB 9.34 ii 25 (MH/NS)) and must represent /ɨsHunā́us/ < **sh₂u-nṓus*.

la-a-ú-un (KUB 7.1 iii 20 passim) is a mistake for 3sg.imp.act. *la-a-ú*[82] and therefore irrelevant here.

pa-a-ú-un (KBo 16.59 rev. 5 (MS), KBo 16.42 obv. 24 (MS), KUB 34.45 + KBo 16.63 obv. 13 (MS)) represents /pā́un/, which in younger times phonetically changed to /pā́on/, spelled *pa-a-u-un* (cf. above).

ta-lu-ga-ú-uš (KBo 17.22 iii 6 (OS)) is equivalent to the spellings *da-lu-ga-uš* and *ta-lu-ga-uš* and represents /talugāus/ < */talugaius/.

So we can conclude that the diphthong /au/ is lowered to /ao/ before /n/ from MH times onwards, but is preserved as such in other positions.[83]

i_C

First I will treat the words that show a spelling °*i-ú-CV* or °*i-ú-uC*:

a-ni-ú-úr and *a-ni-ú-ri* are occasional spellings for normal *a-ni-u-ur* and *a-ni-u-ri*. See at *aniūr* below.

aš-ḫa-i-ú-ul (KUB 24.10 iii 18, KUB 24.11 iii 17) // *aš-ḫa-i-ú-úr* (KBo 21.8 iii 6) // *a-aš-ḫa-ú*[-...] (KBo 12.126 rev. 14) is of unclear meaning. Since this word can hardly be of native origin,[84] it is irrelevant here.

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[81] The text is quite corrupt: KUB 9.22 ii (39) ^{DUG}*kap-pí=ma-a=š-ša-an ku-iš* (40) *ḫar-na-a-ú-uš la-ḫu-an-zi* should actually have been ... *ku-iš ḫar-na-iš la-ḫu-an-za* 'what sap has been poured into the vessel'.

[82] Cf. CHD L-N: 1.

[83] Prof. Kortlandt informs me that from a typological point of view the lowering of /au/ to /ao/ before /n/ should be interpreted as the rise of nasal vowels: /aun/ > /aǫ/.

[84] A sequence °*aiu*° does not originally occur in Hittite words: *pa-a-i-ú* 'he must give' is a secondary formation instead of more original *pa-a-ú* < **hₗpói-u*, in which the stem *pāi-* was restored. All other cases where we find °*aiu*°, we are dealing with either names or words of foreign origin.

ḫé-i-ú-un (KBo 3.7 ii 25 (OH/NS)) is a hapax spelling for normal *ḫēun* 'rain' and therefore will be treated below under *e_C*.

imiūl (n.) 'grain mix, horse feed' is consistently spelled with Ú: nom.-acc.sg. *i-mi-ú-l=a-a=š-ma-aš* (KUB 29.41, 8 (MH/MS)), *i-mi-ú-ul* (KBo 12.126 i 29 (OH/NS)), *im-mi-ú-ul* (KBo 4.2 ii 33 (OH/NS), KUB 7.54 ii 17 (fr.) (NS)), *im-mi-i-ú-ul* (KBo 10.37 ii 15 (OH/NS)). These spellings point to /imiú̯ul/ < **im-ié-ul*.

išḫiūl (n.) 'binding, treaty' and its derivative *išḫiulaḫḫ-*^{i} 'to bind by treaty' are consistently spelled with Ú: nom.-acc.sg./pl. *iš-ḫi-ú-ul,* gen.sg. *iš-ḫi-ú-la-aš*, nom.-acc.pl. *iš-ḫi-ú-li*, 3pl.pres.act. *iš-ḫi-ú-la-aḫ-ḫa-an-zi*, part. *iš-ḫi-ú-la-aḫ-ḫa-an-t-*. These spellings point to /ɨsHiú̯ul/ < **sh₂-ié-ul*.

iuk, iuka- (n.) 'yoke, pair' and its derivatives *iuga-* 'yearling', *iugašša-* 'yearling' and *tāi̯uga-* 'two-year-old' are always spelled with Ú: nom.-acc.sg. *i-ú-uk* (KBo 25.72 r.col. 11 (OS)), *i-ú-kán* (KBo 12.22 i 11 (OH/NS), KBo 12.131 r.col. 5 (OH/NS), KUB 31.4 + KBo 3.41 obv. 7 (OH/NS)), *i-ú-ga-an* (KBo 13.78 obv. 2 (OH/NS), KUB 7.8 ii 8 (MH/NS)), dat.-loc.sg. *i-ú-ki* (KUB 13.5 ii 21 (OH/NS)); nom.sg.c. *i-ú-ga-aš* (OS), acc.sg. *i*$^{!}$*-ú*$^{!}$*-ga-an* (text: *ú-i-ga-an*, KBo 17.65 rev. 53 (MS)), gen.sg. *i-ú-ga-aš*, acc.pl.c. *i-ú-ga-aš*; gen. pl. *i-ú-g*[*a-aš*]*-ša-a*[*n*] (OS), *i-ú-ga-aš-ša-aš* (OH/NS)); nom.sg.c. *ta-a-i-ú-ga-aš* (OS), *ta-a-ú-ga-aš* (OH/NS), gen.sg. *ta-a-i-ú-ga-aš* (OS), acc.pl.c. *ta-a-i-ú-ga-aš*. All these spellings point to /iug-/ < **iug-*.

acc.pl.c. *kap-pí-ú-uš* (KBo 34.47 ii 8 (MH/MS)) of *kappi- / kappai-* 'small' is a younger adaptation of original *kap-pa-uš* (KUB 12.63 obv. 31 (OH/MS)) < **kappai̯uš*. So *kap-pí-ú-uš* must stand for /kapius/.

^{TÙG}*ka-ri-ú-ul-li* 'hood', also spelled *ka-ri-ul-li* is a derivative in *-ulli-* of *kariḭe/a-*^{zi} 'to cover', so represents /kriú̯uLi/ < **kr-ié-ul*+.

acc.pl.c. *ku-i-ú-uš* (HKM 23 obv. 9 (MH/MS), KBo 18.57a + 57 obv. 2, rev. 42 (MH/MS)) of the interrog. / indef. pronoun *kui- / kue- / kuṵa-* is usually spelled *ku-i-uš* and stands for /k^{w}ius/.

acc.pl. *ma-ši-ú-u*[*š*]$^{?}$ (KBo 9.109 rev. 4) of *maši-* 'how many' represents /masius/.

mīu- / mīḭaṵ- (adj.) 'soft, mild' and its derivatives *mīumar* 'gentleness' and ^{NINDA}*mīumīu(t)-* "soft bread" are always spelled with Ú:[85] nom.sg.c. *mi-i-uš* = *mi-i-ú-uš* = *mi-ú-uš* = /mí̯us/ < **mih₁-u-s*, acc.sg.c. *mi-i-ú-un* = /mí̯un/ < **mih₁-u-m*, nom.-acc.sg.n. *mi-i-ú* = *mi-ú* = /mí̯u/ < **mih₁-u*; nom.-acc.sg. *mi-i-ú-mar* = *mi-ú-mar* = *mi-ú-um-mar* = /mí̯umr/ < */mí̯uur/, instr. *mi-ú-um-ni-it* =

[85] Note that CHD L-N: 307 incorrectly cites nom.sg.c. "*mi-u-uš*" (KUB 39.41 obv. 17 (NS), KUB 33.38 iv 10 (OH/MS)): these forms actually are *mi-ú-uš*.

/míumnit/ < */míuunit/; nom.-acc.sg. *mi-ú-mi-ú* (MH/NS), *mi-i-ú-mi-u=š-ša-an*, *mi-i-ú-mi-i-ú* = /mīumīu/, etc.

pár-ši-ú-ul-li 'crumb' is derived from *paršiie/a-*^{ari} 'to break' and represents /prSiúLi/ < *b^h*rs-ié-ul*+.

acc.pl. *pu-u-ri-ú-uš* of *pūri-* 'lip, ridge' equals *pu-u-ri-uš* and *pu-ri-uš* and represents /pórius/.

šīu- (c.) 'god' and its derivatives *šīuna-* 'god', *šiunala-* 'divine one(?)' and *šiuniiaḫḫ-*$^{(tt)a}$ 'to be hit by a disease' are always spelled with Ú: nom.sg. *ši-i-ú-uš* (OS), *ši-ú-uš*, *ši-uš=mi-iš* (OS) = /sí̯us/, acc.sg. *ši-ú(n)=šum-m*[*i-in*] (OS), *ši-ú-n=a-an* = /sí̯un/, gen.sg. *ši-ú-na-aš* (OS) = /sí̯unas/, dat.-loc.sg. *ši-ú-ni* (OS), *ši-i-ú-ni* (OH/MS) = /sí̯uni/, abl. *ši-ú-na-az* (OH/NS), instr. *ši-ú-ni-it* (OH/NS), gen.pl. *ši-ú-na-an*, dat.-loc.pl. *ši-ú-na-aš* (OS), *ši-i-ú-na-aš* (OH/NS); nom.pl. *ši-ú-na-li-eš*; 3sg.pres.midd. [*š*]*i-ú-ni-aḫ-ta*, *ši-ú-ni-ia-aḫ-ta*, *ši-e-ú-ni-aḫ-ta*, 3sg.pret.midd. *ši-ú-ni-ia-aḫ-ḫa-ti*.

^{NINDA}*zu-ri-ú-un* is hapax (KBo 22.186 v 7) and probably of foreign origin (cf. *zu-*) and therefore of little value here.

The following words show the spelling °*i-u-CV* or °*i-u-uC(-CV)*:

aniūr (n.) 'ritual' is predominantly spelled with U: nom.-acc.sg. *a-ni-u-ur* (KBo 15.19 i 18 (NS), KBo 15.29 obv. 6 (NS), KBo 19.144 i 25 (NS), KBo 20.87 i 7 (NS), KUB 9.15 iii 20 (NS), KUB 12.58 ii 31 (NS), KUB 22.40 iii 29 (NS), KUB 29.4 i 7, 15 (NH), KUB 32.123 ii 33, 47, iii 11 (NS)), *a-ni-ur* (KUB 46.38 ii 6 (NS), KUB 46.42 ii 12 (NS)), gen.sg. *a-ni-u-ra-aš* (KUB 35.18 i 9 (MS), KBo 21.1 iv 3 (MH/NS)), *a-ni-ur-aš* (KBo 12.126+ ii 19 (NS)), dat.-loc.sg. *a-ni-u-ri* (KUB 35.54 iii 45 (MS)), erg.sg. *a-ni-u-ra-an-za* (KUB 41.9 iv 38 (OH/MS)). Nevertheless, I know of four instances where we find a spelling with Ú, namely *a-ni-ú-úr* (KBo 19.92, 4 (OH/NS), KUB 5.6 ii 52, 59 (NS)) and *a-ni-ú-ri* (KUB 5.6 iii 30 (NS)). Since three of these occur on the same tablet (KUB 5.6), we are actually talking of two instances. Since I am not able to explain these spellings with Ú in comparison with those with U in phonological or chronological terms, I assume that the spellings with Ú are mere mistakes and that the spellings with U are the correct ones. This would mean that *a-ni-u-ur* represents /ʔniór/ < *h_3*n-ié-ur*.

instr. *a-aš-ši-u-ni-it* (KUB 33.62 ii 20) from *āššiiauuar* 'love' is probably a scribal error for *a-aš-ši-‹ia-›u-ni-it* as is attested on the same tablet: *a-aš-ši-ia-u-ni-it* (ibid. 20). This form therefore is irrelevant here.

nom.pl. *mi-u-ri-šę*[*-eš*?] (KBo 17.17 iv 4 (OS)) and dat.-loc.pl. *mi-u-ra-aš* (KUB 43.53 i 14 (OH/NS)) denote a certain body part, but details are unclear.

ši-iš-ši-u-ri-iš-ke/a- (KUB 31.84 iii 54, 55) 'to irrigate' apparently represents /siSior̯iské/á-/, derived from a noun */siSiór/ < *$h_1$si-h_1s-ié-ur*.

It is remarkable that the sign U only occurs in words where the consonant *-r-* follows, whereas in all other cases we find the sign Ú. This points to a lowering of */iur/ to /ior/, which has happened in pre-Hittite already (cf. OS. *mi-u-ri-*). Note that /iun/ remains unchanged and does not show a lowering comparable to */aun/ > /aon/.

e_C

Apart from the one spelling *e-ú-uk-zi* 'he drinks', which is equivalent to *e-uk-zi* and *e-ku-zi* and therefore must represent /ʔégʷtˢi/, a spelling °*e-U/Ú-uC*° only occurs in *ḫēu- / ḫēi̯au̯-* 'rain' and *me(i)u- / mei̯au̯-* 'four'.

The nom.sg. of *ḫēu-* is spelled *ḫé-e-ú-uš*, *ḫé-e-uš* as well as *ḫé-uš*, which points to Hitt. /Héus/ < /Héʔus/ < *$h_2$éih_3-u-s*. The acc.sg. is usually spelled *ḫé-e-un* (attested in OS texts already), but occurs as *ḫé-ú-un* and *ḫé-i-ú-un* in some OH/NS texts and as *ḫé-e-u-un* in an MH/NS text. This seems to point to a phonetic change within Hittite, namely OH /HéʔunI,[86] spelled *ḫé-ú-un*, develops through /Héun/ into younger /Héon/, spelled *ḫé-e-u-un*.[87] For this lowering, compare the lowering of /au/ to /ao/ in front of /n/ in § 1.3.9.4.e. The nom.pl.-forms *ḫé-e-u-uš* (KUB 7.5 i 17 (MH/NS)) and *ḫé-e-u*[*-u*]*š* (KUB 19.50 iv 27 (NH)), the acc.pl.-form *ḫé-u-uš* (KBo 3.7 ii 22 (OH/NS)) and *ḫé-e-ú-uš* (KUB 16.37 iv 6 (NH), KUB 28.4 obv. 19 (NS)) as well as dat.-loc.pl.(?) *ḫé-e-u-uš* (KBo 13.245 rev. 7 (NS)) in my view all are formally acc.pl.-forms that should be interpreted as *ḫēu̯uš*, an incorrect secondary formation instead of correct *ḫēmuš* as attested in e.g. *ḫé-e-mu-uš* (KUB 24.1 iv 15), *ḫé-mu-uš* (KUB 51.50 obv. 14) and *ḫe-e-mu-ú-uš* (KBo 43.137 l.col. 7) = /Hémus/ < */Héuus/ < */HéʔuusI/.

In the paradigm of *mei̯u- / mei̯au̯-*, the only relevant form is acc.pl.c. *mi-e-ú-uš* (KUB 31.127 i 52), which must be read as *mei̯u̯uš*, an incorrect formation instead of expected **memuš*, or even better ***mei̯amuš* < **mei̯au̯uš*.

1.3.9.4.f Word-internally between consonants

If there is a phonological distinction between /o/ and /u/ in interconsonantal position, we would expect that each word that shows a plene spelling with one of the *u*-signs is consistent in its spelling: either it is spelled with U or it is spelled

[86] For /-ʔ-/, cf. § 1.4.5.b.

[87] Or /Héun/ > /Héǫ/, cf. note 83.

with Ú. This is not always the case, however: we do find words of which some forms are spelled with U and others with Ú. Let us look at these cases:

apūn 'that (one)' (acc.sg.c.) is consistently spelled *a-pu-u-un* (more than 150x in my text files),[88] but once we find the spelling *a-pu-ú-un* (KBo 6.2 ii 32 (OS)). In my view, this last spelling must be a mistake, which is strengthened by the fact that on the same tablet we find the aberrant form *ḫu-ú-ni-ik-zi*, which is usually spelled *ḫu-u-ni-ik-zi* (see below).

apūš 'those (ones)' (acc.pl.c.) is almost always spelled *a-pu-u-uš* (more than 210x in my files),[89] but once we find a spelling *a-pu-ú-uš* (KUB 14.14 obv. 21 (NH)). In my view, this spelling must be a mistake, just as the form *ku-u-ú-uš* (ibid. rev. 31) instead of normal *ku-u-uš* (see below).

arša(r)šur- (n.) 'flowing, stream' is attested multiple times with the sign U: nom.-acc.sg. *ar-ša-aš-šu-u-ur* (KBo 23.9 i 12 (OH/NS)), nom.-acc.pl.n. *ar-šar-šu-u-ra* (KUB 33.13 ii 14 (OH/NS)), *ar-ša-ar-šu-u-ri-i=š-ši-it* (KUB 36.55 ii 26 (OH/MS)), acc.pl.c. *ar-šar-šu-u-ru-uš* (KBo 33.10, 10 (OH/MS)), case? [*a*]*r-ša-ar-šu-u-ra-aš* (KBo 26.135, 6 (OH/NS)). Once we find a spelling with Ú, however: nom.-acc.pl. *ar-ša-a-aš-šu-ú-ri-i=š-ši-it* (KUB 36.55 ii 20 (OH/MS)). It is remarkable, however, that only 6 lines below this form we find *ar-ša-ar-šu-u-ri-i=š-ši-it* with a plene U. In my view, this indicates that *ar-ša-a-aš-šu-ú-ri-i=š-ši-it* must be erroneous.

ḫuni(n)k-^{zi} 'to batter, to crash' is often spelled with plene U: 3sg.pres.act. *ḫu-u-ni-ik-zi* (often), 3sg.pres.midd. *ḫu-u-ni-ik-ta-ri*, 3sg.pret.midd. *ḫu-u-ni-ik-ta-at*, part. *ḫu-u-ni(-in)-kán-t-* (often). Once, we find the spelling *ḫu-ú-ni-ik-zi*, however, namely in KBo 6.2 i 16 (OS). Since this is the same tablet where we also find the aberrant *a-pu-ú-un* (instead of normal *a-pu-u-un*, see above) and since correct *ḫu-u-ni-ik-zi* is attested only three lines above (ibid. i 13), we must assume that this is an erroneous form. Moreover, it would be the only form where we find the sequence *ḫu-ú-* in all of Hittite.[90]

kinūpi, a portable container, is usually spelled without plene *-u-*, but once we find the spelling *ki-nu-ú-pí* (KUB 29.2 ii 7) and twice *ki-nu-u-pí* (KUB 29.1 ii 41, KBo 21.22, 10).[91] Since this word likely is of a foreign origin, these forms are non-probative.

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[88] Besides a few times *a-pu-un*, but these are irrelevant here.

[89] Besides a few times *a-pu-uš*, but these are irrelevant here.

[90] Except ^{URU}*La-aḫ-ḫu-ú-i-ia-aš-ši-iš* (Bronzetafel i 69).

[91] Puhvel HED 4: 153 incorrectly cites the form of KBo 21.22, 10 as "*ki-nu-ú-pí*".

kūn 'this (one)' (acc.sg.c.) is consistently spelled *ku-u-un* (more than 110x in my files). Once we find *ku-ú-un*, however, namely in KUB 48.125 ii[?] 4. Although this small fragment does not contain any other aberrancies, I regard this form as an error.

kūš 'these (ones)' (acc.pl.c.) is consistently spelled *ku-u-uš* (more than 120x in my files).[92] Once we find *ku-u-ú-uš*, however, in KUB 14.14 rev. 31. Since this form is found on the same tablet as where the aberrant *a-pu-ú-uš* is attested (instead of normal *a-pu-u-uš*, see above), I regard it as an error.

^{NINDA}*lalla(m)puri(i̯a)-*, ^{NINDA}*lal(l)am(m)uri(i̯a)-*, a dish made of cereals, shows the following spellings: nom.sg.c. *la-al-la-pu-u-ri-i̯a-aš*, *la-al-la-am-pu-u-ri-i̯a-aš*, *la-al-la-am-pu-ri-iš*, *la-al-la-am-mu-ri-iš*, *la-al-la-mu-ú-ri-iš*, *la-la-mu-ri-i̯a-aš*, nom.-acc.sg.n. *la-la-mu-ri*, [*la-l*]*a-am-mu-ri*.[93] The spelling variancy (including the alteration between *Cu-u-* and *Cu-ú-*) and the fact that this word is attested in Kizzuwatnaean rituals only, makes it likely that it is of foreign (Hattic?) origin. This makes this word non-probative for our purposes here.

lūri- (c.) 'disgrace' and its derivatives *lūrii̯atar* 'disgrace' and *lūrii̯aḫḫ-*^{i} 'to disgrace' are predominantly spelled with plene U: nom.sg.c. *lu-u-ri-iš* (MH/NS), acc.sg.c. *lu-u-ri-in* (OS), nom.-acc.sg.n. *lu-u-ri* (MS), dat.-loc.sg. *lu-u-ri* (NH), nom.pl.c. *lu-u-ri-e-eš* (OS), acc.pl. *lu-u-ri-uš* (OS); nom.-acc.sg. [*l*]*u-u-ri-i̯a-tar* (NH)); 2sg.imp.act. *lu-u-ri-i̯a-aḫ* (NH), impf. *lu-u-ri-i̯a-aḫ-ḫi-eš-ke/a-* (NH)).[94] Twice we find a spelling with Ú, however: nom.sg.c. *lu-ú-ri-eš* (KUB 13.4 iii 34 (OH/NS)), *lu-ú-ri-iš* (KUB 13.18 iii 6 (OH/NS)). Since these tablets do not show other remarkable aberrancies, it is not easy to explain away these examples as errors. Perhaps we are dealing with traces of an original ablaut. See below for an elaboration on this.

mūgae-^{zi} 'to invoke' and its derivative *mūkēššar / mūkēšn-* 'invocation', when spelled with a plene *-u-*, are predominantly spelled with the sign U: 1sg.pres.act. *mu-u-ga-a-mi* (MH/NS), *mu-u-ga-mi* (MH/NS), 3pl.pres.act. *mu-u-ga-a-an*[*-zi*], *mu-u-ga-an-zi*; gen.sg. *mu-u-ki-iš-na-aš* (Bo 6575 obv. 13), nom.-acc.pl. *mu-u-keš-šar*^{ḪLA}.[95] Once, we find the spelling *mu-ú-ga-it* (KBo 3.7 i 13). Since this text contains a number of aberrancies,[96] I regard this spelling as an error as well.

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[92] Besides a few times *ku-uš*.

[93] See CHD L-N: 26 for attestations.

[94] See CHD L-N: 86f. for attestations.

[95] See CHD L-N: 319f. for attestations.

[96] E.g. *e-ša-a-ri* (iv 13) instead of normal *e-ša-ri*, *ḫu-ma-an* (i 15) instead of *ḫu-u-ma-an*, *ḫé-u-uš* (ii 22) instead of normal *ḫé-mu-uš*.

mūri(i̯an)- 'cluster of fruit' and its possible derivative ^{NINDA}*mūrii̯ala-*, a bread, are predominantly speled with plene U: instr. *mu-u-ri-ni-it* (MH?/NS), acc.pl. *mu-u-ri-uš* (OS), *mu-u-ri-i̯a-nu-uš* (MH?/NS); nom.sg. *mu-u-ri-i̯a-la-aš* (OH/NS), acc.sg. *mu-u-ri-i̯a-la-an* (NS), acc.pl. *mu-u-ri-i̯a-lu-š=a* (OS).[97] There are two exceptions, however, namely nom.sg. *mu-ú-ri-iš* (KUB 57.110 ii 8 (NS)), and acc.pl. *mu-ú-ri-i̯a-lu-uš* (Bo 2689 ii 11 (NS)). On the one hand, since the etymology of *mūri(i̯an)-* and ^{NINDA}*mūrii̯ala-* is unclear, and since *mūri(i̯an)-* shows a remarkable alternation between an *i*-stem *mūri-* and an *n*-stem *mūrii̯an-*, we could claim that these words are possibly of foreign origin and therefore non-probative here. On the other hand, we could compare the situation to *lūri-*, where nom.sg. also was aberantly spelled *lu-ú-ri-iš* vs. *lu-u-ri-* elsewhere, and assume that in *mūri(i̯an)-*, too, we are dealing with traces of ablaut.

pūl- (n.) 'lot' is attested as follows: nom.-acc.sg. *pu-u-ul* (4x, OH/NS), *pu-ú-ul* (1x, NH), gen.sg. *pu-u-la-aš* (OH/NS), *pu-la-aš* (NH), *pu-la-a-aš* (NH), abl. *pu-la-a*[*z*] (NH), instr. *pu-u-li-it* (OH/NS), so predominantly with U, but once with Ú.[98] It has been suggested that it is a borrowing, through Hurrian (compare Hurr. *pulaḫli* 'lot caster') from Akk. *pūru* 'lot' (cf. e.g. Rieken 1999: 78). As a foreign word, it is irrelevant here.

pūdaḫaš(ša), *puteḫaš(ša)*, designation of a festival, is spelled *pu-te-ḫa-a-aš-ša*, *pu-ú-da-ḫa-aš* (NH), *pu-u-du-ḫa-aš* (NH), *pu-da-ḫa-aš* and *pu-da-ḫa-aš-ša*, so both with plene U and Ú.[99] This word occurs almost exclusively as the designation of a festival that is performed in honour of Teššub and Ḫepat, which makes it likely that the word is Hurrian. It is therefore irrelevant here.

punušš-^{zi} 'to ask' is predominantly spelled without a plene vowel (*pu-nu-uš-*), but sometimes we do find forms in which the first *-u-* is spelled plene: 3pl.pres.act. *pu-ú-nu-uš-ša-an-zi* (KBo 20.5 iii$^{!}$ 7 (OS)), 3sg.pret.act. *pu-u-nu-uš-ta* (KUB 36.35 i 8 (MH?/NS)), 1pl.pret.act. *pu-u-nu-uš-šu-u-en* (AT 454 ii 17, 21, iv 14 (NH)), 2pl.imp.act. [*pu-*]*u̯ṷ*$^{?}$*-nu-uš-ten* (KUB 59.10 vi 2 (OH/NS)). Here we seem to be dealing with a chronological distribution: Ú in OH texts, U in younger texts. This fits the distribution that we established for /aun/ > /aon/ as well (see above).

pūrii̯a-, *u̯urii̯a-*, Hurrian offering term, is spelled as follows: gen. *pu-u-ri-i̯a-aš* (MH/NS), dat.-loc.sg. *pu-u-ri-i̯a* (often, MH/NS), *pu-ú-ri-i̯a* (KBo 27.191 iii 3),

[97] See CHD L-N: 333 for attestations.

[98] See CHD P: 373f. for attestations.

[99] See CHD P: 400 for attestations.

u̯u$_{u}$-ri-i̯a (MH/MS).[100] Since this word clearly is of foreign origin, it is non-probative.

$^{(MUN)}$*pūti-* (c.) 'lump of salt' is spelled *pu-u-ti-iš* (multiple times) as well as *pu-ú-ti-iš* (KUB 32.123 ii 18 (NS)).[101] Since this word likely is not native Hittite, it is irrelevant here.

tapūš- (n.) 'side' is usually spelled with plene Ú: all.sg. *ta-pu-ú-ša* (KBo 4.2 iii 47, KBo 39.164 r.col. 6, KUB 20.99 ii 18, KUB 31.105, 19, KUB 55.45 ii 12, KUB 55.58 obv. 16, IBoT 2.112 obv. 9, etc.). Twice we find a spelling with U, however: all.sg. *ta-pu-u-ša* (KUB 1.8 iv 19 (NH)) and abl. *ta-pu-u-uš-za* (KBo 30.58 iii 11 (OH/NS)). I must admit that I cannot explain these two forms otherwise than as scribal errors, although the texts in which they occur do not show other aberrancies.

tuliia- 'gathering' is usually spelled without plene vowel: acc.sg. *tu-li-i̯a-an* (KBo 3.1 ii 34, 51), gen.sg. *tu-li-i̯a-aš* (KUB 9.34 i 33, iv 12, KUB 6.45 iii 11, KUB 6.46 iii 50, KUB 21.19 iv 10), *tu-li-i̯a*[*-aš*] (KUB 21.19 iv 25), dat.-loc.sg. *tu-li-i̯a* (KBo 6.3 iii 21, KBo 4.10 obv. 50, KUB 6.45 iii 12, KUB 23.77a obv. 11, KBo 8.35 ii 9, KBo 5.4 rev. 55, KUB 21.1 iv 39, KUB 21.4 iv 9, Bronzetafel iii 79, KUB 21.19 iv 18, 19, KUB 4.1 ii 2, KUB 17.30 iii$^{?}$ 4), dat.-loc.pl. *tu-li-i̯a-aš* (KBo 22.1, 16 (OS)). Occasionally we find a plene spelling, however, namely twice with U (*tu-u-li-i̯a* (KUB 6.46 iii 51), *tu-u-li-i̯a-aš* (KUB 33.110, 5)) and twice with Ú (*tu-ú-li-i̯a* (KUB 21.1 iv 39), *tu-ú-li-i̯-i̯*[*a*] (KUB 21.5 iv 45)). This word occurs in CLuwian as well, and is there predominantly spelled *tu-ú-li-i̯a-* (besides *tu-li-i̯a-* once).[102] This could mean that the two Hittite spellings *tu-ú-li-i̯a-* should be regarded as Luwianisms, and the spellings *tu-u-li-i̯a-* as the 'normal' spelling.

zarzur (n.) 'concoction' is attested thus: nom.-acc.sg. *za-ar-zu-úr* (KUB 42.107 iii 13 (OH/NS)), *za-ar-zu-u-ur* (KUB 31.57 iv 18 (OH/NS)), *za-ar-zu-ú-úr* (KUB 34.89 obv. 6 (OH?/MS)), [*za-a*]*r-zu-úr* (KUB 34.89 obv. 1 (OH?/MS)). Since this word can hardly be native Hittite, it is irrelevant here.

So, for the words of which we find forms with U as well as with Ú, we have seen that either (1) one of these spellings is a scribal error, (2) the two spellings represent different chronological stages, (3) the different spellings may reflect an original ablaut, or (4) that the word is of foreign origin and therefore irrelevant

[100] See CHD P: 387 for attestations.

[101] See CHD P: 402 for attestations.

[102] Cf. Melchert 1993a: 232.

for our investigation. In all other words, we find a complementary distribution between U and Ú and I therefore conclude that we can assume that in interconsonantal position we must assume the occurrence of two different phonemes, namely /u/ and /o/.

In the following section I will look more closely at the prehistory of the words under discussion in order to elucidate the origin of the difference between /o/ and /u/. In order to do so, I will treat the words according to the consonants that are adjacent to /o/ and /u/.

ḫ_C

Whenever the consonant *ḫ* precedes a plene spelled vowel *-u-*, this vowel is always spelled with the sign U.[103] This seems to indicate that all instances of */HuC/ have yielded Hitt. /HoC/. As we saw above (§ 1.3.9.1), however, the combination ḪU-U- occurs so often in MS and NS texts that it has been suggested that we should interpret this combination as a sort of ligature () in order to distinguish the sign ḪU () from the closely resembling sign RI (). It therefore is not always clear how to interpret the combination ḪU-U-. To make the problem more transparent, I have taken the liberty to cite the 'ligature' ḪU+U (in which the sign U only seems to have had an orthographic value and perhaps not so much a phonetic value) as ḪÚ in the following example.[104] For instance, *pa-aḫ-ḫur* 'fire' must in my view be analysed phonologically as /páH^{w}r/, because of the occasional spelling *pa-aḫ-ḫu-u̯a-ar*. Once, we find a spelling *pa-aḫ-ḫu-u-ur*, however. Is this spelling suddenly to be interpreted as /páHor/, or do we have to read the form as *pa-aḫ-ḫú-ur* = /páH^{w}r/?

Another problem is that in ablauting verbs, we find e.g. *ḫu-e-ek-zi* 'he conjures' vs. *ḫu-u-kán-zi* 'they conjure'. Since I do not reckon with a phonemic distinction between /o/ and /u/ in the sequence *C_e* (see above), the former should be interpreted /Huégt^{s}i/ < *$h_2ué\acute{g}^{h}$-ti* whereas the latter is /Hogánt^{s}i/ < *$h_2u\acute{g}^{(\acute{}}{}^{h}$énti*. This means that we seem to be dealing with an ablaut /Hueg- / Hog-/, which may not be very convenient. Similarly in *ḫu-u̯a-ap-p°* / *ḫu-u-up-p°* 'to harass', which seems to stand for /Huap- / Hop-/. Perhaps we should conclude that in the full-grade forms we are dealing with /o/ as well: /Hoeg-/ and /Hoap-/, the latter then

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[103] The only exception in the whole Hittite corpus, *ḫu-ú-ni-ik-zi* (KBo 6.2 i 16), must be a mistake, as we have seen above.

[104] Just as the 'ligature' I+A () is cited IA, the ligature ME+EŠ () is cited MEŠ, and SISKUR.SISKUR () is cited SÍSKUR.

perhaps expressed in the spelling *ḫu-u-u̯a-ap-p°*. If so, then we should also interpret e.g *ḫu-u̯a-an-t-* 'wind' as /Hoánt-/, which then perhaps is expressed in the spelling *ḫu-u-u̯a-an-t-*. Since, however, there is no phonemic distinction between /o/ and /u/ after *ḫ*, one could also choose to write /Hu/ everywhere. Yet on the basis of the fact that the Hittites themselves never wrote *ḫu-ú-* and apparently did not perceive these sequences as [Hu] but as [Ho], I will write /Ho/ in my phonemic analysis, also in the sequences /Hoa/, /Hoe/ and /Hoi/.

Some examples of *ḫūC*: *ḫu-u-uk-ki-iš-ke/a-* 'to conjure (impf.)' /Hokɨské/á-/ < *h$_2$u(ǵ)^h-sḱé/ó-*; *ḫu-u-uk-ki-iš-ke/a-* 'to butcher (impf.)' /Hokɨské/á-/ < *h$_2$ug$^{(h)}$-sḱé/ó-*; *ḫu-u-uk-ma-a-uš* 'conjurations (acc.pl.)' /Hogmā́us/ < *h$_2$u(ǵ)^h-mói-*; *ḫu-u-ul-l°* 'to smash' /HoL-/ < *h$_2$ul-n-*; *ḫu-u-ma-an-t-* 'all' /Hómant-/; *ḫu-u-up-*[*pa-an-du*] 'they must harass' /Hopántu/ < *h$_2$uph$_1$-éntu*; ^{DUG}*ḫu-u-up-pár* 'bowl' /Hópr/; *ḫu-u-ur-ta-a-in* 'curse (acc.sg.)' /Hortā́in/ < *h$_2$urt-ói-m*; *ḫu-u-ur-za-ke/a-* 'to curse (impf.)' /Hortské/á-/ < *h$_2$urt-sḱé/ó-*; *ḫu-u-uš-ke/a-* 'to wait' /Hoské/á-/ < *h$_2$u-sḱé/ó-*; *ḫu-u-da-* 'readiness' /Hóda-/ < *h$_2$uh$_1$do-*; *iš-ḫu-u-na-u-* 'upper arm' /ɨsHonau-/ < *sh$_2$u-nóu-*.

C_ḫ

When a *ḫ* follows, we always find U as well. In some cases we are dealing with *Ceuh$_2$-*: *šu-u-uḫ-za* 'roof (abl.)' /sóHt^s/ < *séuh$_2$-ti*; in some with *Cóuh$_2$-*: *u-uḫ-ḫi* 'I saw' /ʔóHi/ < *h$_2$óu-h$_2$ei*, *mu-u-uḫ-ḫi* 'I fell' /móHi/ < *móu-h$_2$ei*; in others with *Cuh$_2$-*: *an-tu-u-uḫ-ša-an* 'human being (acc.sg.)' /ʔndoHsan/ < *h$_1$n-d^{h}uh$_2$-s-om*.

Other cases of /CoH/ are: *lu-u-ḫa-* '?' /loha-/; *mu-u-uḫ-ra-i-*, a body part of animals /moHrai-/; *šu-u-uḫ-mi-li-* 'firm(?)' /soHmili-/; $^{(UZU)}$*pa-an-tu-u-ḫa-* 'bladder' /p(a)ntoha-/; *pár-aš-tu-u-uḫ-ḫa-*, an earthenware cup(?) /prstoHa-/; *pu-u-ḫu-ga-ri-* 'substitute' /póhogari-/; *tu-u-ḫu-ši-i̯a-e-* 'to await' /toh^{w}siae-/?; ^{MUNUS}*zi-in-tu-u-ḫi-* 'girl' /t^{s}intohi-/.

C_i

I only know of one case, namely *ui̯e-^{zi} / ui̯-* 'to send', which is consistently spelled *u-i-e- / u-i-i̯a-* = /ʔoié- / ʔoi-/. This verb is a univerbation of the preverb *h$_2$ou* and the verbal root *h$_1$ieh$_1$-* 'to send' (cf. *pei̯e-^{zi} / pei̯-* 'to send (away)'), and shows that *h$_2$ou* > */ʔu/ has been lowered to /ʔo-/ in front of *-i-*.

Note that the case of *u̯ii̯e/a-^{zi}* 'to scream' is quite different. This verb, which is consistently spelled *ú-i-i̯a-*, is a secondarily thematicized form of the verb *u̯ai-^{i} / u̯i-* 'to scream'. The spelling of 3sg.pres.act. *u̯a-a-i* 'he screams' shows that there was no initial glottal stop (otherwise we would have expected a spelling **ú-u̯a-

a-i), so I would phonologically interpret the spelling *ú-i-i̯a-* as /uiá-/, phonetically realized as [wi̯á-].

C_k

Here we must distinguish between different ablaut grades: **CuK* > /CuK/, cf. **h₁égʰH* >> **h₁úǵ* > Hitt. *ú-uk* 'I' /ʔúg/, **iugom* > *i-ú-kán* /iugan/ 'yoke' and **dolugʰ-* > *ta-lu-ú-ga* 'long'; **CeuK* > /CūK/, cf. **méug-r* > *mu-ú-kar* 'rattle' /mű̄gr/, **iéug* > *i-ú-uk* /iű̄g/ 'yoke' and **h₂téug-om* > *ḫa-tu-ú-ga-an* /Hdű̄gan/ 'terrible'; but **CouK* > /CoK/, cf. **mougó-i̯e/o-* > *mu-u-ga-e-* /mogae/ 'to invoke' /mogā́e-/.

C_l

The situation around *C_l* is quite complicated, especially because the etymology of many words containg *-Cul-* is unclear. A sequence **Ceul* is clear in the words *i-mi-ú-ul* 'horse feed' < **im-ié-ul* and *iš-ḫi-ú-ul* 'binding' < **sh₂-ié-ul*, which show that **Ceul* > /Cul/. The words *aš-šu-ú-ul* 'favour', *tak-šu-ú-ul* 'agreement' and *uštūl- / u̯aštūl-* 'sin' (cf. *u̯a-aš-du-ú-li*) are usually regarded as showing the accentuated suffix **-úl-*, and would show that **Cul* yields /Cul/ as well. This would also fit the word *ga-az-zar-nu-ú-ul*, a certain cloth, although its etymology is less clear. It has been claimed that *pittūla-* 'loop, knot' is a thematization of the suffix **-ul-*, but this word is consistently spelled *pit-tu-u-la-*. We could assume that we are dealing with a lowering to /o/ here due to the back-vowel that follows *-l-*. This would also fit the words *ka-lu-u-lu-pa-* 'finger', *mu-u-la-tar*, an evil quality, $^{\text{NINDA}}$*mu-u-la-ti-*, a bread, and *pár-šu-u-la-a-an-t-* 'crumbling'.[105] This would imply that before a front vowel, we would expect /u/. This is certainly the case for *lu-ú-li-* 'pond', *lu-ú-li-i̯a-aš-ḫa-* 'marshland', *mi-i-lu-ú-li* 'skin(?)' and *mu-ú-li-li*, a plant. Note that *tu-u-li-i̯a-* 'gathering' does not fit this picture: it shows /o/ inspite of the following front vowel. Since the etymology of this word is not fully clear, it is difficult to judge this form. Perhaps we are dealing with **tuHl-i-o-*, in which **CuHl* yields /Col/. Also *šu-u-ul-le-e-et* 'he became arrogant' shows /o/ while a front vowel follows. Perhaps we must conclude that here the geminate *-ll-* < **-lH-* was the crucial factor and that it caused lowering as well. This does not work for *šu-ú-ul-lu-uš*, acc.pl. of *šulla-* 'hostage', however, but here we might be dealing with **seul°*. The outcome of **Coul* may be /Caul/ if *a-ú-li-*, a tube-shaped organ in the neck, indeed reflects **h₂oul-i-* (see its lemma).

[105] Cf. Rieken 2005 for a similar view of these words.

Note that the /o/ in ^{GIŠ}*ḫu-u-la-li*, ^{GIŠ}*ḫu-u-lu-ga-an-na-* and ^{GIŠ}*šar-ḫu-u-li-* is determined by the preceding *ḫ*.

C_m

On the basis of *u̯a-aḫ-nu-ú-mi* 'I make turn' /uəhnṹmi/ < *-*néu-mi*, we must conclude that **Ceum* > Hitt. /Cūm/. It must be noted that *ú-me-e-ni* 'we see' and *a-ú-me-en* 'we saw' are non-probative since the *-m-* in these forms is recent: the forms go back to **Hu-u̯éni* and **Hóu-u̯en*. Inf.I *pát-tu-u-ma-an-zi* 'to dig' (KUB 55.45 ii 4) < **b*^{h}*d*^{h}*h*$_2$*-uén-ti* shows that **CHuV* > Hitt. /ComV/,[106] which means that e.g. *tu-me-e-ni* 'we take' < **dh*$_3$*uéni* stands for /toméni/, *tar-nu-me-ni* 'we let go' < **trk-n-h*$_{1/3}$*-uéni* stands for /trnoméni/, etc. This probably also goes for the appurtenance-suffix *-umen- / -umn-*, which is spelled with U in nom.sg. *ḫi-iš-tu-u-ma-aš*, dat.-loc.sg. *ḫé-eš-tu-u-um-ni* 'person pertaining to the *ḫištā*', ^{URU}*Ka-a-ta-pu-u-me-né-eš* 'persons from Kātapa', ^{URU}*Lu-ú-i-u-ma-na-aš* 'person from Lūi̯a', ^{URU}*Ša-lam-pu-u-me-né-eš* 'persons from Šalampa', ^{URU}*Za-al-pu-u-ma-aš* 'person from Zalpa', ^{m}*Šu-up-pí-lu-li-u-ma* 'man from the pure well' and *ta-me-u-ma-* 'being from somewhere else'. The etymology of *nu-u-ma-an* (negation of *man*) is not fully clear. The words ^{É}*ka-ru-ú-um-mi* 'sanctuary', ^{É}*tu-u-ma-an-ti-i̯a-at-*, a building, ^{NINDA}*tu-u-ma-ti-*, a bread, and *ḫal-ḫal-tu-u-ma-ri* 'corner' are likely of foreign origin. The U in *ḫu-u-ma-an-t-* is determined by the preceding *ḫ*.

C_n

As we saw above, **Coun* yields OH /Caun/, which develops into /Caon/ from the MH period onwards. A similar chronological distribution may underly the difference between OS *pu-ú-nu-uš-š°* and younger *pu-u-nu-uš-š°* 'to ask' (although the etymology of this verb is not clear yet). This would also explain the spelling *ki-nu-u-n=a* (KUB 14.17 ii 14 (NH)) /kinon/ < **ḱi-num*. Also the NH attestation *e-ep-pu-u-un* 'I grabbed' (KBo 3.6 ii 7) shows that in NH times the 1sg.pret.-act. ending *-un* in fact was /-on/ < older /-un/, cf. OH *pa-a-ú-un* /pā́un/ > NH *pa-a-u-un* /pā́on/ (§ 1.3.9.4.e). It does not apply to all positions, however: the fact that *unu-*^{zi} 'to decorate' < **h*$_3$*u-neu-* is spelled *ú-nu-* = /ʔunu-/ throughout Hittite shows that in initial position this lowering did not take place. In the case of *ku-ú-na-aš* (gen.sg.) 'dog' (KBo 7.48, 12 (MS?)) we are in my view dealing with a restored /kunas/ that replaced expected **/konas/ < **ḱunos* on the basis of the

[106] Also in *šar-lu-u-ma-aš* /srlomás/, gen.sg. of the verbal noun of *šarlae-*^{zi} 'to exalt', although in this case we are dealing with a secondary *tarn(a)*-class ending instead of expected *šarlāu̯ar*.

full grade stem /kuan-/ (nom.sg. *ku-u̯a-aš* /kuā́s/ < **ḱuó́ns*, acc.sg. *ku-u̯a-na-an* /kuā́nan/ < **ḱuón-om*).

The lowering of /u/ to /o/ seems to have taken place in front of geminate *-nn-* as well, as is apparent in *ūnna-^{i} / ūnni-* 'to send (here)' that is consistently spelled *u-un-n°* = /ʔoN°/ < **h₂ou* + **n(o)iH-*.[107] Since this word is attested in MS and NS texts only, we do not know whether the lowering has taken place in OH times as well. The plene spellings *ku-u-un-na-* 'right' = /koNa-/ are attested in NS texts only and do not give information about the OH pronunciation of this word. Although emended, 2pl.imp.act. *šu-u-‹un-›ni-iš-ten* 'you must fill' (KUB 13.3 ii 27 (OH/NS)) also points to /soN°/ < **su-n-H-*. The hapax spelling *mu-ú-un-na-a-it* 'he hid' (KUB 17.5 i 4 (OH/NS))[108] may show a reflex of an OH form that still shows /muNā́it/ (< **mu-n-H-*?), instead of younger /moNā́it/ (although we do not have any spelling ***mu-u-un-n°* of this verb).

The verb *šūniu̯e/a-^{zi}* 'to pour in' is consistently spelled *šu-ú-ni-* throughout Hittite. Because its etymology is rather unclear, we cannot determine its preform. Since **Coun* > OH /Caun/ > NH /Caon/ and **Cun* > NH /Con/, the only reasonable possibility is **Ceun*. This may go for *a-ru-ú-ni* 'sea' (dat.-loc.sg.) (KUB 36.41 i 13 (MS)) as well, which therefore perhaps should be reconstructed as **h₃reuni*.[109]

The forms *ku-u-un* 'this (one)' (acc.sg.) = /kón/, *a-pu-u-un* 'that (one)' (acc.sg.) = /ʔabón/ and *u-ni* 'him (there)' (acc.sg.) = /ʔóni/ are special cases. They are spelled with U from the oldest texts onwards, and therefore cannot be derived from older **/kún/, **/ʔabún/ and **/ʔúni/ through a MH lowering in front of *n*. In my view, these forms show that the outcome of **Cóm* was /Cón/ in the oldest stages of Hittite already.[110]

Acc.pl. $^{(MUŠEN)}$*pár-tu-u-ni-uš* (StBoT 25.3 iv 37 (OS), StBoT 25.4 iv 33 (OS), StBoT 25.7 iv 2 (OS)), a certain bird, shows a remarkable U in front of *-n-* in OS texts. The similarity to $^{(UZU)}$*partā̆u̯ar / partāun-* 'wing, feather' is striking, but since the prehistory of this latter word is not fully known, the interpretation of *partūniuš* remains unclear.[111]

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[107] Note that normally **ou* yields *au* in front of **n*, but in this case we are dealing with a pre-Hittite univerbation of the preverb **h₂ou*, which in isolation yielded /ʔu/, and the verb *nai-^{i} / ni-* 'to turn'.

[108] Incorrectly cited in CHD L-N: 330 as "*mu-u-un-na-a-it*".

[109] Or this form, which is attested in a MS texts, represents /ʔ(a)runi/ < **h₃(o)ru-n-i*, in which the lowering of /Cun/ to /Con/, which starts within the MH period, has not taken place yet.

[110] This means that in effect we are dealing with a preservation of PIE **o* as Hitt. /o/ in the position **Cóm*.

[111] One could think of e.g. **prtuHn-* < **prtH-u-n-* vs. **prtH-o-un-* > *partāun-*.

The interpretation of *ū(n)ḫ-^{zi}* '?' is not entirely clear. It is spelled *u-un-ḫ°*, which is attested in an OS text already: *u-un-ḫa-an-zi* (KUB 32.94 i 3 (OS)), as well as *u-uḫ°*. The /o/, which might be unexpected in front of *-n-* in OH times, is in my view due to the following *-ḫ-* in the allophonic stem *ūḫ-*.[112]

The /o/ in [*a*]*r-ḫu-u-un* 'I arrived' /ʔarHon/, *da-aḫ-ḫu-u-un* 'I took' /tā́Hon/, *ḫal-ze-eḫ-ḫu-u-un* 'I screamed' /Hlt^{s}éHon/, *tar-na-aḫ-ḫu-u-un* 'I let go' /trnáHon/ and *iš-ḫu-u-na-u-* 'upper arm' /ɨsHonau-/ is automatic due to the preceding *ḫ*.

C_p

On the basis of *u-up-zi* /ʔópt^{s}i/ '(the sun) comes up' < *$h_1$eup-ti*, we can conclude that **Ceup-* > Hitt. /Cop/. The adjective *šuppi- / šuppaḭ-*, which is spelled with U in the name ^{m}*Šu-u-up-pí-lu-li-u-ma* (KUB 19.10 iv 2) hardly can reflect **séup-i-* or **sóup-i-*, since in these forms we would have expected lenition to ***sūpi-*. This means that *šu-u-up-pí-* /sopi-/ reflects **sup-i-*, which shows that **Cup* yields /Cop/ as well. The verb *uppa-^{i} / uppi-* 'to send (here)', which represents /ʔup°/ (see § 1.3.9.4), reflects **$h_2$ou* + **h_1p-oi-*. Since this verb is a quite recent univerbation of the preverb **$h_2$ou*, which in isolation yielded /ʔu/, and the verb *pai-^{i} / pi-*, this example is non-probative for the outcome of **Coup*.

The words *kinūpi*, a container, which is spelled *ki-nu-ú-pí* as well as *ki-nu-u-pí*, *lu-u-pa-an-ni-* 'royal cap' (also *luu̯anni-*), *dam-pu-u-pí-* 'barbaric' and *ša-ru-ú-pa* '?' are all probably of a foreign origin, and do not shed any light on this matter.

C_r

First we should keep in mind that **Cour* yields Hitt. /Caur/, e.g. *a-ú-ri-* 'lookout' < **Hou-ri-*. The sequence **Cur* seems to yield Hitt. /Cor/, as is visible in e.g. *an-tu-u-ri-i̯a-* 'interior' /ʔntoria-/ < **h_1n-d^{h}ur-i̯o-*(?), *ar-ša-ar-šu-u-r°* 'stream' /ʔrsʔarsor-/ < **$h_1$ers-ur-*, *pár-šu-u-ur* 'cooked dish' /p(a)rSor/ < **b^{h}(e)rs-ur*, *pu-ru-ut* 'mud' /porut/ < **b^{h}ur-u-t*(?), *tu-u-ri-i̯a-* 'to harness' /torie/a-/ < **d^{h}uh$_1$r-ie/o-*, *u-ur-ki-* 'trace' /ʔorgi-/ < **$h_{1/3}$urg-i-*, *u̯a-ak-šu-u-ur*, a vessel /uaksor/ < **ueKs-ur*(?), and *ú-i-šu-u-ri-i̯a-* 'to press together' /uisorie/a-/ < **uis-ur-ie/o-*(?). This implies, however, that the one attestation *ši-iš-šu-ú-ra-aš* 'irrigation (gen.sg.)' (KBo 6.26 iii 5 (OH/NS)) < **$h_1$si-h_1s-ur-* is a mistake, cf. correct *ši-iš-šu-u-r°* (KUB 31.100 rev.$^{?}$ 17 (MH/MS)).[113] With **Cour* yielding /Caur/ and **Cur* > /Cor/, the only way to explain *lu-ú-ri-* 'disgrace' /lūri-/ is by

[112] The original distribution must have been *ūḫC°* vs. *ūnḫV°*, so ***ūḫzi / ūnḫanzi*.

[113] Thus also Rieken 2005.

reconstructing *leh_1u-ri-.[114] The forms within the paradigm of this word that are spelled *lu-u-ri-* may then reflect *lh_1u-ri- > luh_1ri- > /lori-/. Note that **eur* yielded /or/ in *a-ni-u-ur* 'ritual' /ʔniór/ < *h_3n-ié-ur* and *ši-iš-ši-u-r°* 'irrigation' /siSior/ < h_1*si-*h_1*s-ié-ur* (see above), but here the preceding *-i-* may have been crucial.

C_s

First we should keep in mind that **Cous* > Hitt. /Caus/, e.g. *a-uš-te-en* 'you must see' < **Hou-sten*.[115] A sequence **Ceus* yields Hitt. /Cūs/, as is visible from e.g. *ku-ú-ša-* 'daughter-in-law, bride' /kṹsa-/ < **ǵéus-o-* and *ka-ru-ú-uš-ši-i̯a-* 'to be silent' /krūSie/a-/ < **greus-i̯e/o-*. On the basis of the spelling *pa-an-ku-ú-š=a* (KUB 35.136 iv 9 (NS)) for nom.sg. of *panku-* 'multitude', which represents /pngus/ < *$b^hnǵ^h$-u-s*, we can conclude that **Cus* in principle yields Hitt. /Cus/.

Our findings that **Cous* > /Caus/, **Ceus* > /Cūs/ and **Cus* > /Cus/, seem to imply that in Hittite the spelling *Cu-u-š°* or *°Cu-u-uš°* cannot exist. This is not entirely the case: *pu-u-uš-*^{zi} 'to be eclipsed' /pós-/ may reflect *ph_2u-s-*, in which the *h_2 may have caused lowering; *a-aḫ-ru-u-uš-ḫi* 'incense vessel' is likely of a foreign origin; *šu-u-uš* 'full (nom.sg.c.)' /sós/ is a contraction of /sóus/ < /sóʔus/ < **sóuH-u-s*, see at *C_ʔ*.

The acc.pl.c.-ending *-uš* is a special case. It is predominantly spelled *°Cu-uš*, but occasionally we find forms with plene spelling. It is spelled with plene Ú in: *al-pu-ú-uš* (KUB 28.5 rev. 7 (NS)), *a-ú-li-ú-uš* (KBo 25.178 i 2 (OH/NS), KUB 24.3 ii 11 (MH/NS)), *a-ú-li-ú-š=a* (KUB 17.21 ii 18 (MH/MS)), $^{\text{NINDA}}$*ḫar-ša-ú-uš* (KBo 17.4 ii 17 (fr.) (OS), KUB 7.8+ ii 11 (NS)), *ḫe-e-mu-ú-uš* (KBo 43.137, 7 (NS)), *kap-pí-ú-uš* (KBo 34.47 ii 8 (MH/MS)), *ku-i-ú-uš* (HKM 23 obv. 9 (MH/MS), KBo 18.57a + 57 obv. 2, rev. 42 (MH/MS)), *ma-ši-ú-u*[*š*]$^{?}$ (KBo 9.109 rev. 4 (OH/NS)), *pu-u-ri-ú-uš* (KBo 19.163 i 23, iv 4 (OH/NS)), *ta-lu-ga-ú-uš* (KBo 17.22 iii 6 (OS)). It is spelled with U in [*ḫal-*]*lu-ú-u̯a-u-uš* (KBo 3.8 iii 4 (OH/NS)), *ḫal-lu-u̯a-u-uš* (KBo 26.135, 2 (OH/NS)), [*i-da-a*]-*la-mu-u-š=a* (KBo 15.10 iii 54 (OH?/MS)), [*i*$^{?}$-*da*$^{?}$]-*a-la-mu-u-uš*$^{!}$ (KUB 8.67 iv 14 (MH/NS)), *pár-ga-u-uš* (KBo 3.8 iii 22 (OH/NS)). Although the MS attestation [*i-da-a*]-*la-mu-u-š=a* is awkward, it seems that we are dealing with a development of OH /-us/ to

[114] Unless we assume that the two forms that are spelled *lu-ú-ri-* (cf. § 1.3.9.4.f as well as its lemma) are mistakes. Then, on the basis of *a-ni-u-ur* < *h_3n-ié-ur*, we should assume that /Ceur/ > /Cor/.

[115] Note that *ūššu̯e/a-*^{zi} 'to draw open (of curtains)', spelled *ú-uš-ši-* and *uš-ši-* = /ʔuSie/a-/, reflects an univerbation of the preverb *h_2ou and the verb *h_1s-ié/ó-*, which took place at a stage when *h_2ou* had already become /ʔu/ in isolation.

NH /-os/. It is not fully clear to me if we must assume that every OH /us/ (also when reflecting **Cus*) develops into NH /os/, or that here we are dealing with a special development of **°Coms* and **°Cms*, yielding first OH /°Cu̯s/, which subsequently develops into NH /°Cos/.[116]

The acc.pl.c.-forms *ku-u-uš* 'these (ones)' (acc.pl.c.) and *a-pu-u-uš* 'those (ones)' (acc.pl.c.) must be treated separately as they show plene spelling with U throughout Hittite, which indicates /kós/ and /ʔabós/. I regard these as the regular outcomes of **Cóms* (just as /Cón/ is the regular outcome of **Cóm*, see above).

C_t

We must bear in mind that **Cout* > Hitt. /Caut/, e.g. *a-ut-ta* 'you (sg.) saw' < **Hóu-th$_2$e*.[117] On the basis of *ḫu-e-nu-ú-ut* (KBo 3.28 ii 19) 'he made run' (or *ḫu-e‹-eš›-nu-ú-ut* 'he rescued' ?) = /Hoinṹt/ < **-néu-t*, we must conclude that **Ceut* > Hitt. /Cūt/.[118] This is confirmed by nom.sg. *ku-ú-uz-za* 'wall' /kṹts/ < **ǵ^{h}éu-t-s*. For **Cut* I have found no conclusive evidence. The forms *ḫu-u-da-* 'readiness' /Hóda-/ and *ḫu-u-da-a-ak* 'immediately' /Hodā́k/ probably reflect **h$_2$uh$_1$-do-* in which the initial *ḫ* is the determining factor for the outcome /o/.

The hapax spelling *ku-u-ut-ru-u̯a-a-iz-zi* 'he provides testimony' < **k^{w}tru-* may show that the labial element of the labiovelar /k^w/ was perceived more as /o/ than as /u/. Nevertheless, I will write the labiovelars as /k^w/ and /g^w/ in phonemic transcription (so /k^{w}tru-/ here).

C_z

The only case is *ku-ú-uz-za* 'wall', for which see under *C_t*.

C_ʔ

The stem of the adjective *šūu- / šūu̯au̯-* 'full' is consistently spelled with U (nom.sg.c. *šu-u-uš*, acc.sg.c. *šu-u-un*, nom.-acc.sg.n. *šu-u-ú*, *šu-u*, acc.pl.c. *šu-u-u̯a-mu-uš*) which points to /so-/. The remarkable spelling of nom.-acc.sg.n. *šu-u-ú* in my view represents /sóu/, which must reflect /sóʔu/ < **sé/óuh$_{1/3}$-u*. In younger

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[116] Cf. note 83.

[117] Note that *uda-^{i} / ud-* 'to bring (here)', which is spelled *ú-d°* = /ʔud°/, reflects a univerbation of the preverb **h$_2$ou* and the verb **deh$_3$-* which took place at a stage in which **h$_2$ou* had already become /ʔu/ in isolation.

[118] Note that the handcopy of KUB 23.8 seems to show a form *u̯a-aḫ-nu-u-u*[*t*] in line 7. The photograph of this tablet (available through Hetkonk), in my view rather shows *u̯a-aḫ-nu-u*[*t*], however. Compare also line 8 where the photograph clearly shows *i-da-a-lu*, which turns up in the handcopy as *i-da-za-lu*.

times, this form is spelled *šu-u* = /só/, the result of the contraction of *šu-u-ú* = /sóu/. This probably goes for nom.sg.c. *šu-u-uš* = /sós/ < /sóus/ < /sóʔus/ < **sé/óuH-u-s* and acc.sg.c. *šu-u-un* = /són/ < /sóun/ < /sóʔun/ < **sé/óuH-u-m* as well, whereas acc.pl.c. *šu-u-u̯a-mu-uš* represents /sóamos/ < /sóʔamus/ < */sóʔauus/ < virtual **sé/óuh*$_{1/3}$*-eu-ms*.

The spellings with Ú in *šu-ú-il*, *šu-ú-i-il* 'thread' and *mu-ú-i-il* 'spade(?)' seems to represent /sű̆il/ and /mű̆il/ respectively. Since these words are derived from the roots **seuh*$_1$- 'to sow' and **meuh*$_1$- 'to move' (although the latter is not fully certain), they originally must have contained /ʔ/: */sű̆ʔil/ and */mű̆ʔil/. These then must reflect **sé/óuh*$_1$*-el* and **mé/óuh*$_1$*-el* here.

Because we are dealing with two outcomes, /o/ and /u/, and two possible reconstructions, **eu* and **ou*, it is not possible to decide which one reflects which. For the sake of parallelity with *C_k*, where **Ceuk* > /Cūk/ and **Couk* > /Cok/, I assume that *šūu-* /sóu-/ reflects **sóuh*$_1$*-u-* and that *šūil-* /sű̆il-/ and *mūil-* /mű̆il-/ reflect **séuh*$_1$*-el-* and **méuh*$_1$*-el-* respectively.

Overview of interconsonantal outcomes

Note that when *-h̯-* is the preceding consonant, the outcome is always /o/.

		**ou*	**eu*	**u*	other	
C_h̯		/o/	/o/	/o/		
C_i		/o/	--	--		
C_k		/o/	/ū/	/u/		
C_l		/au/	/ū/	/u/[119]		
C_m		--	/ū/	--		
C_n	OH	/au/	/ū/	/u/	/o/ < **CuHn* ?	/o/ < **Cóm*
		↓	↓	↓	↓	↓
	NH	/ao/[120]	/ū/	/o/[121]	/o/[121]	/o/

[119] Possibly /o/ when in **C_lV*^{back} and in **CulH*.

[120] Or /aǫ/, cf. note 83.

[121] Or /ǫ/, cf. note 87.

C_p		/o/	/o/	/o/		
C_r		/au/	/o/[122]	/o/		
C_s	OH	/au/	/ū/	/u/	/u/[123] < *°*C(o)ms*	/o/ < *Cóms*
					↓	↓
	NH				/o/[124]	/o/
C_t		/au/	/ū/	--		
C_ʔ		/o/	/ū/	--		

1.3.9.4.g *Word-finally after consonants*

There are only a few relevant forms here, namely nom.-acc.pl.n. *a-aš-šu-u* 'goods', nom.-acc.sg.n. *šu-u* 'full' (from older *šu-u-ú*, see above) and the adverb *ka-ru-ú* 'early, formerly'. Since these forms are consistent in their spelling,[125] they point to a phonological difference between °*Cu-u* and °*Cu-ú*. We must keep in mind that a third spelling of course is °*Cu* without a plene vowel (e.g. nom.-acc.sg.n. *a-aš-šu* 'good'). I therefore assume that °*Cu-u* stands for /°Co/, °*Cu-ú* stands for /°Cū/ and °*Cu* stands for /°Cu/. So, *a-aš-šu* = /ʔáSu/ < *Cu, *a-aš-šu-u* = /ʔáSo/ < *Cuh_2, *šu-u* = /só/ (a contraction of /sóu/) and *ka-ru-ú* = /krū́/ < *Céu.[126]

1.3.9.4.h *Word-finally after vowels*

***a*_#** : The sequence °*a-u* only occurs in the words $^{(GIŠ)}$*za-a-u* '?', *ši-i-iš-ḫa-u* (KBo 3.2 obv. 26) 'sweat', ^{GIŠ}*ma-ra-a-u* (KBo 20.86, 9), a wooden object used as seat, and *ga-ra-a-u* (KBo 40.176 obv. 11) '?'. Although the last three words occur in

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[122] On the basis of *a-ni-u-ur* < *h_3n-ié-ur*. If *lu-ú-ri-* indeed reflects *leh_1uri-*, then *Ceur* > Hitt. /Cūr/ with the exception that **ieur* > Hitt. /ior/.

[123] Or /ʯ/, cf. note 83.

[124] Or /ǫ/, cf. note 87.

[125] This consistency is also found in the spellings of names: e.g. ^{m}*Ga-aš-šu-ú* or ^{m}*Ka-aš-šu-ú* is never spelled **^{m}*Ka/Ga-aš-šu-u*; ^{m}*Uz-zu-u* is never spelled **^{m}*Uz-zu-ú*.

[126] The two remarkable spellings *ge-en-zu-ú* (KUB 31.127 i 4) instead of normal *ge-en-zu* and *šu-ú-u̯a-ru-ú* (KUB 12.29, 3) instead of normal *šu-(ú-)u̯a-ru* do not contradict this: they are just occasional spellings that stress the *u*-ness of the word-final vowel.

this form only once,[127] the word $^{(GIŠ)}$*za-a-u* is attested thus multiple times, and never spelled ***za-a-ú*.

The sequence °*a-ú* occurs often. It is found in the nom.-acc.sg.n. of diphthong-stems (e.g. *ḫar-na-a-ú*, *ḫar-ga-na-ú*, ^{GIŠ}*ta-na-a-ú*), in 2sg.imp.act. *a-ú* 'look!' and in 3sg.imp.act. of *dāi/tiḭanzi-*, *mēma-/mēmi-* and *tarn(a)*-class verbs and of *dā-^{i} / d-* (*ḫal-za-a-ú*, *ḫa-an-na-ú*, *ḫa-at-ra-a-ú*, *ḫu-u-ṵa-a-ú*, [*ḫu*]*-et-ti-i̯a-an-na-ú*, *e-eš-ša-ú*, *iš-ḫu-ṵa-a-ú*, *iš-kal-la-ú*, *la-a-ú*, *ma-a-ú*, *me-e-ma-ú*, *me-em-ma-ú*, *na-a-ú*, *na-an-na-ú*, *pa-a-ú*, *pé-e-da-ú*, *da-a-ú* (of *dā-^{i} / d-* 'to take'), *da-a-ú* (of *dai-^{i} / ti-* 'to place'), *da-la-a-ú*, *tar-na-ú*, *du-ṵa-ar-na-a-ú*, *u-un-na-ú*, *up-pa-ú*, *ú-da-ú*, *ú-i-ta-ú*, *zi-in-na-a-ú*). All these forms, too, are consistent in their spelling; they never show **°*a-u*.

It is clear that the spellings °*a-u* and °*a-ú* are used complementarily, and therefore it is likely that they denote different sounds. I consequently propose to interpret °*a-u* as /°ao/ and °*a-ú* as /°au/. Note that the words that are spelled °*a-u* do not have a good IE etymology,[128] which shows that the diphthong /ao/ in word-final position is not inherited, but probably of a foreign origin.

***e*_#** : Neither the spelling °*e-u* nor °*e-ú* is attested in the Hittite texts.

***i*_#** : The spelling °*i-u* occurs only in ^{É}*ḫa-le-en-ti-u* 'palace', which is not coincidental if we compare the fact that the spelling °*i-u-i*° only occurs in this word as well. Apparently, it is pronounced /Halentio/. The contrasting spelling °*i-ú* is found in nom.-acc.sg.n. *mi-ú* and *mi-i-ú* 'soft' < **mih$_1$-u*, which must represent /mi̯u/.

1.3.9.5 Conclusions regarding U and Ú

From the treatment above it is clear that the signs U and Ú, which are traditionally interpreted as *-u-* only, in fact can be used to represent three different phonemes, namely /u/, /ū/ and /o/. Note that I do not distinguish a fourth phoneme, /ō/, for several reasons. First, the fact that the spelling of /o/ automatically requires the use of a plene vowel, namely the sign U, makes it graphically impossible to distinguish between a short /o/ and a theoretical long /ō/. Secondly, it is likely that /o/ behaves symmetrically to /e/, which does not show a phonemic distinction in length: when accentuated, /e/ is phonetically long

[127] The words *šīšḫau* and *garāu* are real hapaxes, ^{GIŠ}*marāu* occurs in dat.-loc.sg. *ma-ra-a-u-i* (1256/v obv. 3) as well.

[128] The reconstruction of *ši-i-iš-ḫa-u* as **si-sh$_2$ou* is far from certain, q.v.

in open syllables and monosyllabic words, but this lengthening is automatic and therefore subphonemic. I assume a similar behaviour of /o/.

1.3.9.6 Epenthetic vowels

In Hittite we can distinguish three epenthetic vowels that emerge in specific consonant clusters.

(1) In clusters of the shape **CRC*, i.e. containing syllabic resonants, an epenthetic vowel spelled *-a-* can emerge that cannot be identical to /a/ and phonetically may have been [ɐ] or [ə] (cf. § 1.3.7).

(2) In some clusters involving *-s-* and stops or laryngeals an epenthetic vowel spelled *-e-* or *-i-* emerges: **-TsK-* > Hitt. *-ze/ik(k)-*; **-PsK-* > Hitt. *-p(p)e/išk(k)-*; **-KsC-* > Hitt. *-k(k)e/išC-*; **-Vh₂s* > Hitt. *-Vḫḫe/iš*; **-VKs* > Hitt. *-Vk(k)e/iš*; **ClHsV* > Hitt. *Cale/išš̆V*; **CmHsV* > Hitt. *Cane/išš̆V*; **CnHsV* > Hitt. *Cane/išš̆V*; **CrHsC* > Hitt. *Care/išC*; **ClHsC* > Hitt. *Cale/išC*; **CmHsC* > Hitt. *Came/išC*; **CnHsC* > Hitt. *Cašše/iC*; **VrHsC* > Hitt. *Vre/išC*; **VlHsC* > Hitt. *Vlle/išC*; **VmHsC* > Hitt. *Vmme/išC* (cf. § 1.4.4.3 and § 1.4.4.4). We also find this vowel in secondary initial clusters **u̯T-* (in which *T* = any stop), e.g. *u̯e/itēn-* (obl.-stem of *u̯ātar* 'water') < **u̯d-én-* << **ud-én-* or *u̯e/ikk-* (weak stem of *u̯ekk-*^{zi} 'to wish') < **u̯ḱ-* << **uḱ-* (see their respective lemmas). This vowel cannot be identical with /i/ or /e/ because these are consistently spelled *-i-* and *-e-* respectively. The vowel *e/i* therefore may phonetically have been [ɨ] or [ɘ].

(3) Before initial clusters of the shape **sT-* (in which *T* = any stop and /H/) a prothetic vowel spelled *i-* emerges: e.g. **stu-* > Hitt. *ištu-*, **sh₂oi-* > Hitt. *išḫai-*, etc. This *i-* cannot be identical to /i/ because it does not partake in the NH lowering of OH /i/ to /e/ before /s, n, m/ and clusters containing /H/ (cf. § 1.4.8.1.d). It can neither be identical to the epenthetic vowel *e/i*, because it is never spelled *e-*. Phonetically we may think of e.g. [ɪ].

Because these three vowels occur in specific environments that are complementarily distributed, we could in prinicple regard them all as allophones of a single phonemical epenthetic vowel, which we could write as /ə/.

Note that there potentially is one environment in which *-a-* = [ə] and *-e/i-* = [ɨ] have to be phonologically distinguished, however, namely in /K_sC/. The cluster **KsC* regularly yields Hitt. [kɨsC], spelled *-ke/išC-* (e.g. *h₃rg-sḱé/ó-* > Hitt. *ḫar-ki-iš-ke/a-*, *ḫar-ke-eš-ke/a-*, **téks-ti* > *ták-ki-iš-zi*, *ták-ke-eš-zi*, etc.), whereas a cluster **KnsC* would yield pre-Hitt. *[kənsC], which with the regular loss of **n* before **s* would further develop in Hitt. [kəsC], spelled *-kašC-*. If we would interpret *-a-* = [ə] and *-e/i-* = [ɨ] as allophones of a single phoneme /ə/, it would in this environment become impossible to explain on the basis of synchronic

reasoning only why the phonological form /kəsC/ is spelled in one form as *-ke/išC-* and in the other as *-kašC-*. It should be noted, however, that thus far the development **KnsC* > *-kašC-* is only attested in the verb **g^{wh}nsḱé/ó-* > Hitt. [k^{w}əsk:e/a-], spelled *ku-u̯a-as-ke/a-* 'to kill (impf.)', which has an initial labiovelar. Because in the cluster **KsC* labiovelars behave differently, yielding not ***-kue/išC-* but *-kušC-* (cf. **h$_1$g^{wh}sḱé/ó-* > Hitt. *ak-ku-uš-ke/a-*), there is thus far no minimal pair attested where *-a-* = [ə] and *-e/i-* = [ɨ] have to be distinguished. Nevertheless, I do not think it improbable that such a minimal pair may have existed and one day will surface in the texts.[129]

In this book I therefore have rendered the vowel *-a-* = [ə] as /ə/ and the vowel *-e/i-* = [ɨ] as /ɨ/, without specifically claiming that they must be regarded as separate phonemes: the reader should bear in mind that on the basis of the Hittite material that is known so far it is fully justified to regard these vowels as allophones of a single phoneme /ə/. For sake of convenience, I have rendered prothetic *i-* = [ɪ] as /ɨ/ as well.

So, the phonological vowel chart can be given as follows:

/ī/ /i/ /u/ /ū/

/ə/

/e/ /o/

/ā/ /a/

It should be noted, however, that in the case a form would surface in which a cluster *-kašC-* = [kəsC] < **KnsC* is attested, which then forms a minimal pair with *-ke/išC-* = [kɨsC] < **KsC*, this chart should be adapted to:

/ī/ /i/ /ɨ/ /u/ /ū/

/e/ /o/

/ə/

/ā/ /a/

[129] A concrete case could e.g. be the nom.-acc.sg.-form *sākan* 'oil' followed by the enclitic possessive pronoun *=šmi-*, *=šma-*, *=šme-* 'your (pl.), their', which should have been spelled ***šākašmet* 'your / their oil', representing [sa̋gəsmed] < *[sa̋gənsmed] < **sóǵ$^{(h)}$n=smed*.

1.3.10 Overview of the Hittite phoneme inventory

After having treated all evidence available from the Hittite orthography, elaborately discussing spelling conventions and complementary distributions, I conclude that the Hittite phoneme inventory was as follows:

stops	/p/	/t/	/k/	/k^w/	(fortis)
	/b/	/d/	/g/	/g^w/	(lenis)
affricate		/t^s/			
glottal stop		/ʔ/			
fricatives	/H/	/H^w/	/S/		(fortis)
	/h/	/h^w/	/s/		(lenis)
resonants	/R/	/L/	/N/	/M/	(fortis)
	/r/	/l/	/n/	/m/	(lenis)

vowels: /ī/ /i/ /u/ /ū/; /ə/; /e/ /o/; /ā/ /a/

1.4 CHANGES FROM PIE TO HITTITE

In this chapter I will treat the phonological developments that took place from Proto-Indo-European to Hittite. First I will treat some basic phonological phenomena that are important for Hittite historical phonology. Then I will systematically treat the PIE phonemes and discuss their outcomes in Hittite in different phonological surroundings. Note that I will only refer to the intermediate Proto-Anatolian stage when I feel that it is necessary. Sometimes I will use more vague terms like pre-Hittite (i.e. any stage between PIE and attested Hittite), post-PAnat. (i.e. the stage between PAnat. and attested Hittite) or pre-PAnat. (i.e. the stage between PIE and PAnat.).

1.4.1 Lenition

Lenition is the phenomenon that an original fortis consonant becomes lenis. We can distinguish two situations in which lenition regularly takes place.[130]

(1) Intervocalic fortis consonants are lenited after an accentuated long vowel.[131] Note that this includes the outcomes of the monophthongizations of **ei*, **oi*, **eu* and **ou*[132] as well as the outcome of **ó*, which yields Hitt. /á/ through PAnat. /ó/.[133] Examples: **h₁éih₂ou* > Hitt. /ʔéhu/, *e-ḫu* 'come!'; **méih₂ur* > Hitt. /méhur/, *me-e-ḫur* 'period, time'; **sókʷo-* > Hitt. /ságʷa-/, *ša-a-ku-u̯a-* 'eye'; **h₂ómsei* >

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[130] Lenition is visible in the other Anatolian languages as well, under the same conditions (cf. Melchert 1994a: 60 for examples), which implies that this was a PAnatolian phenomenon. See Adiego 2001 for the argumentation that viewed in moraic terms the two lenition rules can be regarded as one.

[131] First formulated by Eichner 1973: 79.

[132] This shows that at the moment that lenition took place, the result of the monophthongization of **ei* and **oi* was */e͈/, which was still different from original short */e/, which did not cause lenition. Only later on, probably as a result of the loss of a distinction in length between */e͈/ and */e/ in unaccentuated syllables (due to the weakening of unaccentuated */e/ to /i/ and /a/), accentuated */e͈/ and /e/ merged into Hitt. /e/.

[133] This is the only reasonable way in which we can explain the frequent alternation in *ḫi*-verbs between a lenis stem-final consonant in 3sg.pres.act. and a fortis one in 3pl.pres.act., e.g. *ištāpi / ištappanzi*, which reflects **stópei / *stpénti*, where **ó* > PAnat. /ó/ > Hitt. /á/ caused lenition of the following **p* to /b/.

Hitt. /Hắsi/, *ḫa-a-ši* ‘she gives birth to’;[134] **nóh₂ei* > Hitt. /nắhi/, *na-a-ḫi* ‘he fears’.[135]

It should be noted that in many occasions the fortis consonant was restored, especially when we are dealing with verbal endings (e.g. *te-e-eḫ-ḫi* /téHi/ ‘I take’ < **dʰh₁óih₂ei* should regularly have been **/téhi/, ***te-e-ḫi*, etc.).

(2) Intervocalic fortis consonants are lenited between two unaccentuated vowels.[136] There are only a few examples from Hittite because in many occasions the fortis consonant has been analogically restored. Real examples include: **CV́C-h₂eh₂e* > Hitt. /CV́CHaha/, °*C-ḫa-ḫa* (1sg.pres.midd.-ending);[137] **sépitos* > OH /sépidas/, *še-ep-pí-da-aš*, a kind of grain (gen.sg.) >> OH /sépitas/, *še-ep-pí-it-ta-aš*, with restored /t/.

It should be borne in mind that lenition only affects intervocalic consonants, i.e. *not* consonants that are part of a cluster (compare e.g. the treatment of *u̯ekk-*^{zi}).

1.4.2 Fortition

Fortition is the phenomenon that an original lenis consonant becomes fortis. Usually, this is due to contact with an adjacent other consonant. For instance, it seems to be a general rule that lenis consonants are fortited before the cluster *-sk-*: *ak-ku-uš-ke/a-*^{zi} = /ʔkʷské/á-/, the *-ške/a-*imperfective of *eku-*^{zi} */ aku-* = /ʔegʷ- / ʔgʷ-/ ‘to drink’; *la-ak-ki-iš-ke/a-* = /ləkɨské/á-/, the *-ške/a-*imperfective of *lāk-*^{i} */ lak-* = /lāg- / ləg-/ ‘to knock down’;[138] etc. Sometimes, fortition can be interpreted as assimilation, e.g. **Vgh₂V* > Hitt. /VkV/. See below at the treatment of the separate phonemes for more examples.

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[134] This example shows that the assimilation of **VmsV* to /VSV/ antedates the process of lenition.

[135] Examples like *ārri* ‘he washes’ < **h₁órh₁ei* and *šākki* ‘he knows’< **sókh₁ei* show that at the moment of lenition **-rh₁-* and **-kh₁-* phonologically still counted as clusters (lenition only affects intervocalic consonants!). So the assimilation of **Vrh₁V* to /VRV/ and the disappearance of **h₁* in **Ch₁V* only took place after the moment of lenition.

[136] First suggested by Eichner 1973: 100[86].

[137] Compare the Lycian ending *-χaga* < PAnat. */-Haha/.

[138] This example shows that the rise of the epenthetic vowel /ɨ/ in a cluster **VKsC* postdates the fortition of */g/ to /k/ before *-šk-*.

p

1.4.3.1 The normal outcome of PIE **p* is Hitt. /p/: **pédom* > Hitt. /pédan/, *pé-e-da-an* 'place'; **prh$_1$-ói-ei* > Hitt. /prʔā́i/, *pa-ra-a-i* 'he blows'; **h$_1$ép-ēr* > Hitt. /ʔéper/, *e-ep-pé-er* 'they seized'; **sup-óri* > Hitt. /supári/, *šu-up-pa-ri* 'he sleeps'; **h$_1$épti* > Hitt. /ʔépt^{s}i/, *e-ep-zi* 'he seizes', etc.. Like all other consonants, **p* could fell victim to lenition and then yields /b/: **stóp-ei* > Hitt. /ɨstā́bi/, *iš-ta-a-pí* 'he plugs up', cf. **stpénti* > /ɨstpánt^{s}i/, *iš-tap-pa-an-zi* 'they plug up'.

b

1.4.3.2 Since already in PIE **b* was a rare phoneme, I know of only one example in Hittite, namely **g^{h}róbh$_1$-ei* > Hitt. /krā́bi/, *ka-ra-a-pí* 'he devours', which shows that PIE **b* yields Hitt. /b/.

b^{h}

1.4.3.3 The normal outcome of **b^{h}* is Hitt. /b/: **néb^{h}es* > Hitt. /nébis/, *ne-e-pí-iš* 'heaven'; **d^{h}éb^{h}-u* > Hitt. /tébu/, *te-e-pu* 'little', **h$_3$érb^{h}-to* > Hitt. /Hárbta/, *ḫar-ap-ta* 'he changes alliance'. In initial position, all labial stops have merged in /p/: **b^{h}érh$_{2/3}$-ti* > Hitt. /párHt^{s}i/, *pár-aḫ-zi*, *pár-ḫa-zi* 'he chases'. Fortition of **b^{h}* to /p/ seems to have taken place in **h$_3$rb^{h}-ské/ó-* > Hitt. /Hrpɨské/á-/, *ḫar-ap-pí*[*-iš-ke/a-*], impf. of *ḫarp-^{tta}* 'to change alliance' and in **kmb^{h}-i-* > Hitt. /kapi-/, *kap-pí-* 'small'.

t

1.4.3.4 The normal outcome of **t* is Hitt. /t/: **terh$_2$-u-* > Hitt. /tarH^{w}-/, *tar-ḫu-*, *ta-ru-uḫ-* 'to conquer'; **tuéḱ-om* > Hitt. /tuékan/, *tu-ek-ka-an* 'body'; **h$_2$ét-o* > Hitt. /Háta/, *ḫa-at-ta* 'he pierces'; **melit-* > Hitt. /milit-/, *mi-li-it-t°* 'honey'; **h$_1$p-ént-om* > Hitt. /ʔpántan/, *ap-pa-an-ta-an* 'seizing'. In front of **i*, **t* is assibilated to /t^{s}/[139]: **tíH-ge* > Hitt. /t^{s}ī́g/, *zi-i-ik* 'you'; **ti-n-h$_1$-énti* > Hitt. /t^{s}iNánt^{s}i/, *zi-in-na-an-zi* 'they finish'; *h$_2$t-ié/ó-* > Hitt. /Ht^{s}ié/á-/, *ḫa-az-zi-e°*, *ḫa-az-zi-i̯a-* 'to pierce';[140] **h$_1$és-ti* > OHitt. /ʔést^{s}/, *e-eš-za* >> Hitt. /ʔést^{s}i/, *e-eš-zi*;[141] see at § 1.4.8.1.c for a

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[139] The assibilation of **t* > /t^{s}/ in front of **i* must be post-PAnatolian, since it does not occur in the other Anatolian languages (e.g. Luw. *-tti*, Pal. *-tti* < **-ti*).

[140] Possibly through a stage */Ht^{s}é/á-/ in which the suffix *-i̯e/a-* was secondarily restored.

[141] With secondary addition of *-i* in analogy to the other present verbal endings in *-i* (*-mi*, *-ši*, *-u̯eni*, *-tteni*).

more detailed treatment. Assibilation also takes place in word-initial position in front of **l*: **tlh$_2$-ő́i* > Hitt. /t^{s}lHá́i/, *za-al-ḫa-a-i*, a vessel, lit. 'carrier'. Lenition of **t* may be visible in some forms of the paradigm of *šeppitt-*, a grain, e.g. gen.sg. *še-ep-pí-da-aš* /sépidas/, if this reflects **sépitos*. Also in **h$_2$tug-* > Hitt. /Hdug-/, *ḫa-tu-ug-*, we seem to be dealing with a lenition of **t* in the initial cluster **h$_2$tV*.

****d***

1.4.3.5 The normal outcome of **d* is Hitt. /d/: **uódr* > /uá́dr/, *u̯a-a-tar* 'water'; **h$_2$dént-* > Hitt. /Hdánt-/, *ḫa-ta-an-t-* 'dried up'. In front of **i*, **d* gets assibilated to /s/[142]: **dié́us* > Hitt. /sí́us/, *ši-i-ú-uš* 'god'; **diéuot-* > Hitt. /síuat-/, *ši-i-u̯a-at-t°* 'day'; see at § 1.4.8.1.c for a more detailed treatment. Note that there is no evidence to determine whether this development took place word-internally as well: in all examples **d* is in initial position. Word-initially, in front of **l*, **d* gets assibilated to /t^{s}/: **dlug^{h}-nu-* > Hitt. /t^{s}lugnu-/, *za-lu-uk-nu-* 'to postpone', **dlug^{h}-éh$_1$sh$_1$-* > Hitt. /t^{s}lugéS-/, *za-lu-keš-* 'to take long'. After the assibilation has taken place, all word-initial dental stops have merged in /t/: **dóru* > Hitt. /tá́ru/, *ta-a-ru* 'wood'; **dóh$_3$-ei* > Hitt. /tá́i/, *da-a-i* 'he takes'.

****d^{h}***

1.4.3.6 The regular outcome of **d^{h}* is Hitt. /d/: **móld^{h}-ei* > Hitt. /má́ldi/, *ma-a-al-ti* 'he recites'. In initial position, the dental consonants merge in /t/: **d^{h}éh$_1$-ti* > Hitt. /tét^{s}i/, *te-e-ez-zi* 'he speaks'; **d^{h}éǵ^{h}om* > Hitt. /tégan/, *te-e-kán* 'earth'; etc. If *panku- / pankau̯-* 'entire' reflects **d^{h}b^{h}nǵ^{h}-(e)u-* (see its lemma), it shows loss of word-initial **d^{h}* before another stop. This may indicate that its preservation in e.g. *ták-na-a-aš* /tgnā́s/ 'earth (gen.sg.)' < **d^{h}ǵ^{h}-m-ós* is analogical after the full-grade **d^{h}éǵ^{h}-m* > *te-e-kán*. Fortition of **d^{h}* to /t/ is visible in **b^{h}ód^{h}h$_2$-ei* >> Hitt. /patái/, *pád-da-i* 'he digs', where it is due to the following **h$_2$*.

The behaviour of **d^{h}* in front of **i* is important for our understanding of PAnatolian: if in PAnatolian the PIE 'voiced' and 'voiced aspirated' series indeed merged into a lenis series, we would a priori expect that **d^{h}*, just as **d*, gets assibilated to /s/ in front of **i*. Unfortunately, all examples where we seem to be dealing with **d^{h}i* are non-probative: *titta-^{i} / titti-* 'to install' goes back to virtual **d^{h}i-d^{h}h$_1$-ói- / *d^{h}i-d^{h}h$_1$-i-* but could very well be a recent formation that was created after the assibilation ceased to operate; *išpartiu̯e/a-^{zi}* 'to escape' seems to reflect **sprd^{h}-ié/ó-*, but is a NH formation; the 2sg.imp.act.-ending *-t* (e.g. *īt*

[142] The assibilation of **d-* > /s/ in front of **i* must be post-PAnatolian, since it does not occur in the other Anatolian languages (e.g. Luw. *tiu̯ad-* 'Sun-god' < **diéuot-*, Pal. *tiuna-* 'god' < *dieu-*).

'go!', *arnut* 'deport!', *ašnut* 'take care!', *ḫuešnut* 'rescue!', etc.) reflects *-*dʰi*, but may have lost its word-final *-*i* before the assibilation took place. This means that there is no solid evidence to prove or disprove that **dʰ*, too, would have been assibilated before **i*.[143]

ḱ

1.4.3.7 The normal outcome of **ḱ* is Hitt. /k/: **ḱós* > Hitt. /kā́s/, *ka-a-aš* 'this (one)', **ḱéito* >> Hitt. /kíta/, *ki-it-ta* 'he lies'; **h₂rtḱo-* > Hitt. /Hrtka-/, *ḫar-tág-ga-* 'bear'; **sóḱ-r* > Hitt. /sā́kr/, *ša-ak-kar* 'dung'.[144] Lenition of **ḱ* to /g/ may be visible in *za-ma-kur* 'beard' if this reflects /tˢmā́gur/ < **smóḱur* (but perhaps this form is a defective spelling for *za-ma-‹an-›kur*).

In the cluster **RḰC*, **ḱ* is regularly dropped, as is visible in *ḫar-zi* /Hártˢi/ 'he holds' < **h₂érḱti* and *iš-tar-zi* /ɨstártˢi/ 'it ails' < **stérḱti*.

ǵ

1.4.3.8 The normal outcome of **ǵ* is Hitt. /g/: **h₂rǵ-i-* > Hitt. /Hrgi-/, *ḫar-ki-* 'white', **sléiǵ-o* > Hitt. /slī́ga/, *ša-li-i-ga* 'he touches'. In initial positions the palatovelars merged into /k-/: **ǵnh₃sénti* > Hitt. /knɨSántˢi/, *ka-ni-eš-ša-an-zi* 'they recognize'; **ǵénu-* > Hitt. /kénu-/, *ge-e-nu* 'knee'. Fortition of **ǵ* is visible in **méǵh₂om* > Hitt. /mékan/, *me-e-ek-kán* 'great (acc.sg.c.)', where it is due to the following **h₂*.

ǵʰ

1.4.3.9 The normal outcome of **ǵʰ* is Hitt. /g/: **dʰéǵʰom* > Hitt. /tégan/, *te-e-kán* 'earth'; **stélgʰti* > Hitt. /ɨstálgtˢi/, *iš-tal-ak-zi* 'he flattens'. In initial position the palatovelars merge into /k-/: **ǵʰésr* > Hitt. /kéSr/, *ke-eš-šar* 'hand'; **ǵʰimro-* > Hitt. /kiMra-/, *gi-im-ra-* 'field'.

k

1.4.3.10 The normal outcome of **k* is Hitt. /k/: **kérsti* > Hitt. /kárStˢi/, *kar-aš-zi* 'he cuts'; **skór-ei* > Hitt. /ɨskā́ri/, *iš-ka-a-ri* 'he cuts'; **tuéko-* > Hitt. /tuéka-/, *tu-e-ek-ka-* 'body'; **tuk-ó-r(i)* > Hitt. /tukā́ri/, *du-ug-ga-a-ri* 'he is visible'; **mrk-ié/ó-* > Hitt. /mrkié/á-/, *mar-ki-i̯a-* 'to disapprove of'. Lenition of **k* to /g/ is possibly visible in *a-ki* /ʔā́gi/ 'he dies' < **Hóḱ-ei* if this forms reflects **k*. In the cluster **RkC*, **k*

[143] Contra Kimball 1999: 292 who explicitly states that "**dh* was not assibilated before **y*".

[144] We would expect lenition of **ḱ* to /g/ here (**sóḱr* > **/sā́gr/ like **-ótr* > Hitt. /-ā́dr/, °*a-a-tar*), but apparently /k/ was restored in analogy to the oblique cases /skn-/ < **sḱ-n-*.

is probably regularly dropped, as may be visible in *ḫar-zi* /Hárt^{s}i/ 'he holds' < *$h_2$ér(ḱ)ti*, if this form reflects **k*.

g

1.4.3.11 The normal outcome of **g* is Hitt. /g/: **$h_2$tugo-* > Hitt. /Hduga-/, *ḫa-tu-ga-* 'terrible'; **iugom* > Hitt. /iugan/, *i-ú-kán* 'yoke'; **$h_3$érg-ti* > Hitt. /Hárgt^{s}i/, *ḫar-ak-zi* 'he gets lost'.

g^{h}

1.4.3.12 The normal outcome of **g^{h}* is Hitt. /g/: *lóg^{h}-ei* > Hitt. /lā́gi/, *la-a-ki* 'he knocks down'; **lg^{h}-ó-ri* > Hitt. /ləgā́ri/, *la-ga-a-ri* 'he is felled'. In initial position all normal velars merge into /k-/: **g^{h}róbh$_1$-ei* > Hitt. /krā́bi/, *ka-ra-a-pí* 'he devours'. Fortition of **g^{h}* to /k/ is visible in *la-ak-ki-iš-ke/a-* /ləkiské/á-/, impf. of *lāk-^{i} / lak-* 'to knock down' < **lg^{h}-sḱé/ó-*.

k^{w}

1.4.3.13 The normal outcome of **k^{w}* is Hitt. /k^{w}/[145]: **k^{w}is* > Hitt. /k^{w}is/, *ku-iš* 'who'; **k^{w}ér-ti* > Hitt. /k^{w}ért^{s}i/, *ku-e-er-zi* 'he cuts'; **k^{w}t-ru-en-* > Hitt. /k^{w}truen-/, *ku-ut-ru-e-n°* 'witness'; **nek^{w}e* > Hitt. /nek^{w}/, *ne-ek-ku* 'not?'; **prk^{w}-i-* > Hitt. /prk^{w}i-/, *par-ku-i-* 'clean'; **dek^{w}s-ié/ó-* > Hitt. /tek^{w}Sié/á-/, *te-ek-ku-uš-ši-i̯a-* 'to show'. If *išpant-* 'night' indeed reflects **k^{w}spént-* (cf. its lemma), it would show loss of initial **k^{w}* before obstruents.[146] Lenition of **k^{w}* to /g^{w}/ is visible in *ša-a-ku-u̯a-* /sā́g^{w}a-/ 'eye' < **sók^{w}-o-*. In the cluster **Rk^{w}C* the buccal part of */k^{w}/ is regularly lost: **térk^{w}ti* > */tárʔ^{w}t^{s}i/ > Hitt. /tárut^{s}i/, *tar-ú-zi* 'he dances'; **trk^{w}sḱé/ó-* > */trʔ^{w}ské/ó-/ > Hitt. /truské/á-/, *ta-ru-uš-ke/a-* 'to dance (impf.)' (similarly in **RḱC* and **RkC*, see above).

g^{w}

1.4.3.14 The normal outcome of **g^{w}* is Hitt. /g^{w}/: **neg^{w}-m-ent-* > Hitt. /neg^{w}mant-/, *ne-ku-ma-an-t-* 'naked'; **d^{h}ng^{w}-i-* > Hitt. /tng^{w}i-/, *da-an-ku-i-* 'dark'; **trg^{w}-ent-* > Hitt. /trg^{w}ant-/, *tar-ku-u̯a-an-t-* 'looking angrily'. In initial position the labiovelars merge into /k^{w}-/: **g^{w}elh$_1$-uon-* > Hitt. /k^{w}eluan-/, *ku-e-lu-u̯a-n°* 'washbasin'.

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[145] Contra Melchert 1994a: 61, who claims that "[t]he PIE voiceless labiovelar */k^{w}/ is [..] weakened to PA[nat.] */g^{w}/ in medial position".

[146] The preservation of **k^{w}-* in *kutruen-* < **k^{w}tru-en-* 'witness' then must be due to restoration in analogy to the expected full-grade form **k^{w}etur-*, which is not attested in Hittite anymore, however.

***g**^{wh}*

1.4.3.15 The normal outcome of *g^{wh} is Hitt. /g^{w}/: *$h_1ég^{wh}ti$ > Hitt. /ʔég^{w}t^{s}i/, *e-ku-zi*, *e-uk-zi* 'he drinks'; *$nég^{wh}ti$ > Hitt. /ég^{w}t^{s}i/, *ne-ku-zi* 'it becomes evening'; *h_2lg^{wh}-$éh_1sh_1$-r* > Hitt. /Hlg^{w}éSr/, *ḫal-ku-e-eš-šar* 'supplies'. In initial position, the labiovelars merge into /k^{w}-/: *$g^{wh}énti$ > Hitt. /g^{w}ént^{s}i/, *ku-en-zi* 'he kills'. Fortition of *g^{wh} to /k^{w}/ is visible in *ak-ku-uš-ke/a-* /ʔk^{w}ské/á-/, impf. of *eku-^{zi} / aku-* 'to drink' < *h_1g^{wh}-sḱé/ó-*.

1.4.4 Fricative

s

1.4.4.1 Word-initially before vowel, **s* is retained as such: **sV-* > Hitt. /#sV-/: **sésti* > Hitt. /sést^{s}i/, *še-eš-zi* 'he sleeps'; **sókh$_1$-ei* > Hitt. /sā́ki/, *ša-a-ak-ki* 'he knows'; **sup-ó-ri* > Hitt. /supā́ri/, *šu-up-pa-ri* 'he sleeps'; **sih$_2$-* > Hitt. /sī-/, *ši-i-* 'one'.

Word-initially before consonants, the outcome depends on the nature of the consonant. Before stops and *h_2, we find that **sC-* > Hitt. /ɨsC-/, spelled *iš-C°*: **sh$_2$-ói-ei* > Hitt. /ɨsHā́i/, *iš-ḫa-a-i* 'he binds'; **skórei* > Hitt. /ɨskā́ri/, *iš-ka-a-ri* 'he cuts'; **sph$_1$-ói-ei* > Hitt. /ɨspā́i/, *iš-pa-a-i* 'he gets full'; **stélǵ^{h}ti* > Hitt. /ɨstálgt^{s}i/, *iš-tal-ak-zi* 'he flattens'.[147] Before the other consonants (i.e. resonants, *h_1, *h_3 and **s*), we find that **sC-* > Hitt. /sC-/: **sró* > Hitt. /srā́/, *ša-ra-a* 'upwards'; **sléi$^{(ə)}$ǵ$^{(ə)}$-o* > Hitt. /slī́ga/, *ša-li-i-ga* 'he touches'; **sménti* > Hitt. /smént^{s}i/, *ša-me-en-zi* 'to pass by'; **snh$_2$énti* > Hitt. /snHént^{s}i/, *ša-an-ḫa-an-zi*; **sh$_1$-ói-ei* > Hitt. /sā́i/, *ša-a-i* 'he impresses'; **sh$_3$ng^{h}-u-oi-* > Hitt. /snguai-/, *ša-an-ku-u̯a-i-* 'nail'; **ssénti* > Hitt. /ssánt^{s}i/, *ša-ša-an-zi* 'they sleep'.

The outcome /ts-/ as visible in *za-ma(-an)-kur* /tsmá(n)gur/ 'beard' < **smóḱur* and *za-ak-kar*, *za-aš-ga-r°* /tskar/ 'excrement' < **sḱṓr* is not phonetical. See the lemmas *zama(n)kur* and *šakkar*, *zakkar / šakn-* for an explanation.

1.4.4.2 In word-internal position, it is best to treat the specific environments separately.

**VsV* > Hitt. /VsV/: **néb^{h}esos* > Hitt. /nébisas/, *ne-e-pí-ša-aš* 'heaven (gen.sg.)', **h$_1$és-ēr* > Hitt. /ʔéser/, *e-še-er* 'they were'.

**VsPV* (in which *P* = any labial consonant): the only example, **uos-b^{h}o-* > Hitt. /uaSba-/, *u̯a-aš-pa-*, *u̯a-aš-ša-pa-* 'clothing', seems to show that the outcome

[147] See at § 1.4.8.1.d below for the fact that this *i-* does not partake in the lowering of OH /i/ to NH /e/ before /s/, which indicates that this vowel was phonologically different from /i/ < **i*.

is /VSPV/, but here the geminate could easily have been secondarily taken over from the verb *u̯ešš-*^{tta}, *u̯aššе/a-*^{zi} ‘to wear’.

**VsKV* > Hitt. /VsKV/ (in which *K* = any velar stop): **h₃rnuśké/ó-* > Hitt. /ʔrnuské/á-/, *ar-nu-uš-ke/a-* ‘to transport (impf.)’; **Hu-śké/ó-* > Hitt. /ʔuské/á-/, *ú-uš-ke/a-* ‘to see (impf.)’; **k*^{w}*is-ki* > Hitt. /k^{w}iski/, *ku-iš-ki* ‘anyone’.

**VsTV* > Hitt. /VsTV/ (in which *T* = any dental stop): **h₁ésti* > Hitt. /ʔést^{s}i/, *e-eš-zi* ‘he is’; **uósth₂ei* > OH */uā́sti/ > NH /uásti/, *u̯a-aš-ti* ‘you buy’; **sostos* > Hitt. /sastas/, *ša-aš-ta-aš* ‘bed (gen.sg.)’.

**VssV* > Hitt. /VssV/: **h₁és-si* > Hitt. /ʔéssi/, *e-eš-ši* ‘you are’.

**Vsh₁V* > Hitt. /VSV/: **h₂ltish₁énti* > Hitt. /Hlt^{s}iSánt^{s}i/, *ḫal-zi-iš-ša-an-zi* ‘they call (impf.)’; *si-sh₁-i-ént-* > Hitt. /siSiánt-/, *ši-iš-ši-i̯a-an-t-* ‘sealed’.

**Vsh₂V* > Hitt. /VsHV/: **h₁esh₂enós* > Hitt. /ʔisHanā́s/, *iš-ḫa-na-a-aš* ‘blood (gen.sg.)’; **h₁esh₂ó-* > Hitt. /ʔisHā́-/, *iš-ḫa-a-* ‘master’.

**Vsh₃V*: no examples.

VsrV* > Hitt. /VSrV/: **h₁és-ri-* > Hitt. /ʔéSri-/, *e-eš-ri-*, *e-eš-ša-ri-* ‘shape, image’. Similarly in **VsrC* > Hitt. /VSrC/ (ǵ*^{h}*ésr-t* > Hitt. /kéSrt/, *ke-eš-šar-ta* ‘with the hand’) and **Vsr#* > Hitt. /VSr#/ (**ǵ*^{h}*ésr* > Hitt. /kéSr/, *ke-eš-šar* ‘hand’).[148]

**VslV* > Hitt. /VslV/: **h₁és-l+* > Hitt. *e-eš-li-it*, *e-eš-lu-ut* ‘I must be’.

**VsmV* > Hitt. /VsmV/: **h₁ésmi* > Hitt. /ʔésmi/, *e-eš-mi* ‘I am’ (never spelled ***e-eš-ša-mi*, so not **/ʔéSmi/); **sésmi* > Hitt. /sésmi/, *še-eš-mi* ‘I sleep’ (and not ***še-eš-ša-mi* = **/séSmi/). Similarly in **Vsm#* > OH /Vsun#/: **sésm* > OH /sésun/, *še-e-šu-un* ‘I slept’.

**VsnV* > Hitt. /VSnV/: e.g. **usnié/ó-* > Hitt. /uSnié/á-/, *uš-ni-i̯a-*, *uš-ša-ni-i̯a-* ‘to put up for sale’.

**VsiV* > Hitt. /VSV/: **h₂msósio-* > Hitt. /Hnt^{s}ā́Sa-/, *ḫa-an-za-a-aš-ša-* ‘descendant’; **iugosio-* > Hitt. /iugaSa-/, *i-ú-ga-aš-ša-* ‘yearling’.[149]

**VPsV* > Hitt. /VPSV/ (in which *P* = any labial stop): **h₁épsi* > Hitt. /ʔépSi/, *e-ep-ši* ‘you seize’; **d*^{h}*eb*^{h}*su-* > Hitt. /tebSu-/, *te-ep-šu-* ‘?’.[150]

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[148] The geminate *-šš-* in the CLuwian cognate *īš(ša)ra/i-* ‘hand’ may show that fortition of **s* to /S/ before **r* is PAnatolian already.

[149] Note that all instances of *VšiV* in Hittite must be of secondary origin, e.g. *āššii̯e/a-*$^{tta(ri)}$ is a secondary *-i̯e/a-*extension of *āšš-*$^{ar(i)}$; *peššii̯e/a-*^{zi} and *ūššii̯e/a-*^{zi} are secondary formations of *pe+šii̯e/a-*^{zi} and *u+šii̯e/a-*^{zi}; *u̯ašii̯e/a-*^{zi} ‘to buy’ is a secondary stem on the basis of original *u̯āš-*^{i} / *u̯aš-*; *u̯ešii̯e/a-*^{zi} is based on the noun *u̯eši-* / *u̯ešai-*; etc.

**VKsV* > Hitt. /VKSV/ (in which *K* = any velar stop): **h₁ég*^{wh}*si* > Hitt. /ʔég^{w}si/, *e-uk-ši*, *e-ku-uš-ši* 'you drink'; **dek*^{w}*s-ie/o-* > Hitt. /tek^{w}Sie/a-/, *te-ek-ku-uš-ši-e*°, *te-ek-ku-uš-ši-i̯a-* 'to show, to present (oneself)'; **no-nog*^{wh}*s-ie/o-* > Hitt. /nanag^{w}Sie/a-/, *na-na-ku-uš-ši-i̯a-* 'to become dark'.

**VTsV* > Hitt. /VTSV/ (in which *T* = any dental stop): **h₁édsi* > Hitt. /ʔédSi/, *e-ez-ši*, [*e-ez-za-a*]*š-ši* 'you eat'.

**Vh₁sV*. Here we must take the accentuation into account, namely **Vh₁sV* yields Hitt. /VsV/ whereas **Vh₁sV* > Hitt. /VSV/: **h₁éh₁so* > Hitt. /ʔésa/, *e-ša* 'he sits down' vs. **h₂eh₁séh₂-* > Hitt. /HaSā-/, *ḫa-a-aš-ša-a-* 'hearth' (see at *ḫāššā-* for an extensive treatment of this word); **h₂ih₁/₃s-éh₂-* > Hitt. /HiSa-/, *ḫi-iš-ša-* 'carriage pole'.

**Vh₂sV* > Hitt. /VHsV/:[151] **péh₂s-o* > Hitt. /páHsa/, *pa-aḫ-ša* 'he protects'; **pleh₂so-* > Hitt. /plaHsa-/, *pa-la-aḫ-ša-*, a garment.

**Vh₃sV*. Here we must take the accentuation into account as well, namely **Vh₃sV* yields Hitt. /VsV/ whereas **Vh₃sV* > Hitt. /VSV/: **póh₃sei* > Hitt. /pā́si/, *pa-a-ši* 'he sips' vs. **poh₃s-uén-ti* > Hitt. /pāSuánt^{s}i/, *pa-a-aš-šu-an-zi* 'to sip' (with analogical *ā*); **h₂ih₁/₃s-éh₂-* > Hitt. /HiSa-/, *ḫi-iš-ša-* 'carriage pole'.

1.4.4.3 The outcomes of clusters involving **Rs* and **RHs* need special attention, especially the difference between clusters with and without laryngeals.

**VrsV* > Hitt. /VRV/: **h₁orso-* > Hitt. /ʔaRa-/, *a-ar-ra-* 'arse'.

**VlsV* > Hitt. /VlsV/[?]: **polso-* (or **plso-*?) > Hitt. /palsa-/ (or /plsa-/?), *pal-ša-* 'road'.

**VmsV* > Hitt. /VSV/: **h₂ems-u-* > Hitt. /HaSu-/, *ḫa-aš-šu-* 'king'. When lenited, the outcome is /VsV/, however: **h₂ómsei* > Hitt. /Há́si/, *ḫa-a-ši* 'he procreates, she gives birth'.[152]

**VnsV* > Hitt. /VSV/[?]: *de/ons-u-* (or **de/oms-u-*) > Hitt. /taSu-/, *da-aš-šu-* 'powerful'.

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[150] Although the spelling *-Vp-šV-* does not reveal anything about whether the *-s-* is single or geminate and although no spellings can be found that expressly indicate singleness (never ***-pa-šV-*) or geminateness (never ***-pa-aš-šV*), the fact that the **s* fortites to /S/ in **VKsV* and **VTsV* in my view makes it highly plausible that this happened in **VPsV* as well.

[151] Melchert 1994a: 77 states that **Vh₂sV* > Hitt. *VššV* on the basis of his reconstruction of the genitival suffix *-aššа-* as **-eh₂so-*. See at *-aššа-* for the falseness of this etymology, however.

[152] Because lenition is a PAnat. feature, the assimilation of **VmsV* to /VSV/ must be PAnatolian as well.

**VrHsV* > Hitt. /VrsV/ if the reconstruction of **ḫārši* (as inferred from 3sg.pret.act. *ḫa-a-ar-aš-ta*) 'he tills (the soil)' as **h₂órh₃-s-ei* is correct.

**VlHsV*: no examples.

**VmHsV* > Hitt. /VnsV/: **h₂ómh₁-s-ei* > Hitt. /ʔáńsi/, *a-a-an-ši* 'he wipes'.

**VnHsV* > Hitt. /Vnt^{s}V/: **ǵénh₁-su-* > Hitt. /ként^{s}u-/, *ge-en-zu-* 'lap'.

**VrHsC* > Hitt. /Vr₺sC/: **uerh₁-sḱé/ó-* > Hitt. /uer₺ské/á-/, *ú-e-ri-iš-ke/a-* 'to call (impf.)'.[153]

**VlHsC* > Hitt. /VL₺sC/: **ḱélh₁st* > Hitt. /káL₺sta/, *kal-li-iš-ta* 'he called'.

**VmHsC* > Hitt. /VM₺sC/: **demh₂sh₂ó-* > Hitt. /taM₺sHá́-/, *dam-me-iš-ḫa-a-* 'damage'.[154]

**VnHsC*: no examples.

**CrsV* > Hitt. /CrSV/: **krs-éntu* > Hitt. /krSántu/, *kar-ša-an-du*, *kar-aš-ša-an-du* 'they must cut'.

**ClsV* > Hitt. /ClSV/: **k^{w}lsénti* > Hitt. /k^{w}lSánt^{s}i/, *gul-ša-an-zi*, *gul-aš-ša-an-zi* 'they carve'.

**CmsV* > Hitt. /Cnt^{s}V/: **h₂msósio-* > Hitt. /Hnt^{s}áSa-/, *ḫa-an-za-a-aš-ša-* 'descendant'.

**CnsV* > Hitt. /Cnt^{s}V/: **nsós* > Hitt. /nt^{s}á́s/, *an-za-a-aš* 'us'.

**CrHsV*: no examples.

**ClHsV* > Hitt. /Cl₺SV/: **ḱlh₁sénti* > Hitt. /kl₺Sánt^{s}i/, *ka-li-iš-ša-an-zi* 'they call'.

**CmHsV* > Hitt. /Cn₺SV/: **h₂mh₁s-énti* > Hitt. /Hn₺Sánt^{s}i/, *ḫa-ni-eš-ša-an-zi* 'they wipe'.

**CnHsV* > Hitt. /Cn₺SV/: **ǵnh₃sénti* > Hitt. /kn₺Sánt^{s}i/, *ka-ni-eš-ša-an-zi* 'they recognize'.

**CrHsC* > Hitt. /Cr₺sC/: **pri-prh₁-sḱé/ó-* > Hitt. /pripr₺ské/á-/, *pa-ri-ip-ri-iš-ke/a-* 'to blow (impf.)', **h₁rh₁-sḱé/ó-* > Hitt. /ʔr₺ské/á-/, *a-ri-iš-ke/a-*, *a-re-eš-ke/a-* 'to consult an oracle (impf.)'.

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[153] Perhaps we must assume on the basis of **VlHsC* > /VL₺sC/ and **VmHsC* > /VM₺sC/ that the regular outcome of **VrHsC* was /VR₺sC/ and that in *ú-e-ri-iš-ke/a-* the single *-r-* was introduced from the indicative *u̯er(iu̯e/a)-*.

[154] If *ḫa-a-ni-iš*, *ḫa-a-ni-eš* /Hán₺s/ 'wipe!' < **h₂ómh₁s* and *ḫa-a-ni-iš-šu-u̯a-ar*, *ḫa-a-ni-eš-š*[*u-u̯a-ar*] /Hán₺Suər/ 'wiping' < **h₂ómh₁s-u̯r̥* are really phonetically regular, the different outcome may be due to the preceding leniting **ó*. Note that these forms may also show that the *-m-* in *damme/išḫā-* at one point has been restored in analogy to the verb *tamāšš-^{zi}* / *tame/išš-*.

**ClHsC* > Hitt. /ClɨsC/$^?$: **mlh$_2$sk-u-*(?) > Hitt. /mlɨsku-/, *ma-li-iš-ku-* ‘weak, light’.
**CmHsC* > Hitt. /CmɨsC/: **dmh$_2$sḱé/ó-* > Hitt. /tmɨské/á-/, *da-me-eš-ke/a-* ‘to oppress (impf.)’.[155]
**CnHsC* > Hitt. /CəSɨC/: **h$_3$nh$_3$sḱé/ó-* > Hitt. /HəSɨké/á-/, *ḫa-aš-ši-ke/a-* ‘to sue (impf.)’.

1.4.4.4 In clusters containing **s* and stops we often see the rise of the anaptyctic vowel /ɨ/[156] (sometimes only within the Hittite period): **d^{h}h$_1$sḱé/ó-* > OH /tské/á-/, *za-aš-ke/a-* > OH /tsɨké/á-/, *zi-ik-ke/a-* ‘to place (impf.)’; **h$_1$d-sḱé/ó-* > MH /ʔdské/á-/, *az-za-ke/a-* (MH/MS) > MH/NH /ʔdsɨké/á-/, *az-zi-ke/a-* (MH/MS) ‘to eat (impf.)’; **h$_2$t-sḱé/ó-* > OH /Htsɨké/á-/, *ḫa-az-zi-ik-ke/a-* ‘to pierce, to prick (impf.)’;[157] **h$_1$p-sḱé/ó-* > Hitt. /ʔpɨské/á-/, *ap-pí-iš-ke/a-* ‘to seize (impf.)’; **téks-ti* > Hitt. /tákɨst^{s}i/, *ták-ki-iš-zi* ‘he devises’; **lǵ^h-sḱé/ó-* > Hitt. /ləkɨské/á-/, *la-ak-ki-iš-ke/a-* ‘to fell (impf.)’;[158] **ǵ$^{(h)}$sd-uént-* > Hitt. /kɨsduánt-/, *ki-iš-du-u̯a-an-t-* ‘hungry’; **ǵ^{h}sréi* > Hitt. /kɨSrí/, *ki-iš-ša-ri-i*, *ki-iš-ri* ‘hand (dat.-loc.sg.)’; and compare the outcomes of **CRHsC* (above), *-*Vh$_2$s* and *-*Vks* (below).

1.4.4.5 The outcome of word-final **s* is /s/.
*-*Vs* > Hitt. /-Vs/: *-*os* > Hitt. /-as/, *-aš*, gen.sg.-ending; **sés* > Hitt. /sés/, *še-e-eš* ‘sleep!’; **ḱós* > Hitt. /kā́s/, *ka-a-aš* ‘this (one)’.
*-*VKs* > Hitt. /VKɨs/: **h$_1$óḱ$^{(?)}$-s* > Hitt. /ʔā́kɨs/, *a-ak-ki-iš* ‘he died’.
*-*VPs* > Hitt. /VPs/: **stóp-s* > Hitt. /ɨstā́ps/, *iš-tap-pa-aš* ‘he plugged up’; **g^{h}róbh$_1$-s* > Hitt. /krā́bs/, *ga-ra-pa-aš* ‘he devoured’.
*-*VTs* > Hitt. /-VTs/: **g^{h}éu-t-s* > Hitt. /kū́ts/, *ku-ú-uz-za*, ‘wall’, **diéuot-s* > Hitt. /síuats/, *ši-i-u̯a-az* ‘day’; **ǵ^{h}rh$_1$ód-s* > Hitt. /krʔā́ds/, *ka-ra-a-az* ‘entrails’.
*-*Vh$_1$s* > Hitt. /-Vs/: **d^{h}éh$_1$s* > Hitt. /tés/, *te-e-eš* ‘you spoke’.

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[155] Although on the basis of **CmHsV* > Hitt. /CnɨSV/ we may rather have to assume that regularly **CmHsC* yields /CnɨsC/ and that in *dameške/a-* the *-m-* has been restored in analogy to the verb *tamāšš-^{zi} / tame/išš-*.

[156] See also Kavitskaya 2001: 278f. for a treatment of the anaptyctic vowel /ɨ/ and the factors that determine its place within a cluster.

[157] Note that there is no anaptyctic vowel in *ḫur-za(-aš)-ke/a-* /Hortské/á-/ ‘to curse (impf.)’ < **h$_2$urt-sḱé/ó-*, *iš-pa-an-za-aš-ke/a-* /ispndské/á-/ ‘to libate (impf.)’ < **spnd-sḱé/ó-* and *ma-al-za(-aš)-ke/a-* /məldské/á-/ ‘to recite (impf.)’ < **mld^h-sḱé/ó-*. This must be due to the fact that a resonant is preceding the dental consonant.

[158] Note that OH *ḫi-in-ga-aš-ke/a-* /Hinkské/á-/ yields MH *ḫi-in-ki-iš-ke/a-* /Hinkɨské/á-/.

*-Vh_2s > OH /-VHs/ > NH /VHɨs/: *-$éh_2$-s > OH /-aHs/, °Ca-$aḫ$-$ḫa$-$aš$ (OH/NS) > NH /-aHɨs/, °Ca-$aḫ$-$ḫi$-$iš$ (NS), 3sg.pret.act.-forms of verbs in -$aḫḫ$-^{i}.

*-Vh_3s > Hitt. /Vs/: *$dóh_3$-s > Hitt. /tā́s/, da-a-$aš$ 'he took'.

*-Vrs > Hitt. /-Vrs/: $h_1órs$ > Hitt. /ʔā́rs/, a-ar-$aš$ 'he arrived'; *$kers$ > Hitt. /kárs/, kar-$aš$ 'cut!'.[159]

*-Vls: no examples.

*-Vms > Hitt. /-Vs/: *-oms > OH /-us/, -$(ú$-$)uš$, > NH /-os/, -$(u$-$)uš$, acc.pl.c. of o-stems.

*-Vns > Hitt. /-Vs/: *-uen-s > Hitt. /-uas/, -$u̯a$-$aš$, gen.sg. of the verbal noun in -$u̯ar$.

1.4.5 Laryngeals

Because the PIE laryngeals, *h_1, *h_2 and *h_3, show some mergers in the pre-PAnatolian period already, it is in my view best to first treat their PAnatolian outcomes and then see what these yield in Hittite.

1.4.5.a The outcomes of word-initial laryngeals in PAnatolian have been treated in detail in Kloekhorst fthc.c., where the following overview has been given (note that the order of the laryngeals is not numerical in order to make the mergers more transparent: R = r, l, m, n, i, u; T = any stop and s):

PIE		PAnat.	PIE	PAnat.
*h_2e-	>	*Ha-	*h_2o-	
*h_3e-	>	*Ho-	*h_3o-	*ʔo-
*h_1e-	>	*ʔe-	*h_1o-	

[159] The -z in $ḫa$-$aš$-te-er-za /Hstérts/ 'star' < *$h_2stḗr$ + s must be due to the secondary attachment of the commune nom.sg.-ending -s to the stem /Hstér/.

*h_2R-	>	*HR-	*h_2T-	>	*HT-
*h_3R- *h_1R-	}	*ʔR-	*h_3T- *h_1T-	}	*T-

The outcome of the PAnatolian sequences in Hittite is as follows:

PAnat. */Ha-/ > Hitt. /Ha-/: *h_2ent- > PAnat. */Hant-/ > Hitt. /Hant-/, *ḫa-an-t-* 'forehead'; *$h_2erǵi$- > PAnat. */Hargi-/ > Hitt. /Hargi-/, *ḫar-ki-* 'white'; *h_2ensu- > PAnat. */Hansu-/ > Hitt. /HaSu-/, *ḫa-aš-šu-* 'king'.

PAnat. */Ho-/ > Hitt. /Ha-/: *$h_3ērōn$+*s* > PAnat. */Hórōns/ > Hitt. /Hā́ras/, *ḫa-a-ra-aš* 'eagle'; *$h_3épr$ > PAnat. */Hópr/ > Hitt. /Hā́pr/, *ḫa-a-ap-pár* 'business'.

PAnat. */ʔe-/ > Hitt. /ʔe-/: *$h_1ésmi$ > PAnat. */ʔésmi/ > Hitt. /ʔésmi/, *e-eš-mi* 'I am'; *$h_1érmn$ > PAnat. */ʔérmn/ > Hitt. /ʔérmn/, *e-er-ma-an* 'illness'; *$h_1ésh_2r$ > PAnat. */ʔésHr/ > Hitt. /ʔésHr/, *e-eš-ḫar* 'blood'.

PAnat. */ʔo-/ > Hitt. /ʔa-/: *$h_2ómh_1sei$ > PAnat. */ʔṓmsei/ > Hitt. /ʔā́nsi/, *a-an-ši* 'he wipes'; *$h_2óuth_2ei$ > PAnat. */ʔóutai/ > Hitt. /ʔáuti/, *a-ut-ti* 'you saw'; *$h_2óro$ > PAnat. */ʔṓro/ > Hitt. /ʔā́ra/, *a-a-ra* 'right, properly'; *$h_3órǵ^hei$ > PAnat. */ʔṓrgei/ > Hitt. /ʔā́rgi/, *a-ar-ki* 'he mounts'; *$h_1órei$ > PAnat. */ʔṓrei/ > Hitt. /ʔā́ri/, *a-a-ri* 'he arrives'.

PAnat. */HR-/ > Hitt. /HR-/: *$h_2rtḱo$- > PAnat. */Hrtḱo-/ > Hitt. /Hrtka-/, *ḫar-ták-ka-* 'bear'; *h_2lt-*i*- > PAnat. */Hlti-/ > Hitt. /Hlt^{s}i-/, *ḫal-zi-* 'to call'; *$h_2méh_1sh_2o$- > PAnat. */HméʔsHo-/ > Hitt. /HmésHa-/, *ḫa-me-eš-ḫa-* 'spring'; *$h_2nénti$ > PAnat. */Hnánti/ > Hitt. /Hnánt^{s}i/, *ḫa-na-an-zi* 'they draw water'; *h_2imno- > PAnat. */Himno-/ > Hitt. /HiMa-/, *ḫi-im-ma-* 'imitation'; *$h_2uh_1ént$- > PAnat. */HuʔánT-/ > Hitt. /HoánT-/, *ḫu-u̯a-an-t-* 'wind'.

PAnat. */ʔRC-/ > Hitt. /ʔRC-/: *h_1mn- > PAnat. */ʔmn-/ > Hitt. /ʔM-/, *am-m°* 'me'; *h_1ndom > PAnat. */ʔndom/ > Hitt. /ʔndan/, *an-da-an* 'inside'; *h_1id^hi > PAnat. */ʔidi/ > Hitt. /ʔid/, *i-it* 'go!'; *$h_1rsénti$ > PAnat. */ʔrsánti/ > Hitt. /ʔrSánt^{s}i/, *ar-ša-an-zi* 'they flow'; *h_2u-sḱé/ó- >> PAnat. */ʔusḱé/ó-/ > Hitt. /ʔuské/á-/, *ú-uš-ke/a-* 'to see (impf.)'; *$h_3rtóri$ > PAnat. */ʔrtóri/ > Hitt. /ʔrtári/, *ar-ta-ri* 'he stands'; *$h_3rǵ^h$-i- > PAnat. */ʔrgi-/ > Hitt. /ʔrgi-/, *ar-ki-* 'testicle'; *$h_3niéti$ > PAnat. */ʔniéti/ > Hitt. /ʔniét^{s}i/, *a-ni-e-ez-zi* 'he works'.

PAnat. */ʔRV-/ > Hitt. /RV-/ (except PAnat. */ʔrV-/, see below): *h_1leng^hti > PAnat. */ʔlengti/ > Hitt. /lík^{s}i/, *li-ik-zi* 'he swears'; *$h_3néh_3mn$ > PAnat. */ʔlóʔmn/ > Hitt. /lā́mn/, *la-a-ma-an* 'name'; *$h_1uorǵ$- > PAnat. */ʔuarg-/ > Hitt.

/uarg-/ in *u̯a-u̯a-ar-ki-ma-*, object in which the door-ax is fixed and turns; *$*h_1$uorso-* > PAnat. */ʔuorso-/ > Hitt. /uarsa-/, *u̯a-ar-ša-* 'fog, mist'.[160]

PAnat. */ʔrV-/ > Hitt. /ʔrV-/: *$*h_1$rénti* > PAnat. */ʔránti/ > Hitt. /ʔrántˢi/, *a-ra-an-zi* 'they arrive'; *$*h_3$rénto* > PAnat. */ʔránto/ > Hitt. /ʔránta/, *a-ra-an-ta* 'they stand'; *$*h_3$róiei* > PAnat. */ʔrṓiē/ > Hitt. /ʔrā́i/, *a-ra-a-i* 'he rises'.

PAnat. */HT-/ > Hitt. /HT-/: *$*h_2$stḗr* > PAnat. */Hstḗr/ > Hitt. /Hstér/, *ḫa-aš-te-er-* 'star'; *$*h_2$dént-* > PAnat. */Hdánt-/ > Hitt. /Hdánt-/, *ḫa-da-an-t-* 'parched'; *$*h_2$tié/ó-* > PAnat. */Htié/ó-/ > Hitt. /Htˢié/á-/, *ḫa-az-zi-e°*, *ḫa-az-zi-i̯a-* 'to pierce, to prick'; *$*h_2$téugti* > PAnat. */Hdṹgti/ > Hitt. /Hdṹgtˢi/, *ḫa-tu-uk-zi* 'he is terrible'.

PIE *$*h_{1/3}$T-* > PAnat. /T-/ > Hitt. /T-/: *$*h_1$p-ói-ei* > PAnat. */pṓiē/ > Hitt. /pā́i/, *pa-a-i* 'he gives'; *$*h_1$siéti* > PAnat. */siéti/ > Hitt. /siétˢi/, *ši-i-e-ez-zi* 'he shoots'; *$*h_1$t-i-sténi* > PAnat. */tisténi/ > Hitt. /tˢisténi/, *zi-iš-te-e-ni* 'you (pl.) cross over'.

1.4.5.b The outcome of word-internal laryngeals is as follows (note that the three laryngeals always colour a neighbouring **e*; a PAnat. */H/ followed by /u/ gets phonemicized as /H^{w}/, cf. Kloekhorst fthc.c; the order of laryngeals is again not numerical):

PIE		PAnat.		early OH		late OH
$*Vh_2V$	>	*/VHV/	>	/VHV/	>	/VHV/
$*Vh_3V$, *$*Vh_1V$*	>	*/VʔV/	>	/VʔV/	>	/VV/

Examples:

$*Vh_2V$: *$*péh_2ur$* > PAnat. */páH^{w}r/ > Hitt. /páH^{w}r/, *pa-aḫ-ḫur* 'fire'; *$*tieh_2$-oi-* > PAnat. */tiaHoi-/ > Hitt. /tˢaHai-/, *za-aḫ-ḫa-i-* 'battle'; *$*h_1$nd^{h}uéh$_2$ōs* > PAnat. */ʔnduáHōs/ > Hitt. /ʔnduáHas/, *an-tu-u̯a-aḫ-ḫa-aš* 'human being'; *$*h_2$uh$_2$o-* > PAnat. */HuHo-/ > Hitt. /HuHa-/, *ḫu-uḫ-ḫa-* 'grandfather'; *$*méih_2ur$* > PAnat.

[160] Note that in *ú-u̯a-an-zi* /ʔuántˢi/ 'they see' < **Hu-énti* and *ú-u̯a-a-tar* /ʔuā́dr/ 'inspection' < **Hu-ótr* the /ʔ-/ must be restored on the basis of e.g. *ú-me-e-ni* /ʔuméni/ 'we see' and *uš-te-e-ni* /ʔusténi/ 'you see'. The form *ú-u̯a-an-ši-ke/a-* 'to copulate (impf.)' = /ʔuɔnsike/a-/ goes back to *$*h_{1/3}$unsḱé/ó-* in which the initial laryngeal is regularly retained before vocalic *-u-*,

*/méh^{w}r/ > Hitt. /méh^{w}r/, *me-e-ḫur* ‘period, time’ (with lenition); **nóh$_2$ei* > PAnat. */nóhē/ > Hitt. /náhi/, *na-a-ḫi* ‘he fears’ (with lenition); etc.

**Vh$_{1/3}$V*: **h$_2$éih$_3$-eu-eies* > PAnat. */Héʔeuēs/ > early OH /Héʔaues/, *ḫé-e-a-u-e-eš* (OS) > late OH /Héaues/, *ḫé-e-i̯a-u-e-š=a* (OS) ‘rains (nom.pl.)’;[161] **néih$_{1/3}$-o* > PAnat. */néʔo/ > early OH /néʔa/, *ne-e-a* > younger Hitt. /néa/, *ne-e-i̯a* ‘he turns, leads’; **dóh$_3$ei* > PAnat. */dóʔē/ > early OH /táʔi/, *da-a-i* > younger Hitt. /tái/, *da-a-i* ‘he takes’.

1.4.5.c

PIE		PAnat.		Hitt.
**Vh$_2$T* **Vh$_3$T* **Vh$_1$T*	}	*/VʔT/	>	/V̄T/

(*T* = any stop, but not **s*)

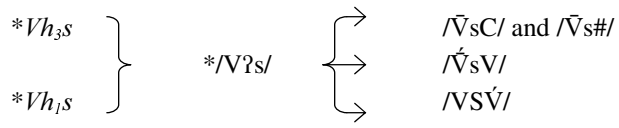
Note that PAnat. */VʔDV/ (in which *D* = any lenis stop) yields Hitt. /VDV/, whereas */VʔDV/ yields Hitt. /VTV/, showing fortition of */D/ due to assimilation with /ʔ/.

Examples: **d^{h}éh$_1$t* > PAnat. */déʔt/ > Hitt. /tét/, *te-e-et* ‘he said’; **léh$_2$pt(o)* > PAnat. */láʔpto/ > Hitt. /lapta/, *la-a-ap-ta* ‘it glowed’; **séh$_2$goi-* > PAnat. */sáʔgai-/ > Hitt. /sagai-/, *ša-a-ga-i-* ‘sign, omen’; **uóh$_2$gei* > pre-Hitt. */uóʔgē/ > Hitt. /uagi/, *u̯a-a-ki* ‘he bites’; **uh$_2$génti* >> */u̯ʔgánti/ > pre-Hitt. /uəʔgánti/ > Hitt. /uəkánt^{s}i/, *u̯a-ak-kán-zi* ‘they bite’; **dóh$_3$th$_2$e* > PAnat. */dóʔta/ > Hitt. /tata/, *da-a-at-ta* ‘you took’.

1.4.5.d

PIE		PAnat.		Hitt.
**Vh$_2$s*	>	*/VHs/	>	/VHs/

[161] This form shows that the lost of intervocalic /ʔ/ is a late OH phenomenon.



Examples:

Vh_2s: *$péh_2so$* > PAnat. */páHso/ > Hitt. /páHsa/, *pa-aḫ-ša* ‘he protects’; *$h_1nd^huh_2sos$* > PAnat. */ʔnduHsos/ > Hitt. /ʔnduHsas/, *an-tu-uḫ-ša-aš* ‘human being (gen.sg.)’; *$pleh_2so$-* > PAnat. */plaHso-/ > Hitt. /plaHsa-/, *pa-la-aḫ-ša-*, a garment.

$Vh_{1/3}s$: *$d^héh_1s$* > PAnat. */déʔs/ > Hitt. /tés/, *te-e-eš* ‘you said’; *$d^héh_1si$* > PAnat. */déʔsi/ > Hitt. /tési/, *te-e-ši* ‘you say’; *$h_1éh_1so$* > PAnat. */ʔéʔso/ > Hitt. /ʔésa/, *e-ša* ‘he sits down’; *$póh_3sei$* > PAnat. */pṓʔsē/ > Hitt. /pā́si/, *pa-a-ši* ‘he sips’; *$poh_3suénti$* > PAnat. */poʔsuánti/ > Hitt. /pāSuántˢi/, *pa-a-aš-šu-u̯a-an-zi* ‘to sip’ (with analogical *-ā-*); *$h_2eh_1seh_2$-* > PAnat. */Haʔsáʔ-/ > Hitt. /HaSā́-/, *ḫa-aš-ša-a-* ‘hearth’.

1.4.5.e

PIE		PAnat.		Hitt.
Vh_2R	>	*/VHR/ ?	>	/VHR/ ?
Vh_3R		*/VʔR/		/V̄RC/
				/V́RV/
Vh_1R				/VRRV́/

Examples:

Vh_2R:[162] *meh_2roi-(?) > PAnat. */maHroi-/ > Hitt. /maHrai-/, *ma-aḫ-ra-i-*, a body part of animals; *$tieh_2roi$- > PAnat. */tiaHroi-/ > Hitt. /tˢaHrai-/, *za-aḫ-ra-i-* ‘knocker(?)’; *$móh_2lo$-(?) > PAnat. */mṓHlo-/ > Hitt. /mā́Hla-/, *ma-a-aḫ-la-* ‘branch of a grapevine’.

[162] Because all examples are not fully ascertained, this sound law must be regarded as provisional. Note however that Kimball’s example (1999: 400) in favour of a development *Vh_2nV > Hitt. *VnnV* is incorrect, see at *u̯anmum(m)iu̯a-*. In word-final position, note the difference between *$séh_2n$ > Hitt. /sáHn/, *ša-aḫ-ḫa-an* ‘feudal service’ and *$duéh_2m$ > Hitt. /tuā́n/, *tu-u̯a-a-an* ‘to this side’. The latter development may be PIE already, which is commonly referred to as ‘Stang’s Law’.

$Vh_{1/3}R$: *$h_3néh_3mn$* > PAnat. */ʔlóʔmn/ > Hitt. /lā́mn/, *la-a-ma-an* ‘name’; *$tiéh_1no$-* > PAnat. */tiéʔno-/ > Hitt. /t^{s}éna-/, *zé-e-na-* ‘autumn’; *$d^{h}éh_1mi$* > PAnat. */déʔmi/ > Hitt. /témi/, *te-e-mi* ‘I say’; *$tiéh_1ri$-* > PAnat. */tiéʔri-/ > Hitt. /t^{s}éri-/, *ze-e-ri-* ‘cup’; *$h_3eh_3nóh_3$-* > PAnat. */Hoʔnáʔ-/ Hitt. /HaNá-/, *ḫa-an-na-* ‘to sue’.

1.4.5.f

PIE		PAnat.		Hitt.
Th_2V *Th_3V* *Th_1V*	}	*/TʔV/	>	/TV/

(*T* = any stop, but not **s*)

Note that *VDh_2V* (in which *D* = any lenis stop) yields Hitt. /VTV/, i.e. the **D* is fortited to /T/ due to assimilation to the following *h_2*.[163]

Examples: *$-th_2e$* > PAnat. */-tʔa/ > Hitt. /-ta/, *°t-ta*, 2sg.pret.act.-ending of the *ḫi*-conjugation; *$dh_3énti$* > PAnat. */dʔánti/ > Hitt. /tánt^{s}i/, *da-an-zi* ‘they take’; *$d^{h}h_1$-ói-ei* > PAnat. */tʔṓiē/ > Hitt. /tā́i/, *da-a-i* ‘he places’; *$d^{h}h_1iénti$* > PAnat. */dʔiánti/ > Hitt. /tiánt^{s}i/, *ti-an-zi* ‘they place’;[164] *$mégh_2$-i-* > PAnat. */mékʔi-/ > Hitt. /méki-/, *me-ek-ki-* ‘much, many’; *$b^{h}od^{h}h_2ei$* > PAnat. */batʔai/ > Hitt. /patai/, *pád-da-i* ‘he digs’; *$g^{h}róbh_1$-ei* > PAnat. */grṓbʔē/ > Hitt. /krā́bi/, *ga-ra-a-pí* ‘he devours’.[165]

[163] This fortition may have been PAnatolian already, if indeed CLuw. *-dduu̯ar(i)* (2pl.midd.-ending) reflects *$-d^{h}h_2u$-*, see at *-ttuma(ri)*, *-ttumat(i)*, and cf. Melchert 1994a: 77.

[164] This latter example shows that the laryngeal must have been present up to the times of assibilation of dentals by a following *-i-*. Because this assibilation is pre-Hittite only, and not Proto-Anatolian, the laryngeal was still present at the PAnatolian stage, hence the PAnat. reconstruction */TʔV/.

[165] This latter example shows that *h_1* does not fortite a preceding **D*.

1.4.5.g

PIE		PAnat.		Hitt.
*sh_2V	>	*/sHV/	>	/sHV/
*sh_3V, *sh_1V		*/sʔV/	>	/SV/

Examples:

*sh_2V: *sh_2*óiei* > PAnat. */sHṓiē/ > Hitt. /ɨsHā́i/, *iš-ḫa-a-i* ‘he binds’; *$h_1ésh_2r$ > PAnat. */ʔésHr/ > Hitt. /ʔésHr/, *e-eš-ḫar* ‘blood’; *h_1esh_2*ó-* > PAnat. */ʔesHó-/ > Hitt. /ʔisHā́-/, *iš-ḫa-a-* ‘master’.

*$sh_{1/3}V$: *h_2ltish_1*énti* > PAnat. */Hltisʔánti/ > Hitt. /Hlt^{s}iSánt^{s}i/, *ḫal-zi-iš-ša-an-zi* ‘they call (impf.)’; *si-sh_1-i-ént-* > PAnat. */sisʔiánt-/ > Hitt. /siSiánt-/, *ši-iš-ši-i̯a-an-t-* ‘sealed’.

1.4.5.h

PIE		Hitt.
*#Rh_2V, *#Rh_3V, *#Rh_1V		/#RV/

Examples: *lh_1*énti* > Hitt. /lánt^{s}i/, *la-an-zi* ‘they loosen’; *lh_1*uti-* > Hitt. /lut^{s}i-/, *lu-uz-zi-* ‘public duty’; *mh_2*óiei* > Hitt. /mā́i/, *ma-a-i* ‘he grows’.

1.4.5.i

PIE		PAnat.		Hitt.
*CRh_2V, *CRh_3V		*/CRHV/	>	/CRHV/
*CRh_1V	>	*/CRʔV/	>	/CRʔV/

Examples:

PAnat. */CRHV/: **plh₂-i-* > PAnat. */plHi-/ > Hitt. /plHi-/, *pal-ḫi-* ‘broad’; **bʰrh₂/₃énti* > PAnat. */brHánti/ > Hitt. /prHántˢi/, *pár-(aḫ-)ḫa-an-zi* ‘they pursue’; **trh₂uénti* > PAnat. */trHʷánti/ > Hitt. /trHʷántˢi/, *tar-uḫ-ḫa-an-zi* ‘they conquer’; **ulh₃énti* > PAnat. */ulHánti/ > Hitt. /uəlHántˢi/, *u̯a-al-(aḫ-)-ḫa-an-zi* ‘they hit’.

PAnat. */CRʔV/: **pri-prh₁-ói-ei* > PAnat. */priprʔáiē/ > Hitt. /priprʔā́i/, *pa-ri-pa-ra-a-i* ‘he blows’;[166] **ǵrh₁ód-* > PAnat. */grʔṓd-/ > Hitt. /krʔā́d-/, *ka-ra-a-t°* ‘entrails’; **h₁rh₁iéti* > PAnat. */ʔrʔiéti/ > Hitt. /ʔrʔiétˢi/, *a-ri-e-ez-zi* ‘he consults an oracle’.

1.4.5.j

PIE		Hitt.
**VRh₂V*	}	/VRRV/
**VRh₃V*		
**VRh₁V*		

Examples: **h₁órh₁ei* > Hitt. /ʔā́Ri/, *a-ar-ri* ‘he washes himself’; **tinh₁énti* > Hitt. /tˢiNántˢi/, *zi-in-na-an-zi* ‘they finish’; **molh₂ei* > Hitt. /maLai/, *ma-al-la-i* ‘he mills’; **h₂orh₃ei* > Hitt. /HaRai/, *ḫar-ra-i* ‘he grinds’.

1.4.5.j Interconsonantally, all three laryngeals are lost,[167] but there are only a few good examples: **plth₂sh₂o-* > Hitt. /pltsHa-/, *pal-za-aḫ-ḫa-*, *pal-za-aš-ḫa-* ‘pedestal’; **dʰh₁sḱé/ó-* > early OH /tské/á-/, *za-aš-ke/a-* > late OH /tsɨké/á-/, *zi-ik-ke/a-*, ‘to place (impf.)’; **h₁/₃uenh₁-ti* > Hitt. /uentˢi/, *ú-en-zi* ‘he copulates’; **uorh₁ǵent-* > Hitt. /uargant-/, *u̯a-ar-kán-t-* ‘fat’; **dʰh₁-sh₂-oi-* > Hitt. /tsHai-/, *za-aš-ḫa-i-* ‘dream’; **ǵénh₁-su-* > Hitt. /kéntˢu-/, *ge-en-zu-* ‘lap’.[168]

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[166] This example is crucial. If **pri-prh₁-ói-ei* would have yielded Hitt. **/priprā́i/, without retention of **h₁* as /ʔ/, it would have been spelled ***pa-ri-ip-ra-a-i*.

[167] I regard the seeming retention of interconsonantal laryngeals in e.g. *pár-aḫ-zi* = /párHtˢi/ < **bʰérh₂/₃ti* and *u̯a-al-aḫ-zi* = /uálHtˢi/ < **uélh₃ti* as secondary: the laryngeal must have been restored on the basis of 3pl.pres. **bʰrh₂/₃énti* and **ulh₃énti* where it was regularly retained.

[168] This latter example shows that the loss of **h₁* predates the development **eRCC* > Hitt. /aRCC/.

In clusters containing resonants and *-s-*, there is often a different outcome when a laryngeal is part of it, e.g. **VmsV* > Hitt. /VSV/, but **VmHsV* > Hitt. /VnsV/. See for details at the treatment of **s*, §1.4.4.3.

1.4.5.k Word-finally, the laryngeals are all lost. Note that in **Cuh₂#* the **u* is lowered to /o/ and in **Cih₂#* the **i* to /e/.

Examples: **léh₁* > Hitt. /lé/, *le-e* 'not' (prohib.); **lóh₁* > Hitt. /lā́/, *la-a* 'let go!'; **duoiom *h₃esth₁ih₁* > Hitt. /tānHasti/, *da-a-an-ḫa-aš-ti* 'double-bone'; **mih₁éh₁sh₁* > Hitt. /miés/, *mi-i-e-eš* 'be gentle!'; **sókh₁* > Hitt. /sā́k/, *ša-a-ak* 'know!'; **mégḗh₂* > Hitt. /mék/, *me-e-ek* 'many, numerous (nom.-acc.sg.n.)'; **-eh₂* > Hitt. *-a*, nom.-acc.pl.n.-ending; **sók^weh₂* > Hitt. /sā́g^wa/, *ša-a-ku-u̯a* 'eyes (nom.-acc.pl.)'; **h₁oh₁suh₂* > Hitt. /ʔáSo/, *a-aš-šu-u* 'goods (nom.-acc.pl.)'; **ḱih₂* > Hitt. /ke/, *ke-e* 'these (nom.-acc.pl.)'; **dóh₃* > Hitt. /tā́/, *da-a* 'take!'.[169]

1.4.6 Liquids

****l***

1.4.6.1 PIE **l* in principle is retained in Hittite as /l/, except in the environments **VlHV* > Hitt. /VLV/ and **VlHsC* > Hitt. /VL-sC/ where assimilation of the laryngeal to the preceding **l* results in a fortis /L/.

Examples: **lóh₁ei* > Hitt. /lā́i/, *la-a-i* 'he releases'; **lóǵ^hei* > Hitt. /lā́gi/, *la-a-ki* 'he makes fall down'; **léuk-to* > Hitt. /lū́kta/, *lu-uk-ta* 'it dawns'; **plh₂-i-* > Hitt. /plHi-/, *pal-ḫi-* 'wide, broad'; **h₂l(e/o)ug^ho-* > Hitt. /Hluga-/ or /Hlūga-/, *ḫa-lu-ka-* 'message'; **séuh₁-el* > Hitt. /sū́il/, *šu-ú-il* 'thread'; **molh₂ei* > Hitt. /maLai/, *ma-al-la-i* 'he mills'; **ḱélh₁st(o)* > Hitt. /káL-sta/, *kal-li-iš-ta* 'he called'.

Fortition

1.4.6.1.a From MH times onwards, we occasionally find fortition of intervocalic /l/ to /L/, e.g. *uš-tu-la-aš* (OS) > *u̯a-aš-túl-la-aš* (MH/MS) 'sin (gen.sg.)' ; *u̯a-aš-du-ú-li* (MH/MS) > *u̯a-aš-túl-li* (NS) 'sin (dat.-loc.sg.)'; *iš-ḫi-ú-la-aḫ-ḫ°* (NS) > *iš-ḫi-ul-la-aḫ-ḫ°* (NH) 'to bind by treaty'. Whether we are dealing with a phonetically regular process is unclear, cf. Melchert 1994a: 165.

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[169] Seeming retention of **h₂* and **h₃* as /H/ in word-final position in words like *ma-ni-i̯a-aḫ* 'distribute!' < virtual **mniéh₂* and *u̯a-al-aḫ* 'strike!' < virtual **uélh₃* is of course due to restoration in analogy to the rest of the paradigm.

**r*

1.4.6.2 PIE **r* is in principle retained in Hittite as /r/, except in **VrHV* > /VRV/ and **VrsV* > Hitt. /VRV/ where assimilation of the laryngeal and of **s* to the preceding **r* results in a fortis /R/.

Examples: **h₁rénti* > Hitt. /ʔrántˢi/, *a-ra-an-zi* 'they arrive'; **sro* > Hitt. /srā/, *ša-ra-a* 'upwards'; **h₂rǵ-i-* > Hitt. /Hrgi-/, *ḫar-ki-* 'white', **sr-li-* > Hitt. /srli-/, *šar-li-* 'superior'; **spórei* > Hitt. /ɬspā́ri/, *iš-pa-a-ri* 'he spreads out'; **kérsti* > Hitt. /kárstˢi/, *kar-aš-zi* 'he cuts'; **h₁ésri-* > Hitt. /ʔéSri-/, *e-eš(-ša)-ri-* 'shape, image'; **supr-ié/ó-* > Hitt. /suprié/á-/, *šu-up-pa-ri-i̯a-* 'to sleep'; **h₁ésh₂r* > Hitt. /ʔésHr/, *e-eš-ḫar* 'blood'; **ǵʰésr* > Hitt. /kéSr/, *ke-eš-šar* 'hand'; **h₁p-i-é́r* > Hitt. /piér/, *pí-i-e-er* 'they gave'; **ḱér* > Hitt. /kér/, *ke-er* 'heart'; etc.

Assimilation: **h₁órh₁ei* > Hitt. /ʔā́Ri/, *a-ar-ri* 'he washes himself'; **h₂orh₃ei* > Hitt. /HaRai/, *ḫar-ra-i* 'he grinds'; **h₁orso-* > Hitt. /ʔaRa-/, *a-ar-ra-* 'arse'.

Loss

1.4.6.2.a Word-final **r* is lost after unaccentuated **o* or **ō*.[170] This is only visible in the endings of the middle (for which see especially Yoshida 1990: 112f.) and in the nom.-acc.pl.-forms of neuters in *-r/n-*.

Examples: **h₁éh₁s-or* > Hitt. /ʔésa/, *e-ša* 'he sits down' vs. **tuk-ór +i* > Hitt. /tukā́ri/, *du-ug-ga-a-ri* 'is visible'; **uoh₂(ʳ)ǵéh₁sh₁-ōr* > Hitt. /uagéSa/, *u̯a-ag-ge-eš-ša*, a kind of bread (nom.-acc.pl.), and **h₂t-ótōr* > Hitt. /Htā́da/, *ḫa-at-ta-a-da* 'wisdom (nom.-acc.pl.)' vs. **udṓr* > Hitt. /uɬdā́r/, *ú-i-da-a-ar* 'waters (nom.-acc.pl.)'.

Fortition

1.4.6.2.b From MH times onwards we occasionally find fortition of intervocalic /r/ to /R/: *an-tu-u-ri-i̯a-*, *an-tu-ri-i̯a-* vs. *an-dur-ri-i̯a-* (NS) 'interior'; *a-ku-ut-ta-rV-*, *a-ku-ut-tar-a°* vs. *a-ku-ut-tar-ra-* (NS) 'drinker'; *ḫa-a-ap-pa-ra-az* (OS) vs. *ḫa-ap-pár-ra-az* (NS) 'business (abl.)'; *ḫa-a-ra-na-aš* (OS) vs. *ḫar-ra-n*[*a-aš*] (NS) 'eagle (gen.sg.)'; *iš-pa-ra-an-zi* (OS) vs. *iš-pár-ra-an-zi* (MS, NS) 'they strew'; *iš-pa-ru-uz-zi* (OH/NS) vs. *iš-pár-ru-uz-zi* (MH/MS) 'rafter'; *kat-te-ra-* (MS), *kat-te-e-*

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[170] Cf. Eichner 1973: 98[78], Melchert 1994a: 87 and Kimball 1999: 354-5. Eichner formulates the rule too broad ("[a]uslautendes *-r* schwindet generell nach unbetontem Vokal"): compare Kimball who points out that loss is only found after the vowel *-a-* (retention of **-r* after unaccentuated **u* is visible in e.g. **péh₂ur* > Hitt. *pa-aḫ-ḫur* 'fire'; Eichner's example **pérur* > Hitt. *pé-e-ru* rather shows dissimilation due to the first *-r-*). Note that Eichner explains the final *-r* in *u̯ā́tar* 'water' as analogical after nom.-acc.pl. *u̯idā́r*, but this is unnecessary: Hitt. *u̯ā́tar* represents /uā́dr/ < **uódr* in which **-r* never stood after a vowel.

ra- (MS) vs. *kat-te-er-ra-* (NS) 'lower, inferior'; *ge-nu-uš-ša-ri-i̯a-an-t-* vs. *ge-nu-šar-ri-i̯a-an-t-* (NS) 'kneeling'; *me-re-er* (OS) vs. *me-er-ra-a-an-ta-ru* (NS), *me-er-ra-an-t-* (NS) 'to disappear'; *na-aḫ-ša-ra-az* (MH/MS) vs. *na-aḫ-šar-ra-az* (NS) 'fear (abl.)'; *pa-ra-a-an-ta* (OS) vs. *pár-ra-an-ta* (MH/MS) 'across (to)'; *ta-pa-ri-i̯a-* vs. *ta-pár-ri-i̯a-* (NH) 'to rule'; etc.

If we compare words like *pé-e-ra-an*, which remains thus throughout Hittite, it is difficult to interpret this phenomenon as a phonetically regular development. Perhaps we are dealing with mere variation in spelling (note that most examples show a sign *CVC*: *dur*, *tar*, *pár*, *ḫar*, *šar*; but this does not go for *me-er-ra-* and *kat-te-er-ra-*). Cf. Melchert (1994a: 165-6) for another interpretation.

Dissimilation

1.4.6.2.c In OH *ú-ra-a-ni* /urʔáni/, MH/NH *u̯a-ra-a-ni* /uərʔáni/ 'burns' < **urh₁-ór+i* we encounter dissimilation of the second **r* to Hitt. /n/ due to the first one.

1.4.7 Nasals

***m**

1.4.7.1 Word-initially before vowels, **m* is retained as /m/: **mégh₂* > Hitt. /mék/, *me-e-ek* 'many' (nom.-acc.sg.n.); **mérti* > Hitt. /mértˢi/, *me-er-zi* 'he disappears'; **mólᵈʰei* > Hitt. /máldi/, *ma-a-al-di* 'he recites'; etc.

Word-initially before stops, we would expect that **mC-* yields Hitt. /mC-/, phonetically realized as [əmC-]. The only example is **mdʰró-* > Hitt. /ndrá-/, *an-ta-ra-a-* 'blue', where */m/ is assimilated to /n/ due to the following /d/, however. In all other cases where we are dealing with **mT-* (in which *T* = any stop), this sequence is the zero-grade of a root **meT-*, on the basis of which the regular outcome /mT-/ = [əmT-] has been altered to /məT-/: **mgh₂éh₁sh₁-* > Hitt. /məkéS-/, *ma-ak-ke-e-eš-š°* 'to become abundant' (belonging to *mekk(i)-* 'many, much'). Note that if *mai-ⁱ / mi-* 'to grow' indeed reflects **mh₂-oi-* / **mh₂-i-*, it would show that **mh₂V* > Hitt. /mV-/.

Word-initially before resonant, **mR-* yields Hitt. /mR-/: **mlit-* > Hitt. /mlit-/, *ma-li-it-t°* 'honey'; **mnieh₂-* > Hitt. /mniaH-/, *ma-ni-i̯a-aḫ-ḫ°* 'to distribute'; **mréntu* > Hitt. /mrántu/, *ma-ra-an-du* 'they must disappear'; **mr-nu-* > Hitt. /mrnu-/, *mar-nu-* 'to cause to disappear'.

1.4.7.1.a For the word-internal position, it is best to treat the different phonetic surroundings separately.

**CmV* > Hitt. /CmV/: **h₂méh₁sh₂o-* > Hitt. /HmésHa-/, *ḫa-me-eš-ḫa-* ‘spring’; **smén-ti* > Hitt. /sménᵗsi/, *ša-me-en-zi* ‘he passes by’[171]; **tménkti* > Hitt. /tmékᵗsi/, *ta-me-ek-zi* ‘he attaches’.

**CmT* (in which *T* = any stop) > Hitt. /CaT/ with fortition of the stop: **kmt-o* > Hitt. /kata/, *kat-ta* ‘downwards’; **kmb$^{(h)}$-i-* > Hitt. /kapi-/, *kap-pí-* ‘small, little’.

**CmsV* > Hitt. /CntˢV/: **h₂msósio-* > Hitt. /HntˢáSa-/, *ḫa-an-za-a-aš-ša-* ‘offspring’.

**Cms#* > OH /°Cus/, °*Cu(-ú)-us* > NH /°Cos/, °*Cu(-u)-uš* (acc.pl.c.-ending).

**CmHsV* > Hitt. /Cn̬SV/: **h₂mh₁sénti* > Hitt. /Hn̬Sántˢi/, *ḫa-ne-iš-ša-an-zi* ‘they wipe’; **tmh₂sénti* > Hitt. /tm̬Sántˢi/, *da-me-iš-ša-an-zi* ‘they press’ (with restored /m/ on the basis of strong stem /tmāS-/).

**CmnC* > Hitt. /Cm̬nC/: **h₂mnǵʰénti* > Hitt. /Hm̬ngántˢi/, *ḫa-me-in-kán-zi* ‘they betroth’; **tmnkénti* > Hitt. /tm̬nkántˢi/, *ta-me-en-kán-zi* ‘they attach’.

**CmnV* > Hitt. /CMnV/: *smnoi̯é-* > Hitt. /sMnāé-/, *ša-am(-ma)-na-a-e*° ‘to create’; **smnénti* > Hitt. /sMnántˢi/, *ša-am-na-an-zi* ‘they pass by’;[172] **h₁rmnié/ó-* > Hitt. /ʔrMnió-/, *ar-ma-ni-i̯a-* ‘to become ill’; **h₃nh₃mnié/ó-* > Hitt. /ləMnié/á-/, *lam(-ma)-ni-i̯a-* ‘to name’.

**CmiV* > Hitt. /CmiV/, **septmió-* > Hitt. /siptmiá-/, *ši-ip-ta-mi-i̯a-* ‘seven-drink’.

**VmV* > OH /VmV/: **imié/ó-* > OH /imié/á-/, *i-mi-e*°, *i-mi-i̯a-* (see § 1.4.7.1.c below for the conditioned fortition of OH /VmV/ > NH /VMV/).

**VmT* (in which *T* = any stop) > Hitt. /VmT/: **tomp-u-* > Hitt. /tampu-/, *dam-pu* ‘blunt’.

**VmsV* > Hitt. /VSV/: **h₂éms-u-* > Hitt. /HáSu-/, *ḫa-aš-šu-* ‘king’. That this assimilation took place very early is visible from the fact that the outcome /S/ is affected by the lenition rules: **h₂óms-ei* > */HṓSē/ > Hitt. /Hắsi/, *ḫa-a-ši* ‘she gives birth’.

**Vms#* > Hitt. /Vs#/: *°*Coms* > OH /°Cus/, °*Cu(-ú)-uš* > NH /°Cos/, °*Cu(-u)-uš* (acc.pl.c.-ending).

**VmHsV* > Hitt. /VnsV/: **h₂ómh₁sei* > Hitt. /ʔắnsi/, *a-a-an-ši* ‘he wipes’.

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[171] Also attested as *še-me-en-zi* and *ši-me-en-zi* = /si̬ménᵗsi/.

[172] Note that this form is not attested with the spelling ***ša-am-ma-na-an-zi*. This could either be ascribed to chance, or it could indicate that in this form the lenis /m/ of the singular, **smén-* > /smén-/, has been introduced. The form is also attested as *še-em-na-an-zi* = /si̬mnántˢi/, cf. note 171.

**VmHsC* > Hitt. /VM̠sC/: **demh₂sh₂ó-* > Hitt. /taM̠sHā́-/, *dam-me-eš-ḫa-a-* ‘damaging’.

**VmHs#* > Hitt. /Vn̠s/: **h₂ómh₁s* > Hitt. /Hā́n̠s/, *ḫa-a-ni-iš*, *ḫa-a-ni-eš* ‘wipe!’ (with restored *ḫ-*).

**VmnV* > Hitt. /VMV/, unless when part of a paradigm[173]: **h₂imno-* > Hitt. /HiMa-/, *ḫi-im-ma-* ‘imitation’; **ǵʰimnént-* > Hitt. /kiMánt-/, *gi-im-ma-an-t°* ‘winter’.

**Vmn#* > Hitt. /Vmn/: **h₁érmn* > Hitt. /ʔérmn/, *e-er-ma-an* ‘illness’; **h₃néh₃mn* > Hitt. /lā́mn/, *la-a-ma-an* ‘name’.

**VmrV* > Hitt. /VMrV/: **ǵʰimro-* > Hitt. /kiMra-/, *gi-im(-ma)-ra-* ‘field’.

**Vmr#* > Hitt. /VMr/: **nómr* > NH /láMr/, *lam-mar* ‘moment’.[174]

1.4.7.1.b Word-finally after vowel: **Vm#* > Hitt. /Vn#/: **pérom* > Hitt. /péran/, *pé-e-ra-an*; **h₂érǵ-i-m* > Hitt. /Hárgin/, *ḫar-ki-in* ‘white’ (acc.sg.c.); **ḱóm* > Hitt. /kón/, *ku-u-un* ‘this (one)’ (acc.sg.c.); etc.

Wordfinally after consonant: **°Cm* > OH /°Cun/[175] > NH /°Con/[176]: **h₁épm* > OH /ʔépun/, *e-ep-pu-un* > NH /ʔépon/, *e-ep-pu-u-un* ‘I seized’.

Fortition

1.4.7.1.c From MH times onwards, we encounter fortition of intervocalic /m/ to /M/: *a-mi-i̯a-an-t-* (MS) > *am-mi-i̯a-an-t-* (NS) ‘small’; *i-mi-i̯a-* (OH/MS) > *im-mi-i̯a-* (MH/MS, NS) ‘to mingle’; *i-mi-ú-l=a-aš* (MS) > *im-mi-ú-ul* (NS) ‘grain mix’; *kar-di-mi-i̯a-* (OS) > *kar-tim-mi-i̯a-* (MS, NS) ‘to be angry’; *la-a-ma-an* (MS) > *la-a-am-ma-a(n)=m-mi-it* (NS) ‘name’; *mu-mi-i̯a-* (MS) > *mu-um-mi-i̯a-* (NS) ‘to fall’; *-nu-me-e-ni* (OS, MS) > *-nu-um-me-ni* (NS) 1pl.pres.act.-ending of causatives in *-nu-*; *pé-e-tu-me-e-ni* (OS) > *pé-e-du-um-me-e-ni* (NS), *pé-e-tum-me-e-ni* (NS) ‘we transport’; *šu-me-eš* (OS) > *šu-um-me-eš* (NH) ‘you’; *šu-ma-an-za-n°* (OS, MS) > *šum-ma-an-za-n°* (NS) ‘bulrush’; etc.

Because in none of these words the gemination has been carried out consistently, it is not fully clear whether we are dealing with a phonetic development or not. Prof. Melchert informs me that due to the loss of mimation in Akkadian (i.e. signs of the shape *CVm* could now also be used in words where no

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[173] Cf. Melchert 1994a: 81.

[174] This form shows that fortition of **m* in front of *-r-* postdates the lenition of intervocalic fortis consonants due to a preceding **ó* (including **-óCr#*, cf. **-ótr* > Hitt. *-ātar*).

[175] Or /°Cu̯/, cf. note 83.

[176] Or /°Co̯/, cf. note 83.

-m- is present), these cases of gemination of *-m-* can be accounted for as a graphical phenomenon. Although this indeed would work for e.g. *kar-tim-mi-i̯a-*, *pé-e-tum-me-e-ni* and *šum-ma-an-za-n°*, I do not see how this practice can explain *im-mi-ú-ul*, *mu-um-mi-i̯a-* or *šu-um-me-eš*, where an extra sign with the value *Vm* is used. In view of the virtual absence of gemination in cases like *mēma/i-* 'to speak' (although some occasional spellings with *me-em-m°* do occur in NS texts), we could perhaps assume that at the end of the NH period the beginning of a phonetic development through which an intervocalic *-m-* following an unaccentuated vowel is being geminated can be observed (compare also the occasional NH fortition of intervocalic *-n-* in § 1.4.7.2.e).

n

1.4.7.2 Word-initially before vowels, **n* is retained as /n/: **néb^{h}es* > Hitt. /nébis/, *ne-e-pí-iš* 'heaven'; *néuo-* > Hitt. /néua-/, *ne-e-u̯a-* 'new'; **nóh$_2$ei* > Hitt. /nā́hi/, *na-a-ḫi* 'he fears'; **nuk^{w}e* > Hitt. /nuk^{w}/, *nu-uk-ku* 'and now'; etc.

Word-initially before consonants, **nC-* regularly yields Hitt. /nC-/, phonetically realized as [ənC-]: **nsós* > Hitt. /nt^{s}ā́s/, *an-za-a-aš* 'us'. If *ami̯ant-* 'small' really reflects **n-* + *mi̯ant-*, it would show /əmiánt-/ < */ənmiánt-/ (cf. e.g. *ku-e-mi* < */k^{w}énmi/ for loss of *-n-* in **VnmV*).

In cases where **nC-* is the zero-grade of a root **neC-*, the regular outcome /nC-/ = [ənC-] has been secondarily altered to /nəC-/ in analogy to the full-grade: **nh$_2$ént-* > Hitt. /nəHánt-/, *na-aḫ-ḫa-an-t°* 'fearing' (on the basis of **nóh$_2$ei* > *na-a-ḫi*).

1.4.7.2.a For word-internal position, it is best to treat the different environments separately.

**CnV* > Hitt. /CnV/ : **h$_2$nénti* > Hitt. /Hnánt^{s}i/, *ḫa-na-an-zi* 'they draw water'; *smnoi̯é-* > Hitt. /sMnāé-/, *ša-am(-ma)-na-a-e°* 'to create'; **h$_2$rǵnou-* > Hitt. /Hrgnau-/, *ḫar-ga-na-u-* 'palm, sole'; etc.

**CnT* (in which *T* = any stop) > Hitt. /CnT/: **h$_1$ndo* > Hitt. /ʔnda/, *an-da* 'inwards'; **d^{h}b^{h}ngʷ^{h}-u-* > Hitt. /pngu-/, *pa-an-ku-* 'entire, complete' (if not from **d^{h}b^{h}ongʷ^{h}-u-*).

**CnsV* > Hitt. /Cnt^{s}V/: **nsós* > Hitt. /nt^{s}ā́s/, *an-za-a-aš* 'us'.

**CnHsV* > Hitt. /Cnɨ̯SV/: **ǵnh$_3$sénti* > Hitt. /knɨ̯Sánt^{s}i/, *ka-ni-eš-ša-an-zi* 'they recognize'.

**CnHsC* > Hitt. /CəSɨ̯C/: **h$_3$nh$_3$sḱé/ó-* > Hitt. /HəSɨ̯ké/á-/, *ḫa-aš-ši-ke/a-* 'to sue (impf.)'.

**CnmV*: this sequence may be visible in *ša-aḫ-ḫa-*[*m*]*e-et* (KBo 6.2 + KBo 19.1 ii 24) // *ša-aḫ-ḫa-mi-it* (KBo 6.3 ii 38) 'my *šaḫḫan*' < **séh$_2$n=met*. If correct,

these forms must be phonologically interpreted as /saHəmet/ parallel to *a-mi-i̯a-an-t-* = /əmiant-/ < */ənmiant-/ < **n-miy̯ant-*.

**CnnC* > Hitt. /Cn̬nC/: **h₃rnngénti* > Hitt. /Hrn̬ngánt^{s}i/, *ḫar-ni-in-kán-zi* 'they make disappear'.

**CniV* > Hitt. /CniV/: **h₃nié/ó-* > Hitt. /ʔnié/á-/, *a-ni-e°*, *a-ni-i̯a-* 'to work'.

**ClnC* > Hitt. /Cl̬nC/[?]: **h₁lngʰénti* > Hitt. /l̬ngánt^{s}i/, *li-in-kán-zi* 'they swear' (if this preform is correct).

**CmnC* > Hitt. /Cm̬nC/: **h₂mngʰénti* > Hitt. /Hm̬ngánt^{s}i/, *ḫa-me-in-kán-zi* 'they betroth'; **tmnkénti* > Hitt. /tm̬nkánt^{s}i/, *ta-me-en-kán-zi* 'they attach'.

1.4.7.2.b **VnV* > Hitt. /VnV/: **h₃ér-on-os* > Hitt. /Hár̬anas/, *ḫa-a-ra-na-aš* 'eagle (gen.sg)'; **h₂ónei* > Hitt. /Hán̬i/, *ḫa-a-ni* 'he draws water'; **ǵénu-* > Hitt. /kénu-/, *ge-e-nu-* 'knee'; **h₁esh₂enós* > Hitt. /ʔisHan̬ás/, *iš-ḫa-na-a-aš* 'blood (gen.sg.)'.

**VnP* (in which *P* = any labial stop): no examples.

**VnT* (in which *T* = any dental stop) > Hitt. /VnT/: **h₁sénti* > Hitt. /ʔsánt^{s}i/, *a-ša-an-zi* 'they are'; **g^{wʰ}ént(o)* > Hitt. /k^{w}énta/, *ku-e-en-ta* 'he killed'; **spóndei* > Hitt. /l̬spán̬di/, *iš-pa-a-an-ti* 'he libates'; **spóndh₂ei* > Hitt. /l̬spán̬dHe/, *iš-pa-an-taḫ-ḫé* 'I libate'.

**VnKV* (in which *K* = any velar stop) > Hitt. /VnKV/: **ḱónkei* > Hitt. /kán̬ki/, *ka-a-an-ki* 'he hangs'; **h₁lénǵʰ-ēr* > Hitt. /línker/, *li-in-ke-er* 'they swore'

**VnKC* (in which *K* = any velar): If the preceding vowel is /ā/, then */ānKC/ > Hitt. /ānKC/: **ḱónkh₂ei* > Hitt. /kán̬kHe/, *ga-a-an-ga-aḫ-ḫé* 'I hang'. If the preceding vowel is not /ā/, then */VnKC/ > Hitt. /VKC/: **h₁lénǵ$^{(ʔ)ʰ}$ti* > Hitt. /lígt^{s}i/, *li-ik-zi* 'he swears'; **srnénkmi* > Hitt. /srníkmi/, *šar-ni-ik-mi* 'I compensate'.

**VnHV* > Hitt. /VNV/: **tinh₁énti* > Hitt. /t^{s}iNánt^{s}i/, *zi-in-na-an-zi* 'they finish'; **munh₂énti* > Hitt. /muNánt^{s}i/ 'they hide'; *sunh$_{1/3}$énti* > Hitt. /suNánt^{s}i/, *šu-un-na-an-zi* 'they fill'.

**Vns* > Hitt. /VS/[177]: *de/ons-u-* (or **de/oms-u-*) > Hitt. /taSu-/, *da-aš-šu-* 'powerful'; **ḱuéns-ti* > Hitt. /kuáSt^{s}i/, *ku-u̯a-aš-zi* 'he kisses'; **h₃érōns* > Hitt. /Hár̬as/, *ḫa-a-ra-aš* 'eagle'; **ḱuṓns* > Hitt. /kuás̬/, *ku-u̯a-aš* 'dog';

[177] In word-final position there is (at least graphically) no difference between /S/ and /s/, and I will therefore write /Vs#/ here.

k^wtruḗns > hitt. /k^{w}truás/, *ku-ut-ru-u̯a-aš* ‘witness’; *-*uén-s* > Hitt. /-uás/, *-u̯a-aš*, gen.sg. of the verbal noun in *-u̯ar*.[178]

**VnHsV* > Hitt. /Vnt^{s}V/: **ǵénh$_1$-su-* > Hitt. /ként^{s}u-/, *ge-en-zu-* ‘lap’.

**VnnV* > Hitt. /VNV/: **ǩun-no-* > Hitt. /koNa-/, *ku-u-un-na-* ‘right, favourable’.[179] **VnmV* > Hitt. /VMV/: see Kimball (1999: 324) for examples like *ma-a-am-ma-an* < **mān-man*, *ad-da-am-ma-an* < **attan=man* ‘my father’, *tu-ek-kam-ma-an* < **tuekkan=man* ‘my body’, etc.[180]

**VnuV* > Hitt. /VuV/: **g^{wh}én-uen* > Hitt. /k^{w}éuen/, *ku-e-u-en* ‘we killed’; *mān* + *=u̯a* > Hitt. *ma-a-u̯a*, *ma-a-u-u̯a*.[181]

1.4.7.2.c **VPnV* (in which *P* = any labial stop) > Hitt. /VPnV/: **h$_3$epnos* > Hitt. /Hapnas/, *ḫa-ap-pa-na-aš* ‘baking kiln (gen.sg.)’; **d^{h}eb^h-n(e)u-* > Hitt. /tebnu-/, *te-ep-nu-* ‘to diminish’.

**VtnV* > Hitt. /VNV/: *-ótno* > Hitt. /-ā́Na/, °*Ca-a-an-na* (inf.II-ending); **-otnos* > Hitt. /-ā́Nas/, °*Ca-a-an-na-aš* (gen.sg. of abstracts in *-ātar / -ānn-*).

**Vd$^{(h)}$nV* > Hitt. /VdnV/: **h$_2$uidnos* > Hitt. /Huidnas/, *ḫu-it-na-aš* ‘game, wild animals’ (gen.sg.); **(h$_3$)ud-nei-* > Hitt. /(ʔ)udné-/, *ut-ne-e-* ‘land’.

**VKnV* (in which *K* = any velar stop) > Hitt. /VKnV/: **ség-nu-* > Hitt. /ségnu-/, *še-ek-nu-* ‘cloak’; **dlug^{h}néuti* > Hitt. /t^{s}lugnű̄t^s/, *za-lu-uk-nu-za* ‘he delays’.

**V́HnV* > Hitt. /V́nV/: **tiéh$_1$no-* > Hitt. /t^{s}éna-/, *ze-e-na-* ‘autumn’.

**VHnV́* > Hitt. /VNV́/: **h$_3$eh$_3$nóh$_3$-* > Hitt. /HaNá-/, *ḫa-an-na-* ‘to sue’.

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[178] The 2sg.pres.act.-form *ku-e-ši* ‘you kill’ reflects pre-Hitt. */kuénsi/, which must show restoration of the stem *kuen-* in expected **/kuáSi/ < **g^{wh}énsi*. So the fact that **VnsV* here yields /VsV with single *-š-* is due to the fact that the disappearance of **n* in this restored form postdates the development **-ensV-* > Hitt. /-aSV-/.

[179] The verb *šamenu-^{zi}* ‘to make (something/-one) pass by’ reflects pre-Hitt. **smen-n(e)u-*, which must be a secondary formation replacing expected **smn-n(e)u-*. So the fact that **VnnV* here yields /VnV/ with single *-n-* is due to the fact that the disappearance of **n* in this form postdates the development **VnnV* > /VNV/.

[180] Technically, most of these examples reflect **VmmV*, however. The 1sg.pres.act.-form *ku-e-mi* ‘I kill’ < pre-Hitt. */kuénmi/ seems to show a development **VnmV* > Hitt. /VmV/ with single *-m-*. I assume that this */kuénmi/ was a restored form that replaced expected */kuéMi/ < **g^{wh}énmi*, and that the development pre-Hitt. **VnmV* > Hitt. /VmV/ is due to the fact that the disappearance of the **n* in this form took place after the development **VnmV* > /VMV/ has come to an end. This also explaines forms like *tu-uz-zi-ma-an* < **tuzzin=man* ‘my army’ and *ḫu-uḫ-ḫa-ma-an* < **ḫuḫḫan=man* ‘my grandfather’.

[181] See CDH L-N: 144 for attestations of these forms. Occasionally, the *-n-* is restored, yielding *ma-a-an-u̯a*. The preservation of *-n-* in **h$_3$uménti* > Hitt. /ʔunuánt^{s}i/, *ú-nu-u̯a-an-zi* ‘they adorn’ is due to restoration of the causative suffix *-nu-*.

**VsnV* > Hitt. /VSnV/: e.g. **usn̯é/ó-* > Hitt. /uSnié/á-/, *uš-ni-i̯a-*, *uš-ša-ni-i̯a-* 'to put up for sale'.

**VmnV* > Hitt. /VMV/: **h₂imno-* > Hitt. /HiMa-/, *ḫi-im-ma-* 'imitation'.

**VrnV* > Hitt. /VrnV/: **h₃ernou-* > Hitt. /Harnau-/, *ḫar-na-u-* 'birthing seat'.

**VlnV* > Hitt. /VLV/: **uélnu-* > Hitt. /uéLu-/, *ú-e-el-lu-* 'pasure' (if this etymology is correct).

1.4.7.2.d Word-finally, **n* is retained as such, so *-*Vn* > Hitt. /-Vn/ and *-*Cn* > Hitt. /-Cn/. Examples: **h₂ón* > Hitt. /Hā́n/, *ḫa-a-an* 'draw water!'; **h₁érmn* > Hitt. /ʔérmn/, *e-er-ma-an* 'illness'; **h₃néh₃mn* > Hitt. /lā́mn/, *la-a-ma-an* 'name'; **séh₂n* > Hitt. /sáHn/, *ša-aḫ-ḫa-an* 'feudal service'.

Fortition

1.4.7.2.e Fortition of OH intervocalic /n/ to NH /N/ seems to have taken place in the following examples: *a-ap-pa-na-an-da* (OS) > *a-ap-pa-an-na-an-da* (NS) 'backwards'; *a-ra-u̯a-ni-* (OS) > *a-ra-u̯a-an-ni-* (NS) 'free'; *i-na-ra-* (OS) > *in-na-ra-* (MS, NS) 'vigour'. If we compare cases like *ini* 'this (nom.-acc.sg.n.)', *genu-* 'knee', *šiuna-* 'god' and *zēna-* 'autumn', in which intervocalic /n/ remains throughout the Hittite period, it seems that fortition only took place when /n/ did not follow the accentuated vowel.

Dissimilation

1.4.7.2.f In the words *lāman* /lā́mn/ 'name' < **h₃néh₃mn*, *lammar* /láMr/ 'moment' < **nómr* and *armali̯e/a-*$^{tta(ri)}$ /ʔrmlié/á-/ 'to be ill' < **h₁rmn-ié/ó-* (besides *armani̯e/a-*$^{tta(ri)}$) we seem to be dealing with dissimilation of **n* to /l/ due to the nasal consonant **m* in the same word.

1.4.8 Semi-vowels

i

1.4.8.1 Word-initially before vowels **i* is retained, except before **e*: **iugom* > Hitt. /iugan/, *i-ú-ga-an* 'yoke' vs. **ieg-o-* > Hitt. /éga-/,[182] *e-ga-* 'ice'; **iéu-on-*[183] > Hitt. /éuan-/,[184] *e-u̯a-n*°, a kind of grain.[185] If Hitt. *i-ú-uk* 'yoke' represents /iū́g/ <

[182] Or /ʔéga-/?

[183] Note that this etymology may be incorrect.

[184] Or /ʔéuan-/?

iéug, it would show that loss of **i* in front of **e* must postdate the monophthongization of **eu* to /ū/ here.

Word-initially before consonant **i* is retained as such: **imié/ó-* > Hitt. /imié/á-/, *i-mi-e°*, *i-mi-i̯a-* 'to mingle'.

1.4.8.1.a Interconsonantally, **i* is in principle retained (but see below at 'assibilation'): **h₁ité+n* > Hitt. /ʔitén/, *i-it-te-en* 'go!'; **h₂imno-* > Hitt. /HiMa-/, *ḫi-im-ma-* 'imitation'; **h₂érǵis* > Hitt. /Hárgis/, *ḫar-ki-iš* 'white'; **ǵʰim-n-ént-* > Hitt. /kiMánt-/, *gi-im-ma-an-t-* 'winter'; **kʷis* > Hitt. /kʷis/, *ku-iš* 'who'.

In the sequence **CiV*, **i* in principle is retained as well (but see below at 'assibilation'): **h₃nié/ó-* > Hitt. /ʔnié/á-/, *a-ni-e°*, *a-ni-i̯a-* 'to work', **h₃rgié/ó-* > Hitt. /Hrgié/á-/, *ḫar-ki-e°*, *ḫar-ki-i̯a-* 'to get lost', **ḱrsié/ó-* > Hitt. /krSié/á-/, *kar-aš-ši-i-e°* 'to cut'; etc.

Note that **VsiV* yields Hitt. /VSV/, however, as is visible in e.g. **iugosio-* > Hitt. /iugaSa-/, *i-ú-ga-aš-ša-* 'yearling'; **h₂msósio-* > Hitt. /HntˢáSa-/,[186] *ḫa-an-za-a-aš-ša-* 'offspring'; **usié/ó-* >> */u̯sié/á-/*[187] > */uəsié/á-/ > OH /uəSé/á-/, *u̯a-aš-še/a-*[188] 'to put on clothes'.

For the sequence **ViC*, cf. the treatments of the diphthongs **ei*, **ēi*, **oi* and **ōi* below.

Intervocallicaly, **i* is dropped without a trace, e.g **CéC-ei-os* > pre-Hitt. */CéCaias/ > Hitt. /CéCas/ (gen.sg.-ending of *i*-stem adjectives).[189] When the **i* is surrounded by un-identical vowels (e.g. **-aie-*, **-aii-*, **-aiu-*), the loss of **i* causes compensatory lengthening of the preceding vowel:[190] **CV́C-ei-i* > pre-Hitt. /CV́Caii/ > Hitt. /CV́Cāi/, *°Ca-a-i* (dat.-loc.sg.-ending of *i*-stem adjectives); **CV́C-ei-ēs* > pre-Hitt. */CV́Caies/ > Hitt. /CV́Cāes/, *°Ca-a-eš* (nom.pl.c.-ending of *i*-stem adjectives); **CV́C-ei-ms* > pre-Hitt. */CV́Caius/ > Hitt. /CV́Cāus/, *°Ca-*

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[185] Note that e.g. *i̯a-an-zi* 'they go' < **h₁iénti* and *i-i̯a-an-t-* 'sheep' < **h₁ién-* (?) show that **i* is not lost in the word-initial sequence **h₁ie-*.

[186] This form shows that the assimilation of **VsiV* > /VSV/ postdates the lenition of intervocalic fortis consonants due to a preceding long accentuated vowel.

[187] With **u̯-* in analogy to the full-grade stem **u̯es-*, cf. the lemma *u̯ešš-ʰᵗᵗᵃ*, *u̯aššе/a-ᶻⁱ*.

[188] Attested from MH times onwards as *u̯aššii̯e/a-ᶻⁱ*, with restored suffix *-i̯e/a-*.

[189] See at the lemma of nom.pl.c.-ending *-eš* for my view that contraction of **-eie-* to **-ē-* must have happened earlier than the loss **i* between other vowels as described here.

[190] This explains the fact that in the oblique cases of *i*-stem adjectives the *-a-* of the suffix, which must go back to posttonic **e* in open syllable (**CV́C-ei-V*), is often spelled plene (e.g. *ḫar-ša-a-i*, *ḫar-ša-a-eš*, *ḫar-ša-a-uš*), whereas such a plene spelling is virtually absent in the oblique cases of *u*-stem adjectives (e.g. *a-aš-ša-u-i*, *a-aš-ša-u̯a-az*, *a-aš-ša-u-e-eš*, *a-aš-ša-mu-uš* < **CV́C-eu-V*).

a-uš (acc.pl.-ending of the *i*-stem adjectives); *°*Co-ié-mi* > pre-Hitt. /°Caiémi/ > Hitt. /°Cāémi/, °*Ca-a-e-mi* (1sg.pres.act.-ending of the *ḫatrae*-class).[191]

An intervocalic cluster **VHiV* yields OH /ViV/ with lenghtening of the preceding vowel (if possible).[192] The newly created intervocalic /i/ is again lost in NH times: **h₂uh₁iénti* > OH /Hoiántˢi/, *ḫu-i̯a-an-zi* > NH /Hoántˢi/, *ḫu-u̯a-an-zi* 'they run'; **teh₂iéti* > OH /tāiétˢi/, *ta-a-i-ez-zi*, *da-i-e-ez-zi* 'he steals'.[193]

In words with the sequence **ViHV*, we first find monphthongization of the diphthong to /e/ (see also below at the treatment of the diphthongs **ei* and **oi*): **méih₂ur* > OH /méhur/, *me-e-ḫur* 'period, time'; **néih₁/₃-o* > OH /néʔa/, *ne-e-a* 'he turns'; **h₂éih₃um* > OH /Héʔun/, *ḫé-e-un* 'rain (acc.sg.)'; **h₂éih₃-eu-ēs* > OH /Héʔaues/, *ḫé-e-a-u-e-eš* 'rains (nom.pl.)'. Note that in the latter three examples intervocalic /ʔ/ is lost only in the late OH period, as we can see from spellings like OS *ḫé-e-i̯a-u-e-š=a* = /Héaues/, phonetically realized as [Héⁱaues] and MH/MS *ne-e-i̯a-ri* = /néari/, phonetically realized as [néⁱari]

1.4.8.1.b Forms like *i-it* 'go!' < **h₁idʰi* and *te-e-et* 'speak' < **dʰéh₁dʰi* seem to show regular loss of word-final **i*. This means that the synchronic word-final *-i* as visible in the dat.-loc.sg.-ending and the verbal present-endings (*-mi*, *-ši*, *-zi*, etc.) must be the result of a wide-scale restoration.[194]

If nom.-acc.pl.n. *ke-e* 'these' indeed reflects **ḱih₂*, as will be suggested under the lemma *kā- / ki- / kū-*, then it shows that in word-final **Cih₂*# **i* is lowered to /e/ due to the following **h₂* (just as *°*Cuh₂* yields Hitt. /°Co/, cf. nom.-acc.pl.n. *a-aš-šu-u* /ʔáSo/ < *°*s-u-h₂*). This implies that *zi-i-ik* 'you' < **tíH+ǵ* reflects **tíh₁*.

Assibilation

1.4.8.1.c As is well-known, **i* causes preceding dental consonants to assibilate. In principle, **i* is lost in this development: **tiéh₂-oi-* > Hitt. /tˢáHai-/ 'battle'; **tióh₂-ei* > Hitt. /tˢáhi/ 'he hits'; **tiéh₁-o* > OH /tˢéʔa/, *ze-e-a* 'cooks'; **h₂énti* > Hitt.

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[191] Also intervocalic *-i-* from secondary sources is lost with lengthening of the preceding vowel: e.g OH /páiitˢi/, *pa-i-iz-zi* 'he goes' > MH /pā́itˢi/, *pa-a-iz-zi* (see at *pa-i̯i-ᶻⁱ / pai-* for an extensive treatment).

[192] Note that in the case of Hitt. /e/ and /o/ I do not reckon with phonemic length, and that therefore these vowels do not get lengthened.

[193] In this latter verb intervocalic /i/ is nevertheless often found in NH forms because of restoration of the suffix *-i̯e/a-*: NH *ta-a-i-e-ez-zi* = /tāiétˢi/ and NH *ta-a-i-i̯a-zi* = /tāiátˢi/. Compare, however, phonetically regular 2pl.pres.act. *ta-a-et-te-ni* (NH) = /tāéteni/.

[194] This implies that the loss of word-final **i* took places in several stages, probably determined by the preceding consonant.

/Hánt^{s}/, *ḫa-an-za* ‘in front’; **h$_1$ésti* > OH /ʔést^{s}/, *e-eš-za* ‘he is’[195]; **di̯éus* > Hitt. /sḭ̂us/, *ši-i-ú-uš* ‘god’; **diéu-ot-* > Hitt. /sḭ̂uat-/, *ši-i-u̯a-at-t-* ‘day’.[196] This means that we must reckon with a development */ti/ = *[t:i] > *[t:^{j}] > *[t͡ɕ] > *[t͡ʃ] > [t͡s] = /t^{š}/ and */di/ = *[ti] > *[t^{j}] > *[ç] > *[ʃ] > [s] = /s/. We therefore have to assume that in forms like *e-ep-zi* ‘he seizes’ < **h$_1$épti*, *ap-pa-an-zi* ‘they seize’ < **h$_1$pénti*, *ḫa-az-zi-i̯e°*, *ḫa-az-zi-i̯a-* ‘to pierce’ < **h$_2$tié/ó-* the *-i-* has been restored. In the first two cases in analogy to the other present-endings in *-i* (*-mi*, *-ši*, etc.), in the latter in analogy to other verbs with the *-i̯e/a-*suffix.[197]

Note that the verbs *zinu-^{zi}* ‘to make cross’ < **h$_1$t-i-neu-* and *zinni-^{zi} / zinn-* ‘to finish’ < **ti-ne-h$_1$- / *ti-n-h$_1$-* may show that despite the fact that in **TiC *i* caused assibilation of the dental consonant, it was retained as a vocalic element.[198]

On the basis of the equation between Hitt. *dalugašti-* ‘length’ and Pol. *długość* ‘length’ < **d(o)lug^{h}-osti-*, Joseph (1984: 3-4) argues that in a cluster **-sti-* assibilation did not take place, which has a nice parallel in Greek, cf. εἶσι ‘he goes’ < **h$_1$éiti* vs. ἐστί ‘he is’ < **h$_1$ésti*.[199]

Lowering

1.4.8.1.d In some words we encounter lowering of OH /i/ to NH /e/:

apiniššan ‘thus’ > *apeneššan*: *a-pí-ni-iš-š°* (OS) > *a-pé-e-ni-eš-š°* (NS).

ḫalzišša-^{j} / ḫalzišš- ‘to call (impf.)’ > *ḫalzešš-*: *ḫal-zi-iš-š°* (OS, MS) > *ḫal-ze-eš-š°* (NS).

ḫišša- ‘carriage pole’ > *ḫešša-*: *ḫi-iš-š°* (OH/NS) > *ḫe-eš-š°* (NS, 1x).

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[195] Replaced by *e-eš-zi* with restored *-i* in OS texts already.

[196] Cf. Melchert 1994a: 62 for the observation that if the etymological connection between the Hitt. suffixes *-zzi(i̯a)-* (as in *šarā̆zzi(i̯a)-* ‘upper’) and Lyc. *-zze/i-* (as in *hrzze/i-* ‘upper’) is correct, it would show that assibilation of **t* in the sequence **tiV* is already a Proto-Anatolian development (which implies that we should assume a PAnat. phoneme /t^{š}/ as well). Contra Melchert, I do not assume that in this sequence **i* was retained: the supposed equation between HLuw. *ha-zi-mi-na* and Hitt. *ḫazzi̯e/a-^{zi}* cannot be substantiated (cf. *s.v. ḫatt-$^{a(ri)}$*, *ḫazzi̯e/a-^{zi}*) and the retention of *-i-* in the Hitt. suffix *-zzi(i̯a)-* (note the absence of a reflex of **i̯* in Lyc. *-zze/i-*!) may be due to analogical developments (I intend to present an account of these developments elsewhere).

[197] Similarly in *tā̆i̯e/a-^{zi}* ‘to steal’ (cf. note 193) and in *u̯ašše/a-^{zi}* >> *u̯aššii̯e/a-^{zi}* ‘to put on clothes’ (cf. note 188).

[198] The verb *zanu-^{zi}* ‘to coo (trans.)’ < **tih$_1$-neu-* shows that **h$_1$* at one point had enough vocalic quality to prevent **i* from becoming vocalic too.

[199] This would mean that the forms *e-eš-zi* ‘he is’ < **h$_1$ésti* (instead of expected ***e-eš-ti*), *še-eš-zi* ‘he sleeps’ < **sésti* (instead of expected ***še-eš-ti*), etc. all show (a trivial) generalization of the assibilated ending *-zi*.

ḫištā, *ḫištī* ‘mausoleum(?)’ > *ḫeštā*, *ḫeštī*: *ḫi-iš-t°* (OS, MS) > *ḫé-eš-t°* (MS, NS).
ini ‘this’ > *eni*: *i-ni* (MS) > *e-ni* (MS, NS)
*inišša*n ‘thus’ > *enišša*n: *i-ni-* (MS) > *e-ni-* (NS).
īšša- / īšš- ‘to do, to make (impf.)’ > *ešša-^{i} / ešš-*: *i-iš-š°* (OS) > *iš-š°* (MS) > *(e-)eš-š°* (NS).
išḫā- ‘master’ > *ešḫ-* : *iš-ḫ°* (OS, MS, NS) > *(e-)eš-ḫ°* (NS).
išḫan- ‘blood (obl.)’ > *ešḫan-*: *iš-ḫa-n°* (OS, MS) > *e-eš-ḫa-n°* (MS, NS).[200]
iš(ša)nā- ‘dough’ > *ešša*na-: *iš-(ša-)n°* (OS, MS, NS) > *(e-)eš-ša-n°* (NS).
kīnu-^{zi} ‘to open (up)’ > *kenu-*: *ki-i-nu-* (MS) > *ke-e-nu-* (NS).
lilḫuu̯a-^{i} / lilḫui- ‘to pour’ > *lelḫuu̯a-*: *li-il-ḫ°* (MS) > *le-el-ḫ°* (MS, NS).
li(n)k-^{zi} ‘to swear’ > *lenk-*: *li-in-k°* (OS, MS) > *le-en-k°* (NS).
mimma-^{i} / mimm- ‘to refuse’ > *memm-*: *mi-im-m°* (OS, MS) > *mi-im-m°* (NS).
mišriu̯ant- ‘perfect’ > *mešriu̯ant-*: *mi-iš-ri-* (MS) > *me-eš-ri-* (NS), *me-iš-ri-* (NS).
šīna- ‘figurine, doll’ > *šena-*: *ši-i-n°* (OS, MS) > *še-(e-)na-* (NS).
šiš-^{zi} ‘to proliferate’ > *šeš-*: *ši-iš-* (OS, MS) > *še-iš-*, *ši-eš-*, *še-eš-* (NS).
šišša-^{i} / šišš- ‘to impress’ > *šešš-*: *ši-iš-š°* (MS, NS) > *še-eš-š°* (NS).
šišḫa-^{i} / šišḫ- ‘to decide’ > *šešḫ-*: *ši-iš-ḫ°* (MS) > *še-eš-ḫ°* (NS).
šiššur- ‘irrigation’ > *šeššur-*: *ši-iš-š°* (MS) > *še-eš-š°* (NS).
titḫ-^{a} ‘to thunder’ > *teth-*: *ti-it-ḫ°* (OS, MS) > *te-e-et-ḫ°* (OH/MS) > *te-et-ḫ°* (NS).
u̯arrišša-^{i} / u̯arrišš- ‘to help’ > *u̯arrešš-*: *u̯a-ar-ri-iš-š°* (NS) > *u̯a-ar-re-eš-š°* (NS).
zinni-^{zi} / zinn- ‘to finish’ > *zenn-*: *zi-in-n°* (OS, MS) > *ze-en-n°* (NS).

Melchert (1984a: 154) explains these forms as showing “a simple assimilation: *i* is lowered to *e* before a low vowel *a* in the next syllable”. As he notices himself, there are a number of words that contradict this formulation, however, e.g. *idālu-* and *iu̯ar*. Moreover, this rule cannot account for the lowering visible in e.g. *ini*, *ḫištī*, *kīnu-^{zi}* and *šiš-^{zi}*.[201]

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[200] Although here we might be dealing with the secondary introduction of the full-grade stem *ēšḫ-* from the nom.-acc.sg. *ēšḫar*.

[201] Melchert’s reformulation (1994a: 133) of this rule as /-iCCa-/ > /-eCCa-/, i.e. “a kind of “a-umlaut” in closed syllables” (apparently to explain *idālu-* and *iu̯ar*) still does not account for these forms. Rieken’s treatment (1996: 294-7) of the lowering cannot fully convince either (her formulation of the conditioning environments, namely *-iCCa-* > *-eCCa* and *i* > *e* “zwischen zwei Dentalen (*t*, *n*, *s*) oder zwischen *l* und einem der genannten Laute”, does not account for all examples, like *ḫištā*). Moreover, many of the examples of *e~i* that she cites in fact are cases where I assume the epenthetic vowel /ɨ/.

In my view, the lowering in these words is determined by the consonants that follow the vowel: /i/ > /e/ in front of *s*, *n*, *m* and clusters involving /H/ (*-lḫ-* and *-tḫ-*).[202] It cannot be coincidental that exactly these consonants[203] also cause a preceding /u/ to get lowered to /o/ (cf. § 1.3.9.4.f). Note that lowering of /i/ to /e/ in front of *s* and *n* also explains the high number of NS spellings of the nom.sg.c.- and acc.sg.c.-forms of *i*-stem nouns and adjectives with the vowel *-e-*.

u

1.4.8.2 Word-initially before vowels **u* is retained as such: **uódr* > Hitt. /uā́dr/, *u̯a-a-tar* 'water'; **uéḱti* > Hitt. /uékt^{s}i/, *ú-e-ek-zi* 'he wishes': **uei(e)s* > Hitt. /ués/, *ú-e-eš* 'we'; etc.

Word-initially before consonants **u* is retained as well: **urh$_1$ór(i)* > OH /urʔā́ni/, *ú-ra-a-ni* > MH/NH /uərʔā́ni/, *u̯a-ra-a-ni* 'it burns';[204] **usnié/ó-* > Hitt. /uSnié/á-/, *uš-(ša-)ni-e°*, *uš-(ša-)ni-i̯a-* 'to put up for sale'.

1.4.8.2.a Interconsonantally, **u* yields either /u/ or /o/: see § 1.3.9.4ff. for an elaborate treatment of this.

In the sequence **CuV *u* in principle yields /u/ (see § 1.3.9.4.c for the fact that in Hittite there is no reason to assume that there is a phonemic difference between /CuV/ and /CoV/). Note that in **Tuo* (in which *T* = any dental stop or **n*) **u* is lost: **duoiom* > Hitt. /tā́n/, *ta-a-an* 'for the second time'; **h$_1$eduól-u-* > Hitt. /ʔidā́lu-/, *i-da-a-lu-* 'evil'; **nu-os* > Hitt. /nas/, *na-aš* 'and he'.[205] Remarkable is

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[202] The absence of lowering in *kiššan* 'thus' (but compare the one spelling *ke-eš-ša-an* (KBo .4 iii 17)) and *kinun* 'now' in my view is caused by the connection with *kī* 'this (nom.-acc.sg.n.)' (although *ki-nu-un* in principle can be read *ke-nu-un* as well). Note that words like *gimmant-* and *gimra-* are spelled with GI-IM- that can in principle be read *gi-im-* as well as *ge-em-*. Cases like *innara°* and *inan-* are real counter-examples, however: they never show lowering.

[203] Although there are no examples of /um/. Note that the *i-* that emerges in initial clusters of the shape **sT-* did not partake in this lowering and therefore must have been phonologically different from /i/ < **i* and pretonic **e*.

[204] This example shows that the 'vocalization' of the initial sequence **uRC-* is an inner-Hittite phenomenon: PIE **uRC-* > OH /uRC-/ > MH/NH /uəRC-/. This also fits the words *ulkiššara-* (OH/NS) > *u̯alkiššara-* (NS) 'skilled' and *u̯alkuu̯a-* 'bad omen(?)' (earliest attested in a MS texts) if this indeeds reflects **ulk^{w}o-*. This would mean that *u-ur-ki-* 'track, trail' cannot go back to **urK-*, but must represent /ʔorKi-/ < **h$_{1/3}$urKi-*

[205] E.g. *nu̯ā́n* /nuā́n/ 'to this side' < **duéh$_2$m* shows that this development only occurs with a preceding **o*, and not with "**ā*". The loss of **u* in **Tuo* therefore must be dated to the period before the merger of **o* and PAnat. **a/ā*.

the outcome of **CHuV*, which yields Hitt. /ComV/[206]: **dh₃uéni* > Hitt. /toméni/, *tu-me-e-ni* 'we take'; **bʰdʰh₂-uén-ti* > Hitt. /ptomántˢi/, *pát-tu-u-ma-an-zi* 'to dig'; **su-n-H-u̯r* > Hitt. /suNomər/, *šu-un-nu-mar* 'filling'.

For the development of **CVuC*, see at the treatment of the diphthongs **eu*, **ēu*, **ou* and **ōu* below.

Intervocalically, **u* is retained as /u/ (see at § 1.3.9.4.d for the establishment that intervocalically there is no phonologic difference between /u/ and /o/): **néuo-* > Hitt. /néua-/, *ne-e-u̯a-* 'new'; **dʰébʰ-eu-ēs* > Hitt. /tébaues/, *te-e-pa-u-e-eš* 'little (nom.pl.c.)'; **HH-ió-ueni* > Hitt. /ʔiáuani/, *i-i̯a-u-u̯a-ni* 'we do'; **h₂rǵ-nóu-i* > Hitt. /Hrgnắui/, *ḫar-ga-na-ú-i* 'palm (dat.-loc.sg.)'.

A special development is the fact that **u* adjacent to /u/ yields Hitt. /m/:[207] **CV́C-eu-ms* > **CV́C-au-us* > Hitt. /CV́Camus/, °*Ca-mu-uš* (acc.pl.c.-ending of *u*-stems); **CC-nu-uéni* > Hitt. /CCnuméni/, °*nu-me-e-ni* (1sg.pres.act.-ending of causatives in *-nu-*); **CC-nu-uénti* > Hitt. /CCnumántˢi/, °*nu-ma-an-zi* (inf.I-ending of causatives in *-nu-*); **h₂óu-ueni* > Hitt. /ʔáumani/, *a-ú-ma-ni*[208] 'we see'.

1.4.8.2.b In word-final position, **u* is retained as such: **dʰébʰu* > Hitt. /tébu/, *te-e-pu* 'little (nom.-acc.sg.n.)'; etc. Note that nom.-acc.pl.n. *a-aš-šu-u* /ʔáSo/, which contrasts with nom.-acc.sg.n. *a-aš-šu* /ʔáSu/, shows that wordfinal **-Cuh₂* yields Hitt. /-Co/

1.4.9 Vowels

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[206] Through */CouV/? See below for **CuuV* > Hitt. /CumV/.

[207] Prof. Kortlandt (p.c.) points out to me that a development of **u* to /m/ is phonetically incomprehensible: nasilization does not occur spontaneously. He therefore suggests that /m/ in these cases must be interpreted as /ɯ/ (i.e. a consonantal /u̯/) and that the nasalization must be due to contact with other nasal vowels or nasal consonants. E.g. °*Camuš* (acc.pl.c.-ending of *u*-stems) is interpreted by Kortlandt as /°Caɯu̯s/ < */°Cawu̯s/ (see also § 1.3.9.4.f under *C_š* for Kortlandts view that acc.pl.c.-ending *-uš* represents /-u̯s/ < **-ms*); °*numēni* as /°nuɯ́ni/ in which **e* has become nasalized due to **n*, and therefore causes **u* to yield the nasal-vowel /ɯ/; etc. Similarly in **CHuV* > /ComV/ as treated above: *tu-me-e-ni* is interpreted by Kortlandt as /tɯɯ́ni/; etc. Although the assumption of nasal vowels would indeed fit other developments as well (especially the development of OH /un/ to /on/, cf. note 83) and explain the rise of a nasal consonant here, it remains problematic why we do not find a nasal consonant in e.g. *aniu̯au̯anzi* 'to work' = /ʔniauántˢi/ (instead of ***aniu̯amanzi* = "/ʔniaɯ́ntˢi/") and why *šumariške/a-*[zi] 'to be pregnant', which reflects **s(e/o)uH-u̯r+*, shows *-m-* whereas no nasal consonant is present in its preform. Moreover, nasalization as the result of dissimilation has also occurred in *ú-ra-a-ni* 'burns' < **urāri* < **urh₁óri*, where there is no other nasal element that could have caused it.

[208] The form *a-ú-ma-ni* is MH and replaces OH *ú-me-e-ni* < **Hu-uéni*.

**e*

1.4.9.1 There are a number of positions in which PIE **e* gets coloured.

When adjacent to **h₂*, **e* gest coloured to PAnat. /a/, which yields Hitt. /a/ in both accentuated and unaccentuated position: **h₂énti* > Hitt. /Hántˢ/, *ḫa-an-za* 'in front'; **h₂épti* > Hitt. /Háptˢi/, *ḫa-ap-zi* 'he attaches'; **péh₂ur* > Hitt. /páHʷr/, *pa-aḫ-ḫur*, *pa-aḫ-ḫu-u̯a-ar* 'fire'; **péh₂so* > Hitt. /páHsa/, *pa-aḫ-ša* 'he protects'; **léh₂pt(o)* > Hitt. /lā́pta/, *la-a-ap-ta* 'he glowed'; **h₁esh₂enós* > Hitt. /ʔisHanā́s/, *iš-ḫa-na-a-aš* 'blood (gen.sg.)'; **peh₂uénos* > Hitt. /paHʷénas/, *pa-aḫ-ḫu-e-na-aš* 'fire (gen.sg.)';

When adjacent to **h₃*, **e* gets coloured to PAnat. /o/[209] and ultimately merges with the outcome of PIE **o*, yielding /ā́/ when accentuated and /a/ when unaccentuated: **h₃érōn+s* > Hitt. /Hā́ras/, *ḫa-a-ra-as* 'eagle'; **h₃épr* > Hitt. /Hā́pr/, *ḫa-a-ap-pár* 'business'; **h₃néh₃mn* > Hitt. /lā́mn/, *la-a-ma-an* 'name'.

In the position **énT* (in which *T* = any dental consonant), **e* yields Hitt. /a/: **h₁sénti* > Hitt. /ʔsántˢi/, *a-ša-an-zi* 'they are'; **g^{wh}nénts* > Hitt. /kʷnánts/, *ku-na-an-za* 'killed'; **h₂uh₁énts* > Hitt. /Hoánts/, *ḫu-u̯a-an-za* 'wind'; **srb^{h}uéns* > Hitt. /srɨbuás/, *ša-ri-pu-u̯a-aš* 'of drinking'.

In the position **eRCC* (in which *R* = any resonant and *C* = any consonant), **e* becomes Hitt. /a/: **b^{h}érsti* > Hitt. /párstˢi/, *pár-aš-zi* 'he flees'; **kérsti* > Hitt. /kárstˢi/, *kar-aš-zi* 'he cuts'; **stélg^{h}ti* > Hitt. /ɨstálgtˢi/, *iš-tal-ak-zi* 'he levels'; **h₁érsti* > Hitt. /ʔárstˢi/, *a-ar-aš-zi* 'he flows'; **b^{h}érh₂/₃ti* > Hitt. /párHtˢi/, *pár-aḫ-zi*, *pár-ḫa-zi* 'he pursues'; **térh₂-u-ti* > pre-Hitt. */térHʷtˢi/ > Hitt. /tárHʷtˢi/, *tar-ḫu-zi*, *tar-uḫ-zi* 'he conquers'. Note however that **ǵénh₁su-* yields Hitt. /kéntˢu-/, *ge-en-zu-* 'lap, abdomen', which shows that a sequence **éRh₁CV* develops into **eRCV* before **eRCC* > /aRCC/.[210]

In the position **éKsC*, **e* yields Hitt. /a/: **téksti* > */tákstˢi/ > Hitt. /tákɨstˢi/, *ták-ki-iš-zi*, *ták-ke-eš-zi* 'he unifies'; **négʷʰ-s-ti* > Hitt. /°nágʷstˢi/, *na-na-ku-uš-zi* 'it becomes dark'.

In the position **enK* (in which *K* = any velar), **e* yields Hitt. /i/: **h₁léng^{h}ti* > */língtˢi/ > Hitt. /lígtˢi/, *li-ik-zi* 'he swears'.

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[209] Note that when accentuated this vowel does not lenite a following consonant, whereas PIE **ó* > PAnat. /ő/ does. This explains the difference between **-ótr* > PAnat. /-ő́dr/ > Hitt. /-ā́dr/, *°a-a-tar* (abstract-suffix) and **h₃épr* > PAnat. /Hópr/ > Hitt. /Hā́pr/, *ḫa-a-ap-pár* 'business'.

[210] Note that in **ḱélh₁st* the colouring of **e* > /a/ did take place, however: **ḱélh₁st(o)* > Hitt. /káLɨsta/, *kal-li-iš-ta* 'he called'. This implies a scenario **ḱélh₁st(o)* > */kéLsta/ > */káLsta/ > /káLɨsta/.

In the position **ueT** (in which *T* = any dental consonant), **e* yields Hitt. /i/: **uet-* > Hitt. /uit-/, *ú-i-it-t°* 'year'; **uedo-* > Hitt. /uida-/, *ú-i-da-* 'wet'; **sóuetest-* > *šāu̯itišt-* 'weanling'.[211]

In some positions we seem to be dealing with *i*-umlaut, causing **e* to become Hitt. /i/: **mélit-* > Hitt. /mílit-/, *mi-li-it-t°* 'honey'; **tinéh₁ti* > Hitt. /tˢinítˢi/, *zi-in-ni-iz-zi* 'he finishes'; **dʰurnéh₁ti* > Hitt. /tuərnítˢi/, *du-u̯a-ar-ni-iz-zi* 'he breaks'. The exact condition is not fully clear to me.

In wordfinal position when accentuated, **é* yields Hitt. /i/: **Hu-sḱé* > Hitt. /ʔuskí/, *uš-ki-i* 'look!'; **h₁gʷʰsḱé* > Hitt. /ʔkʷskí/, *ak-ku-uš-ki-i* 'drink!'; **h₁dsḱé* > Hitt. /ʔdsɨkí/, *az-zi-ik-ki-i* 'eat!'. Note that e.g. *ḫu-it-ti* 'draw!' < **h₂ueTH-ié* shows that **°Cié#* yields Hitt. /°Cí/, probably through */°Cií/.

1.4.9.1.a Note that it has been claimed that a sequence **eRH* yields Hitt. /aRH/,[212] but I do not agree with this assumption. Alleged examples in favour of this development like **uélh₃ti* > Hitt. /uálHtˢi/ 'hits' and **bʰérh₂/₃ti* > Hitt. /párHtˢi/ 'pursues' rather show the development **eRCC* > /aRCC/, whereas *šalli- / šallai-* 'big' (usually reconstructed **selh₂-i-*) and *tarra-*$^{tta(ri)}$ 'to be able' (usually reconstructed **terh₂-o-*) may be interpreted otherwise (see their respective lemmas). On the basis of *erḫ- / araḫ- / arḫ-* 'boundary' < **h₁er-h₂- / *h₁r-eh₂- / *h₁r-h₂-* and *šerḫa-* (an object to rinse feet with) < **sérh₂/₃-o-* (?), I assume that **e* in a sequence **eRHV* does not get coloured in Hittite.

1.4.9.1.b If **e* does not get coloured due to one of the positions mentioned above, it shows the following developments.

When accentuated, **é* merges with **ḗ*, **éh₁* and **éi* and develops into Hitt. /é/. Note that this vowel is often spelled with a plene vowel in open syllable and in monosyllabic words, which indicates that in these positions it was phonetically rather long. Phonologically, there is no use to indicate length, however, since the reflexes of **é*, **ḗ*, **éh₁* and **éi* have merged under the accent, and the original distinction in length has been given up. It should be noted that **é* does not lenite a following consonant, whereas **ḗ*, **éh₁* and **éi* do. This means that the merger of **é* with the outcomes of **ḗ*, **éh₁* and **éi* is a rather recent phenomenon, which postdates the lenition of intervocalic consonants due to a preceding long accentuated vowel.

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[211] This latter form clearly shows that the raising of **e* to /i/ between **u* and **T* predates the weakening of posttonic **e* to /a/ in open syllables.

[212] Melchert 1994a: 83.

Examples: **sésti* > Hitt. /sést^{s}i/, *še-eš-zi*, *še-e-eš-zi* 'he sleeps'; **néb^{h}es* > Hitt. /nébis/ *ne-e-pí-iš*, *ne-pí-iš* 'sky'; **pédom* > Hitt. /pédan/, *pé-e-da-an*, *pé-da-an* 'place'; **k^{w}érti* > Hitt. /k^{w}ért^{s}i/, *ku-e-er-zi*, *ku-er-zi* 'he cuts'; **ǵ^{h}ésr* > Hitt. /kéSr/, *ke-eš-šar* 'hand'; **d^{h}éh$_{1}$mi* > Hitt. /témi/, *te-e-mi*, *te-mi* 'I say'.

When unaccentuated, **e* weakens to /a/ in posttonic open syllables[213] and to /i/[214] elsewhere (in pretonic open and closed syllables and in posttonic closed syllables).[215] In word-final position, unaccentuated **e* is dropped.[216]

Examples: **h$_{1}$esh$_{2}$enós* > Hitt. /ʔishanaš/, *iš-ḫa-na-a-aš* 'blood (gen.sg.)'; **néb^{h}es* > /nébis/ *ne-e-pí-iš*, *ne-pí-iš* 'sky';[217] **pesénm̥s* > Hitt. /pisénus/, *pí-še-e-nu-uš* 'men (acc.pl.)'; **CéC-ueni* > Hitt. *CeCuu̯ani* (1pl.pres.act.-forms); **CéC-teni* > Hitt. *CeCtani* (2pl.pres.act.-forms); **=k^{w}e* > Hitt. /=k^{w}/, *V=k-ku* 'and'; **tok^{w}e* > Hitt. /tak^{w}/ 'if, when'.[218]

**ē*

1.4.9.2 When accentuated, the development of **ḗ* does not differ from the development of **é*: I have not been able to find a spelling difference between the outcomes of **ḗ* and **é* that would indicate a phonetic and/or phonological difference.

Examples: **h$_{2}$stḗr+s* > Hitt. /Hstért^{s}/, *ḫa-aš-te-er-za* 'star'; **ḱḗr* > Hitt. /kér/, *ke-er* 'heart', **sḗr* > Hitt. /sér/, *še-e-er*, *še-er* 'above, on top'; **°Cḗr* > Hitt. /°Cér/, °*Ce-e-er* (3pl.pret.act.-ending), **ud-nḗi* > Hitt. /udné/, *ut-ne-e* 'land'.

There is one case in which **ḗ* yields something different, however: PIE **diḗus* yields Hitt. /sīus/, *ši-i-ú-uš* 'god'. It is not fully clear to me exactly what caused the raising of **ē* > /ī/ here. The fact that the sequences **di-* > Hitt. /s-/ precedes **ē* hardly can be decisive, cf. **tiéh$_{1}$-no-* > /t^{s}éna-/, *zé-e-na-* 'autumn'. Perhaps the raising is comparable to the one visible in **ueT-* > Hitt. /uiT-/.

On the basis of the thought that Hitt. "*šumanza* 'cord, binding'" reflect **sh$_{1}$u-mēn+s* (~ Gr. ὑμήν 'sinew'), it was generally assumed that **-ēn+s* yielded Hitt. /-ants/, *-anza*, whereas *-ōn+s* > /-as/, *-aš* (as in **h$_{3}$érōn+s* > Hitt. *ḫāraš*). Since

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[213] Cf. Melchert 1994a: 138.

[214] This /i/ can itself in younger Hittite become subject to the lowering to /e/ as described in § 1.4.8.1.d, cf. **néb^{h}es* > OH /nébis/, *ne-e-pí-iš* (OS) > NH /nébes/, *ne-pé-eš* (NS).

[215] Cf. Melchert 1994a: 139. See at the lemma of *nepiš-* 'sky' for the establishment that these weakenings of unaccentuated **e* can be dated to the 18th-17th century BC.

[216] This is a powerful explanation for the replacement of the original 3sg.pret.act.-ending **-e* of *ḫi*-inflected verbs by the corresponding ending of the sigmatic aorist, **-s-t* > Hitt. *-š*.

[217] See at the lemma of *nepiš* for explanation of the oblique cases *nepišV*.

[218] Note that in the last two examples I do not follow Garrett (*apud* Melchert 1994a: 184) who suggest that we are dealing with a development **=k^{w}e* > **=k^{w}ə* > Hitt. /=k^{w}u/, spelled *V=k-ku*.

"*šumanza*" now must be interpreted as belonging to ^{Ú}*šumanzan-* 'bulrush', which cannot have anything to do with Gr. ὑμήν, the development **-ēn+s* > *-anza* canot be upheld anymore. Instead, on the basis of **k^{w}truéh$_1$n+s* > Hitt. /k^{w}truás/, *ku-ut-ru-u̯a-aš* 'witness', we should rather conclude that **-ēn+s* fell together with **-ōn+s* and yielded Hitt. /-as/.

1.4.9.2.a When unaccentuated, **ē* yielded Hitt. /e/, and therewith differs from the outcome of unaccentuated short **e*: **h$_1$ésēr* > Hitt. /ʔéser/, *e-še-er* 'they were'.
This indicates that the distinction between **ē* and **ĕ* was present up to a quite recent stage: only after the weakening of unaccentuated **ĕ* to /a/ and /i/,[219] unaccentuated **ē* developed into /e/.

1.4.9.2.b Note that in my view none of the alleged instances where the sequences **h$_2$ē*, **h$_3$ē*, **ēh$_2$* or **ēh$_3$* are thought to have yielded Hitt. *-ḫe-* or *-eḫ-* (Eichner's Non-Colouration Law) can withstand scrutiny (see at *ḫai(n)k-$^{tta(ri)}$*, ^{NA_4}*ḫekur*, *ḫenkan*, ^{LÚ}*ḫippara-*, ^{É}*ḫištā*, ^{É}*ḫištī*, *kane/išš-^{zi}*, *mēḫur / mēḫun-*, *piḫa-*, *šēḫur / šēḫun-* and *u̯eḫ-^{zi} / u̯aḫ-* for alternative interpretations).[220]

o

1.4.9.3 In the case of **o* it is important to note that when part of a diphthong (**oiC* and **ouC*) it shows different outcomes. The diphthongs will be treated below.
When accentuated, **ó* yields OH /á́/ in initial and word-final syllables (but not in internal syllables, see below). Note that because **ó* causes lenition, the development to a long vowel must antedate the period of lenition of intervocalic consonants due to a preceding accentuated long vowel.

In OS texts, the outcome /á́/ is almost consistently spelled with plene *-a-*, in open as well as closed syllables. In MH and NH originals, we hardly find plene spellings in closed, non-final syllables anymore, which indicates that /á́/ has been phonetically shortened in these syllables in the post-OH period, and fell together

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[219] Which must be dated to the 18th-17th century BC, cf. the lemma of *nepiš-* 'sky'.

[220] With the disappearance of the Hittite examples in favour of 'Eichner's Law', it has in my view become highly unlikely that this law can be upheld for the whole of Indo-European, especially with regard to words like **g^{w}éh$_3$us* > Skt. *gáus* (not ***jáus*), Gr. βοῦς, **g^{w}éh$_3$um* > Skt. *gā́m* (not ***já́m*), Gr. βῶν 'cow', **né́h$_2$us* > Skt. *náus*, Gr. ναῦς, **né́h$_2$um* > Gr. νᾶν 'ship', **sé́h$_2$ls* > Lat. *sāl*, Gr. ἅλς, Latv. *sā̀ls* 'salt' (cf. Kortlandt 1985: 118-9) and possibly **nēh$_2$u-* > Lat. *nāvis* 'ship', **h$_2$ēḱ-* > Lat. *ācer* 'sharp' (cf. Schrijver 1991: 130-4).

with /á/.[221] So **óCCV* > OH /á́CCV/ > NH /áCCV/ and **óCV* and **óC#* yield OH/NH /á́CV/ and /á́C#/.

Examples for initial syllable: **stóph₂ei* > OH /ɬstá́pHe/, *iš-ta-a-ap-ḫé* > NH /ɬstápHi/, *iš-ta-ap-aḫ-ḫi* 'I plug up'; **stópei* > OH/NH /ɬstá́bi/, *iš-ta-a-pí* 'he plugs up'; **ḱónkh₂ei* > OH /ká́nkHe/, *ga-a-an-ga-aḫ-ḫé* > NH /kánkHi/, *ga-an-ga-aḫ-ḫi*, *kán-ga-aḫ-ḫi* 'I hang'; **dóh₃-h₂ei* > OH /tá́He/, *da-a-aḫ-ḫé* > NH /táHi/, *da-aḫ-ḫi* 'I take'; **ḱós* > OH/NH /ká́s/, *ka-a-aš* 'this'; **dóru* > OH/NH /tá́ru/, *ta-a-ru* 'wood'.

Examples for word-final syllables: **dʰǵʰmós* > Hitt. /tgná́s/, *ták-na-a-aš* 'earth (gen.sg.)'; **h₁esh₂enós* > Hitt. /ʔisHaná́s/, *iš-ḫa-na-a-aš* 'blood (gen.sg.)'.

1.4.9.3.a In internal syllables (non-initial and non-final), **ó* yielded Hitt. /á/, however: **trˈk̑-nó-h₁-h₂ei* > OHitt. /trnáHe/, *tar-na-aḫ-ḫé* 'I release'; **mi-móh₁-ei* > Hitt. /miMái/, *mi-im-ma-i* 'he refuses'.[222] This explains the difference between **dóh₃-h₂ei* > OH /tá́He/, *da-a-aḫ-ḫé* 'I take' and **h₁poi-dóh₃-h₂ei* > OH /petáHe/, *pé-e-ta-aḫ-ḫé* 'I bring', etc.

1.4.9.3.b A special development of **ó* is visible in the following positions: **Cóm#* > Hitt. /Cón/, *Cu-u-un* and **Cóms#* > Hitt. /Cós/, *Cu-u-uš*.
Examples: **ḱóm* > Hitt. /kón/, *ku-u-un* 'this one' (acc.sg.c.); **h₁o-bʰóm* > Hitt. /ʔabón/, *a-pu-u-un* 'that one' (acc.sg.c.); **ḱóms* > Hitt. /kós/, *ku-u-uš* 'these ones' (acc.pl.c.); **h₁o-bʰóms* > Hitt. /ʔabós/, *a-pu-u-uš* 'those ones' (acc.pl.c.).

1.4.9.3.c When unaccentuated, **o* usually yields Hitt. /a/: **pédom* > Hitt. /pédan/, *pé-e-da-an*, *pé-da-an* 'place', **pérom* > Hitt. /péran/, *pé-e-ra-an*, *pé-ra-an* 'before', **h₁éh₁s-o* > Hitt. /ʔésa/, *e-ša* 'he sits down'.

A special development of **o* is visible in the acc.pl.c.-ending **°Coms* > OH /°Cus/ > NH /°Cos/, cf. § 1.3.9.4.f.

**ō*

1.4.9.4 The outcome of **ō* seems to have merged with the outcome of **ŏ*. When accentuated, **ő* yields Hitt. /á́/: **udőr* > Hitt. /uɬdá́r/, *ú-i-da-a-ar*, *ú-e-da-a-ar*

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[221] It must be remarked that the practice of plene spelling is less consistent in younger texts anyway, so that it is possible that in these texts also sequences like /á́CV/ and /á́C#/ are spelled without plene *-a-*.

[222] Apparent counter-examples like *tukkāri*, *kištāri*, etc. must reflect **CC-ór*, to which the 'presentic' *-i* was attached only after the development of **ó* > /á́/ in final syllables. So **tuk-ór*, **ǵʰsd-ór* > pre-Hitt. **tukkār*, **kištār* >> Hitt. *tukkāri*, *kištāri*.

'water'. Note that **ǒn+s* yields Hitt. /-ás/, **ḱuǒn+s* > Hitt. /kuás/, *ku-u̯a-aš* 'dog(man)'.[223] When unaccentuated, **ō* yields Hitt. /a/: **h₃érōn+s* > Hitt. /Hā́ras/, *ḫa-a-ra-aš* 'eagle'; **h₁nd^{h}uéh₂ōs* > Hitt. /ʔnduáHas/, *an-tu-u̯a-aḫ-ḫa-aš* 'human being'.

1.4.10 Diphthongs

ei

1.4.10.1 When accentuated, **éi* merges with the outcome of **é*, **éh₁* and **ḗ* and yields Hitt. /é/ (but note that **éi* lenites a following intervocalic consonant, whereas **é* does not): **h₁éi-h₂ou* > Hitt. /ʔéhu/, *e-ḫu* 'come!'; **h₂éih₃-u-s* > Hitt. /Héus/, *ḫé-e-ú-uš* 'rain'; **néih₁/₃-o* > OH /néʔa/, *ne-e-a* > MH /néa/, *ne-e-i̯a* 'he turns'; **h₂ou* + **h₁éiti* > Hitt. /ʔuét^{s}i/, *ú-e-ez-zi* 'he comes'; **méih₂ur* > Hitt. /méhur/, *me-e-ḫur* 'period'.

When unaccentuated, **ei* yields Hitt. /e/: **u̯órs-ei* > OH /uā́rSe/, *u̯a-ar-aš-še* 'he harvests'; **dóh₃-h₂ei* > OH /tā́He/, *da-a-aḫ-ḫé*. Note that as we can see from the examples, the outcome of **Cei* is identical to the outcome of **h₂ei* (through pre-Hitt. */Hai/).

In the sequence **Kei-* (in which *K* = any velar) the diphthong **ei* was first raised to **-ii-*, which yielded Hitt. /i/ in closed syllable and /ī/ in open syllable: **ḱéito* > Hitt. /kíta/, *ki-it-ta* 'he lies' (note that /t/ = [t:] counts as a geminate that closes the syllable); **ǵéis-h₂o* > Hitt. /kísHa/, *ki-iš-ḫa* 'I become'; **ǵéis-o* > Hitt. /kḯsa/, *ki-i-ša* 'he becomes' (see at *ki-*$^{tta(ri)}$ and *kīš-*$^{a(ri)}$ */ kiš-* for an elaborate treatment of this development). A similar raising may be visible in *ša-li-i-ga* 'he touches' if this represents /slḯga/ < **sléi$^{(ʾ)}$ǵ-o*.

ēi

1.4.10.2 The only secure example of **ēi* that I know of is **ud-nḗi* > Hitt. /udné/, *ut-ne-e* 'land'.

oi

1.4.10.3 The diphthong **oi* shows two outcomes. When preceding a dental consonant, **oi* yields /ai/. It should be noted that when accentuated, **ói* does not yield /ā́i/ in this environment, as one could expect on the basis of **ó* > /ā́/, but rather /ái/, with a

[223] Or /-ā́s/ if we assume that the expected spelling **ku-u̯a-a-aš* = /kuā́s/ is by chance unattested.

short *-a-*. Before all other consonants and in absolute auslaut,[224] **oi* monophthongizes to /e/. Note that in the sequence **óiV*, we find the normal outcome of **ó*, namely pre-Hitt. */áiV/ > Hitt. /áV/.
These developments explain the following paradigm:

PIE				OH			
*$d^{h}h_{1}$-*ói-h₂ei*			>	/téHe/	*te-e-eḫ-ḫé*	>>	/téHi/ *te-e-eḫ-ḫi*
*$d^{h}h_{1}$-*ói-th₂ei*		> */táite/	>>	/táiti/	*da-it-ti*		
*$d^{h}h_{1}$-*ói-ei*	> */táie/	> */táe/	>>	/tái/	*da-a-i*		

Other examples: **ǵróits* > Hitt. /kráits/, *ka-ra-i-iz* 'flood'; *$d^{h}h_{1}$-*ói-s* > Hitt. /táis/, *da-iš* 'he placed'; **ḱóinos* > Hitt. /káinas/, *ka-i-na-aš*, *ga-e-na-aš* 'in-law'; **ḱói* > Hitt. /ké/, *ke-e* 'these' (nom.pl.c.).

****ōi***

1.4.10.4 This diphthong to my knowledge only occurs in the diphthong-stems and yields /āi/: **tlh₂ói* > Hitt. /tˢlHái/, *za-al-ḫa-a-i*, a vessel; **h₂urtóis* > Hitt. /Hurtáis/, *ḫur-da-a-iš*, *ḫur-ta-iš* 'curse'; **h₂urtóim* > Hitt. /Hurtáin/, *ḫur-da-a-in*, *ḫu-ur-ta-in* 'curse (acc.sg.)'.

****eu***

1.4.10.5 The diphthong **eu* (i.e. **CeuC*) monophthongizes to /u/ or /o/, depending on the surrounding sounds. For an elaborate treatment, cf. § 1.3.9.4.f. Note that in **euV*, we find the normal developments of **e*, e.g. **néuo-* > Hitt. /néua-/, *ne-e-u̯a-* 'new', *d^{h}*éb*^{h}*-eu-os* > Hitt. /tébauas/, *te-pa-u-u̯a-aš* 'little, few' (gen.sg.).

****ēu***

1.4.10.6 The only possible instance of **ēu* that I know of is *$ǵ^{h}rh_{1}$-*é́u* > Hitt. /krʔú́/, *ka-ru-ú* 'early' if this reconstruction is correct.[225]

****ou***

1.4.10.7 The diphthong **ou* yields Hitt. /au/ (with short *a*) before dental consonants (including **r*): **h₂óuth₂ei* > Hitt. /ʔáuti/, *a-ut-ti* 'you (sg.) see'; **h₂óusten* > Hitt. /ʔáusten/, *a-uš-te-en* 'you (pl.) must see'; **h₂óuri-* > Hitt. /ʔáuri-/, *a-ú-ri-*

[224] Except in 2sg.imp.act. of the *dāi/tiu̯anzi*-class (e.g. *da-i* 'take!' instead of expected ***te* < *$d^{h}h_{1}$-*ói*), where *-ai* was restored on the basis of the stem °*Cai-* as found in the rest of the paradigm.

[225] See its lemma for the possibility that this word reflects *$ǵ^{h}réh_{1}$-*u*.

'lookout'. In other positions **ou* monophthongizes to /u/ or /o/, depending on the surrounding sounds. See § 1.3.9.4.f for an elaborate treatment.

ōu

1.4.10.8 To my knowledge, the diphthong **ōu* only occurs in diphthong-stems like **h₃ér-nōu* > Hitt. /Hárnāu/, *ḫar-na-a-ú* 'birthing chair', **h₂érǵ-nōu* > Hitt. /Hárgnāu/, *ḫar-ga-na-ú* 'palm, sole', etc., where it yields /āu/.

CHAPTER 2

ASPECTS OF HISTORICAL MORPHOLOGY

2.0 THE HITTITE NOMINAL SYSTEM

Since recently a detailed monograph dealing with the Hittite nominal system has appeared (Rieken's *Untersuchungen zur nominalen Stammbildung des Hethitischen* (1999a)), and since almost each noun is in Part Two extensively treated regarding its morphological prehistory, it is not necessary to treat the Hittite nominal system as thoroughly as the verbal system. Nevertheless, I want to make explicit which system of nominal inflection I reconstruct for PIE and in which way this system is still traceable in the Hittite material.

For PIE, I largely follow the system of nominal inflection as described by Beekes (1985 and 1995: 168f.). We must distinguish three basic types: root nouns (i.e. nouns in which the ending is directly added to the root), consonant stems (i.e. nouns in which a suffix of the structure **-(C)eC(C)-* is placed between the root and the ending) and thematic stems (i.e. nouns of which the stem ends in **-o-*).

Beekes (1985) has shown that for early PIE we must reconstruct three accent types of inflection of consonant stems, from which all attested types can be derived. These three are:

	hysterodynamic	proterodynamic	static
nom.sg.	**CéC-C(-s)*	**CéC-C(-s)*	**CéC-C(-s)*
acc.sg.	**CC-éC-m*	**CéC-C(-m)*	**CéC-C(-m)*
gen.sg.	**CC-C-ós*	**CC-éC-s*	**CéC-C-s*

The root nouns could show either static or mobile accentuation:[226]

[226] Different words show different root-vowels, so at this point it is unclear if there originally was one type only, and how it must have looked like.

	static root nouns	mobile root nouns
nom.sg.	**Cé/óC(-s)*	**Cé/óC(-s)*
acc.sg.	**Cé/óC(-m)*	**Cé/óC(-m)*
gen.sg.	**Cé/óC-s*	**CC-ós*

The thematic type was a recent innovation, based on the hysterodynamic gen.sg. form, which originally had the function of ergative. Thematic nouns therefore do not show ablaut or accentual mobility.

In Hittite, the three PIE basic types are attested as well:

thematic stems: *a*-stem (also adjectives)

consonant stems: *i*-stem (also adjectives), *u*-stem (also adjectives), *au*-stem, *ai*-stem, *t*-stem, *s*-stem, *ḫ*-stem, **m*-stem, *n*-stem, *r*-stem, *r/n*-stem, *nt*-stem (also adjectives), *it*-stem

root-nouns

2.0.1 Thematic stems

The Hittite *a*-stem inflection goes back to the PIE *o*-stem inflection and is known from commune as well as neuter words. *A*-stem nouns originally do not show ablaut or mobile accentuation. Whenever they do, they must be regarded as recent thematicizations of original root nouns or consonant-stems (thematicization is a productive process within Hittite). The Hittite endings are as follows (see *s.v.* for a detailed account of their origin):

sg.				pl.			
nom.c.	*-aš*	<	**-o-s*	nom.c.	*-eš*	<	**-ei-es*[227]
acc.c.	*-an*	<	**-o-m*	acc.c.	*-uš*	<	**-o-ms*
nom.acc.n.	*-an*	<	**-o-m*	nom.-acc.n.	*-a*	<	**-eh₂*
gen.	*-aš*	<	**-o-s*	gen.	*-an*	<	**-o-om*
dat.-loc.	*-ai*, *-i*	<	**-o-ei*, **-i*[228]	dat.-loc.	*-aš*	<	**-os*(?)[228]
all.	*-a*	<	**-o*[228]				

abl.	*-az*	<	**-oti*
instr.	*-it*	<	**-t*[228]

[227] Taken over from *i*-stem nouns.

[228] Taken over from consonant stems.

2.0.2 Consonant stems

The Hittite consonant stems show the following endings (see also *s.v.*):

sg.				pl.			
nom.c.	*-š*,[229] *-Ø*	<	**-s*,[230] **-Ø*	nom.c.	*-eš*	<	**-ei-es*[231]
acc.c.	*°V-n*, *°C-an*	<	**-m*, **-o-m*[232]	acc.c.	*-uš*	<	**-ms*
nom.acc.n.	*-Ø*	<	**-Ø*	nom.-acc.n.	*-a*, *-Ø*	<	**-eh*$_2$, **-Ø*
gen.	*-š*,[233] *-aš*	<	**-(o)s*	gen.	*-an*	<	**-om*
dat.-loc.	*-i*	<	**-i*	dat.-loc.	*-aš*	<	**-os*(?)
all.	*-a*	<	**-o*				

abl.	*-z*, *-āz*	<	**-(o)ti*
instr.	*°V-t*, *°C-it*	<	**-t*

i-stems and *u*-stems

2.0.2.1 The Hittite *i*-stem and *u*-stem nouns reflect the PIE proterodynamic *i*-stem and *u*-stem inflection. In substantives the ablaut has generally been given up, generalizing the zero grade of the suffix, *CVC-i-* and *CVC-u-* (only a few traces remain, e.g. in *u̯eši- / u̯ešai-* 'pasture' and *ḫēiu- / ḫē(i̯)au-* 'rain'). In adjectives the original ablaut has been retained, however, albeit that in these nouns root accentuation has been generalized. Due to loss of intervocalic *-i-* in pre-Hittite times as described in § 1.4.8.1.a, the paradigm of the *i*-stem adjectives has sometimes become muddled. Examples: *ḫarki- / ḫargai-* 'white', *tēpu- / tēpau-* 'little, few'.

	Hitt.						PIE
nom.sg.c.	*ḫarkiš*	<					**h$_2$érǵ-i-s*
acc.sg.c.	*ḫarkin*	<					**h$_2$érǵ-i-m*
gen.sg.	*ḫargaš*	<	**ḫargai̯aš*	<	**h$_2$érǵ-ei-os*	<<	**h$_2$rǵ-éi-s*
dat.-loc.sg.	*ḫargai*	<	**hargai̯i*	<	**h$_2$érǵ-ei-i*	<<	**h$_2$rǵ-éi-i*

[229] In stems in *-t-*, this ending is written *-z* = /-ts/.

[230] See Weitenberg 1995 for a detailed account of the sigmatization of original asigmatic commune nom.sg.-forms.

[231] Taken over from *i*-stem nouns.

[232] Taken over from the thematic nouns.

[233] The proterodynamic ending *-š* is very rare: it has virtually everywhere been supplanted by hysterodynamic *-aš* < **-os*.

nom.sg.c.	*tēpuš*	<				**dʰébʰ-u-s*
acc.sg.c.	*tēpun*	<				**dʰébʰ-u-m*
gen.sg.	*tēpau̯aš*	<		**dʰébʰ-eu-os*	<<	**dʰbʰ-éu-s*
dat.-loc.sg.	*tēpau̯i*	<		**dʰébʰ-eu-i*	<<	**dʰbʰ-éu-i*

Note that it often is assumed that the word for 'knee' reflects a PIE static paradigm **ǵón-u*, **ǵen-u-s* (cf. Beekes 1995: 188), whereas the Hittite stems *gēnu-* and *ganu-* rather point to an original proterodynamic inflection: **ǵén-u*, **ǵn-éu-s*.

au-stems and *ai*-stems

2.0.2.2 These so-called 'diphthong-stems' (cf. Weitenberg 1979) reflect the PIE hysterodynamic *i*-stem and *u*-stem inflection. The few substantives that inflect thus clearly show that originally ablaut was still present, although in the course of Hittite the full grade stems in *-au-* and *-ai-* have been generalized. In nom.sg. forms with and without *-š* are attested (the latter often showing neuter concord). This situation is due to the fact that originally PIE commune nouns did not have a nom.sg. ending at all and that **-s* was introduced as the new marker of nom.sg.c. only after the creation of the *o*-stem inflection. This process of sigmatization can still be observed in the oldest layers of Hittite (cf. Weitenberg 1995) and the ending *-š* eventually has become obligatory for nom.sg. forms of commune words. All forms that did not show this ending automatically were regarded as neuter. Examples: *zaḫḫai- / zaḫḫi-* 'battle', *ḫarnau- / ḫarnu-* 'birthing chair'.

	Hitt.				PIE	
nom.sg.	*zaḫḫaiš*	<			**tiéh₂-ōi(-s)*	(<< **tiéh₂-i(-s)*)
acc.sg.	*zaḫḫain*	<	**tiéh₂-oi-m*	<<	**tih₂-ói-m*	
gen.sg.	*zaḫḫiu̯aš*	<	**tiéh₂-i-os*	<<	**tih₂-i-ós*	
nom.sg.	*ḫarnauš*	<			**h₃ér-nōu(-s)*	(<< **h₃ér-nu(-s)*)
acc.sg.	*ḫarnaun*	<	**h₃ér-nou-m*	<<	**h₃r-nóu-m*	
gen.sg.	*ḫarnu̯aš*	<	**h₃ér-nu-os*	<<	**h₃r-nu-ós*	

t-stem nouns

2.0.2.3 In Hittite, only a few *t*-stems are attested, which do not show synchronic ablaut anymore. Nevertheless, the comparison of Hitt. *šīu̯att-* 'day' < **diéuot-* with CLuw. *tiu̯at-* 'Sun-god' < **diuot-ʹ* shows that ablaut must have existed at the

Proto-Anatolian level and that this word ultimately reflects a hysterodynamic paradigm. I therefore reconstruct as follows:

	Hitt.				PAnat.		PIE	
nom.sg.	*šīu̯az*	<					**diéu-ot-s*	(<< **diéu-t(-s)*)
acc.sg.	UD-*an*	<	**diéu-ot-om*	<<	**diu-ót-om*	<<	**diu-ót-m*	
gen.sg.	*šīu̯attaš*	<	**diéu-ot-os*	<<	**diu-ot-ós*	<<	**diu-t-ós*	

s-stems

2.0.2.4 For Hittite, only two neuter *s*-stems are attested, *nēpiš* 'heaven' and *aiš / išš-* 'mouth'. The former synchronically does not show ablaut anymore. Nevertheless, the attestation of the deity *Nepaš* 'Storm-god' in OAss. texts, which likely is originally identical to 'heaven', shows that at a pre-Hittite stage ablaut was still present: nom.-acc.sg. *nepaš* vs. obl. *nepiš-*. Furthermore, the existence of CLuw. *tappaš-* < **nébe/os-* besides HLuw. *tipas-* < **nebés-* shows that in Proto-Anatolian accentual mobility still existed in this word, going back to a proterodynamic inflection. Thus the following scenario emerges:

	Hitt.			"pre-Hitt."		"PAnat."/PIE	
nom.-acc.sg.	*nēpiš*	<	**néb^h-es* <<			**néb^h-os*	(<< **néb^h-s*)
gen.sg.	*nēpišaš*	<		**néb^h-es-os*	<<	**neb^h-és-os*	(<< **nb^h-és-s*)

Note that *aiš / išš-*, ultimately reflecting PIE **h_1eh_3-es-*, is far less clear regarding its prehistory.

ḫ-stem

2.0.2.5 In Hittite, only one *ḫ*-stem reflecting a PIE **h_2*-stem has been fully preserved, *erḫ- / araḫ- / arḫ-* 'line boundary', albeit that its paradigm shows much reshuffling of the original ablaut grades. The three stems show that we must assume that this word originally had a hysterodynamic inflection.

	Hitt.				PIE
nom.sg.	*erḫaš*	<	**$h_1$ér-h_2-o-s*	<<	**$h_1$ér-h_2(-s)*
acc.sg.	*arḫan*	<	**h_1r-h_2-o-m*	<<	**h_1r-éh$_2$-m*
gen.sg.	*arḫaš*	<			**h_1r-h_2-ós*
abl.	*araḫza*	<			**h_1r-éh$_2$-ti*

The paradigms of other *h_2-stems have been levelled out, due to which the direct reflex of *h_2 was lost. This caused the eventual merging of these stems with the *a*-stem nouns, cf. e.g. *ḫāššā-* 'hearth'.

The outcome of the only known PIE proterodynamic *h_2-stem noun, *$g^{w}en$-h_2- 'woman', is not fully clear because the reflex of this word in Hittite is written with a sumerogram only. See the discussion *s.v. *kuu̯an-*.

m-stem

2.0.2.6 The only *m*-stem attested in Hittite, *tēkan / takn-* 'earth', does not show an *-m-* anymore. Yet its Anatolian cognates, CLuw. *tiu̯amm(i)-* 'earth' and HLuw. *ta-ka-mi-i* 'on the earth', shows that in PAnatolian the *-m-* must still have been present. Furthermore, CLuw. *tiu̯amm-* < *$d^{h}g^{h}$-ém-* points to a hysterodynamic inflection. See *s.v.* for a detailed account of the prehistory of *tēkan / takn-*, which can be schematized thus:

	Hitt.						"PAnat."/PIE
nom.sg.	*tēkan*	<		**dégom*	<<		**d^{h}égʰ-m*
acc.sg.	*tēkan*	<		**dégom*	<<		**$d^{h}g^{h}$-ém-m*
gen.sg.	*taknāš*	<<	**takmāš*	<	**dgmós*	<<	**$d^{h}g^{h}$-m-ós*

n-stems

2.0.2.7 Until quite recently the noun *šumanzan-* 'bulrush' was regarded as denoting 'cord, binding' and therefore cognate to Gr. ὑμήν 'sinew', on the basis of which "nom.sg. *šum(m)anza*" was reconstructed as **suh₁mḗn+s*. When this form was compared to nom.sg. *ḫāraš* 'eagle' < **h₃ér-ōn+s*, it was assumed that PIE forms in *-ōn* lost their *-n* in PIE already, whereas in *-ēn* it was retained. Since "*šum(m)anza*" now has to be interpreted as the nom.-acc.pl. of a neuter noun *šumanzan-* 'bulrush' that has nothing to do with Gr. ὑμήν, the awkward split between *-ēn* and *-ōn* must be given up.

For commune *n*-stems, we can now distinguish two types, namely hysterodynamic *n*-stems with an original suffix vowel *-e-* and hysterodynamic *n*-stems with an original suffix vowel *-o-*, both yielding *-aš* in nom.sg. Examples: *išḫimen-* 'string, cord', *ḫāran-* 'eagle'.

	Hitt.				PIE	
nom.sg.	*išḫimāš*	<			**sh_2i-mḗn-s*	(<< **sh_2éi-mn*)
acc.sg.	[*i*]*šḫimenan*	<	**sh_2i-mén-om*	<<	**sh_2i-mén-m*	
gen.sg.	unatt.				**sh_2i-mn-ós*	

nom.sg.	*ḫāraš*	<			*$*h_3$ér-ōn-s*	(<< *$*h_3$ér-n*)
acc.sg.	*ḫāranan*	<	*$*h_3$ér-on-om*	<<	*$*h_3$r-ón-m*	(<< *$*h_3$r-én-m*)
gen.sg.	*ḫāranaš*	<	*$*h_3$ér-on-os*	<<	*$*h_3$r-n-ós*	

The neuter *n*-stem nouns that are attested in Hittite usually seem to show a hysterodynamic inflection. This must be a rebuilding of an original proterodynamic inflection, however. Example: *lāman / lamn-* 'name'.

	Hitt.				PIE
nom.-acc.sg.	*lāman*	<			*$*h_3$néh$_3$-mn*
gen.sg.	*lamnaš*	<	*$*h_3$n(e)h$_3$-mn-os*	<<	*$*h_3$nh$_3$-mén-s*

r-stems

2.0.2.8 In Hittite, only two real *r*-stem noun are attested. The oldest attestations of the first, *keššar / kiššer- / kišr-* 'hand', directly reflect a hysterodynamic paradigm:

	Hitt.						PIE
nom.sg.	*keššar*	/kéSr/	<				*$*ǵ^{h}és-r*
acc.sg.	*kiššeran*	/kiSéran/	<	*$*ǵ^{h}s-ér-om*	<<	*$*ǵ^{h}s-ér-m*
gen.sg.	*kišraš*	/kiSrás/	<				*$*ǵ^{h}s-r-ós*

The second one, *ḫašter(a)-* 'star', probably goes back to a hysterodynamic paradigm as well, but *s.v.* for the problems regarding the establishment of its paradigm. Furthermore, it is not clear whether we should analyse the PIE stem as *$*h_2$s-ter-* or *$*h_2$st-er-*.

	Hitt.				PIE	
nom.sg.	*ḫašterza*	<	*$*h_2$stḗr+s*	<<	*$*h_2$stḗr*	(<< *$*h_2$éstr*?)
acc.sg.	*ḫašteran*	<	*$*h_2$stérom*	<<	*$*h_2$stér-m*	
gen.sg.	*ḫaštiraš*	<	*$*h_2$stéros*(?)	<<	*$*h_2$str-ós*	

r/n-stems

2.0.2.9 Although in the other IE languages *r/n*-stems (including stems in *-ur/-uen-* and *-mr/-men-*) are rarely attested, they are fully alive in Hittite. We can distinguish two types of inflection, namely a static and a proterodynamic one. Examples: *mēḫur / mēḫun-* 'period, time', *paḫḫur / paḫḫuen-* 'fire'.

static:	Hitt.				PIE
nom.-acc.sg.	*mēḫur*	<			**méih$_2$-ur*[234]
gen.sg.	*mēḫunaš*	<	**méih$_2$-un-os*	<<	**méih$_2$-un-s*
proterodynamic:					
nom.-acc.sg.	*paḫḫur*	<			**péh$_2$-ur*
gen.sg.	*paḫḫuenaš*	<	**peh$_2$-uén-os*	<<	**ph$_2$-uén-s*

It is often stated that *u̯ātar / u̯itēn-* 'water' reflects a static paradigm **uód-r*, **ued-n-s*. As I have argued in Kloekhorst fthc.b, this is incorrect: *u̯ātar*, *u̯itenaš* must be regarded as an inner-Hittite remodelling of an originally proterodynamic paradigm **uód-r*, **ud-én-s* (*s.v.* for details).

nt-stems

2.0.2.10 In Hittite, many *nt*-stem nouns are found, especially participles in *-ant-* and adjectives in *-u̯ant-* 'having x'. In these words, no traces of ablaut can be found anymore: we find a stem reflecting **CC-ént-* throughout the paradigm. Nevertheless, the fact that in CLuwian the word for 'Stormgod' shows a stem *Tarḫuu̯ant-* besides *Tarḫunt-* < **trh$_2$uent- / *trh$_2$unt-*, indicates that at least in Proto-Anatolian ablaut was still present. Thus, we get the following picture:

	Hitt.				"PAnat."		PIE
nom.sg.	*ḫuu̯anza*	<			**h$_2$uh$_1$-ént-s*	<<	**h$_2$ueh$_1$-nt(-s)*
acc.sg.	**ḫuu̯antan*	<	**h$_2$uh$_1$-ént-om*	<<			**h$_2$uh$_1$-ént-m*
gen.sg.	*ḫuu̯andaš*	<	**h$_2$uh$_1$-ént-os*	<<			**h$_2$uh$_1$-nt-ós*

it-stems

2.0.2.11 Only two nouns in Hittite show a stem in *-it-*, namely *militt- / malitt-* 'honey' and *šeppitt-* 'a kind of grain'. The latter shows the stem *šeppitt-* < **sép-it-* throughout, but the former shows ablaut in the root: *militt-* < **mél-it-* vs. *malitt-* < **ml-it-*. It is remarkable that the suffix syllable does not show a full grade form anywhere in the IE languages, which would point to a hysterodynamic inflection: gen.sg. **ml-it-ós*. Nevertheless, we would *a priori* expect a proterodynamic paradigm **mél-it*, **ml-iét-s* (or **ml-éit-s* ?).

[234] Note that contra Eichner 1973 I do not see any reason to reconstruct **-ē-* in the nom.-acc.sg.-form.

	Hitt.				PIE	
nom.-acc.sg.	*milit*	<			**mél-it*	
gen.sg.	*milittaš*	<	**mél-it-os*	<<	**ml-it-ós*	(<< **ml-iét-s* ?)
dat.loc.sg.	*malitti*	<			**ml-it-éi*	(<< **ml-iét-i* ?)

2.0.3 Root nouns

In Hittite only a few root nouns are attested. Often, original root nouns are thematicized (compare e.g. *pāt- / pat-* 'foot' < **pód- / pd-*, which eventually is altered to *pata-*), sometimes in pre-Hittite times already (compare e.g. *ḫuḫḫa-* 'grandfather' < **h₂uh₂o-* that in combination with CLuw. *ḫūḫa-* and Lyc. *χuge-* < **h₂éuh₂o-* points to a PAnat. ablauting root noun **h₂éuh₂-s*, **h₂éuh₂-m*, **h₂uh₂-ós*). We can distinguish static and mobile root nouns. Examples: *u̯itt-* (MU^{KAM}) 'year', *kuu̯an- / kun-* 'dog', *ker / kard(i)-* 'heart'.

static:	Hitt.				PIE
nom.sg.	MU^{KAM}*-za*	<			**uót-s* (?)
acc.sg.	MU^{KAM}*-an*	<			**ué/ót-m*
gen.sg.	*u̯izza*	<			**uét-s*
dat.-loc.sg.	*u̯ītti*	<			**uét-i*
mobile:					
nom.sg.	*kuu̯aš*	<	**ḱuṓn-s*	<<	**ḱuṓn*
acc.sg.	*kuu̯anan*	<	**ḱuón-om*	<<	**ḱuón-m*
gen.sg.	*kūnaš*	<			**ḱun-ós*
nom.-acc.sg.	*ker*	<			**ḱḗr*
gen.sg.	*kardiu̯aš*	<			**ḱrd-i-ós*

2.1 THE HITTITE SYSTEM OF PERSONAL PRONOUNS

In order to etymologically describe the Hittite personal pronouns 'I', 'you (sg.)', 'we' and 'you (pl.)', it is important that we first look at the systems of personal pronouns as attested in the other IE languages.

2.1.1 Personal pronouns in other IE languages

When we compare the Sanskrit forms with those of Avestan (Gatha-Avestan; Young Avestan marked with Y.), we arrive at the following Proto-Indo-Iranian reconstruction:

	Skt.	(encl.)	Av.	(encl.)	PIIr.	(encl.)
'I'						
Nom.	*ahám*		*as-cīṯ*, *azəm*		**HaǵH(ám)*	
Acc.	*mā́m*	*mā*	*mąm* (Y.)	*mā*	**maH(am)*	**mā*
Gen.	*máma*	*me*	*məm.nā*	*mōi*	**mána*	**mai*
Dat.	*máhya(m)*	*me*	*maibiiā*, *maibiiō*	*mōi*	**máǵ^{h}ya*	**mai*
Abl.	*mád*		*maṯ*		**mad*	
Loc.	*máyi*		-		**mai+i*	
Instr.	*máyā*		-		**mai+oH*	
'you (sg.)'						
Nom.	*tvám*		*tū*, *tuuəm*		**tuH(ám)*	
Acc.	*tvā́m*,	*tvā*	*θβąm*	*θβā*	**tu̯aH(am)*	**tu̯ā*
Gen.	*táva*,	*te*	*tauuā*	*tōi*	**táu̯a*	**tai*
Dat.	*túbhya(m)*,	*te*	*taibiiā*, *taibiiō*	*tōi*	**táb^{h}ya*	**tai*
Abl.	*tvád*		*θβaṯ*		**tu̯ad*	
Loc.	*tvé*, *tváyi*		-		**tu̯ai*(+*i*)	
Instr.	*tvā́*, *tváyā*		*θβā*		**tu̯aH*	
'we'						
Nom.	*vayám*		*vaəm*		**u̯ai̯ám*	
Acc.	*asmā́n*	*nas*	*əhmā*	*nå̊*	**ns-má+*	**nās*
Gen.	*asmā́kam*	*nas*	*ahmākəm*	*nə*	**ns-má+*	**nas*
Dat.	*asmé*	*nas*	*ahmaibiiā*	*nə*	**ns-má+*	**nas*
Abl.	*asmád*		*ahmaṯ*		**ns-mád*	
Loc.	*asmé*		-		**ns-mai*	
Instr.	*asmā́bhis*		*əhmā*		**ns-maH*	

‘you (pl.)’						
Nom.	*yūyám*		*yūš*, *yūžəm*		**iuHs*	
Acc.	*yuṣmā́n*	*vas*	-	*vā̊*	**us-ma+*	**u̯ās*
Gen.	*yuṣmā́kam*	*vas*	*xšmākəm*	*və*	**us-má+*	**u̯as*
Dat.	*yuṣmé*	*vas*	*xšmaibiiā*	*və*	**us-má+*	**u̯as*
Abl.	*yuṣmád*		*xšmaṯ*		**us-mád*	
Loc.	*yuṣmé*				**us-mai*	
Instr.	-		*xšmā*		**us-maH*	

The Greek forms are as follows:

1sg.	Hom.		Ion.-Att.		Dor.		PGreek	
Nom.	ἐγώ		ἐγώ		ἐγώ(ν)		**h₁eǵóH*	
Acc.	ἐμέ,	με	ἐμέ	με	ἐμέ	με	**h₁mé*	**me*
Gen.	ἐμέο	μευ	ἐμοῦ	μου	ἐμέος	μου	**h₁méso*	**meso*
Dat.	ἐμοί	μοι	ἐμοί	μοι	ἐμίν	μοι	**h₁mói*	**moi*

2sg.	Hom.		Ion.-Att.		Dor.			
Nom.	σύ(γε), τύνη		σύ(γε)		τύ		**t(u̯)uH*	
Acc.	σέ	σε	σέ	σε	τέ	τε	**t(u̯)é*	**t(u̯)e*
Gen.	σέο	σεο	σοῦ	σου	τέος		**t(u̯)éso*	**t(u̯)eso*
Dat.	σοί	τοι	σοί	σοι	τίν	τοι	**t(u̯)ói*	**toi*

1pl.	Hom.	Ion.-Att.		Dor.	
Nom.	ἄμμες	ἡμεῖς		ἁμές	**ns-me-(e)s*
Acc.	ἄμμε	ἡμέας	ἧμας	ἁμέ	**ns-mé*
Gen.	ἡμέων	ἡμέων	ἧμων	ἁμέων	**ns-mé-ōn*
Dat.	ἄμμι(ν)	ἡμῖν	ἧμιν	ἁμίν, ἁμῖν	**ns-m-ín*

2pl.	Hom.	Ion.-Att.		Dor.	
Nom.	ὔμμες	ὑμεῖς		ὑμές	**us-me-(e)s*
Acc.	ὔμμε, ὑμέας	ὑμᾶς	ὕμας	ὑμέ	**us-mé*
Gen.	ὑμέων	ὑμῶν	ὕμων	ὑμέων	**us-mé-ōn*
Dat.	ὔμμι(ν)	ὑμῖν	ὔμιν	ὑμίν	**us-m-ín*

Note that within Greek there are two systems for ‘you (sg.)’: in Ion.-Att., we find an anlaut σ- only, whereas in Doric, we find τ- in all forms. The σ- must come from **tu̯-*, which is still visible in Cret. acc. τϝέ. This means that in Proto-Greek there must have been a distribution between **t-* vs. **tu̯-*, which cannot be determined on the basis of the Greek material alone.

It is important to note that the Armenian words for ‘I’ and ‘you (sg.)’ match the Greek forms regarding the initial *h_1- in the oblique cases of ‘I’

Sg.	‘I’		‘you (sg.)’	
Nom.	*es*	< **eǵ*(?)	*du*	< **tuH*
Acc.	*is*	< **h_1m+ge*	*kʻez*	= dat.
Gen.	*im*	< **$h_1$mo-*	*kʻo*	< **tu̯o-*
Dat.	*inj*	< **h_1m-ǵ^{h}e*	*kʻez*	< **tu̯e-ǵ^{h}e*

Another important language is Old Church Slavonic, especially because of gen.sg. **mene* ‘of me’ that corresponds to PIIr. **mána* and dat.sg. **teb^{h}oi* ‘to you’ that corresponds to PIIr. **táb^{h}ya*. The plural forms clearly have undergone secondary changes.

Sg.	‘I’		‘you (sg.)’	
Nom.	*azъ*	< **eǵ-om*	*ty*	< **tuH*
Acc.	*mene*, *mę*	= gen., < **mem*	*tebe*, *tę*	= gen. < **tem*
Gen.	*mene*	< **mene*	*tebe*	< **teb^{h}e*
Dat.	*mьně*, *mi*	< **min-oi*	*tebě*	< **teb^{h}oi*

Pl.	‘we’		‘you (pl.)’	
Nom.	*my*	< **muH*	*vy*	< **vuH*
Acc.	*ny*, *nasъ*		*vy*, *vasъ*	
Gen.	*nasъ*	< **nos-om*	*vasъ*	< **vos-om*
Dat.	*namъ*, *ny*		*vamъ*, *vy*	

Of the Germanic languages, only nom. and acc. are important. I refer to Kroonen fthc., who shows that the Proto-Germanic system must have been as follows:

Sg.				
Nom.	**ik*	< **h_1eǵ-V*	**tu*	< **tuH*
Acc.	**mik*	< **$h_1$me-ge*	**tuk*	< **tue-ge*
Pl.				
Nom.	**weis*	< **uei-s*	**jūs*	< **iuH-s*
Acc.	**uns*	< **ns*	**iw*	< **iu*

Of the Latin system, only nominative and dative provide additional information:

Sg.				
Nom.	*ego*	< **egoH*	*tū*	< **tuH*
Dat.	*mihī*	< **meǵ^{h}ei*	*tibī*	< **teb^{h}ei*
Pl.				
Nom.	*nōs*	< **nōs*	*vōs*	< **uōs*
Dat.	*nōbīs*		*vōbīs*	

2.1.2 The PIE system on the basis of non-Anatolian languages

On the basis of these languages mentioned, we can reconstruct the following system:

Sg.				
nom.	**h$_1$eǵH*		**tuH*	
acc.	**h$_1$me(ge)*	**mē* (?)	**tue(ge)*	**tuē* (?)
gen.	**h$_1$mene*	**moi*	**teue*	**toi*
dat.	**h$_1$meǵ^{h}i*	**moi*	**teb^{h}i*	**toi*
"obl."	**h$_1$me-*		**tue-*	
Pl.				
nom.	**uei*		**iuH*	
acc.	**ns*	**nōs* (?)	**us*	**uōs* (?)
"obl."	**ns-*	**nos*	**us-*	**uos*

If we compare acc.-obl. **tue* to gen. **teue*, we seem to be dealing with an ablaut between zero-grade **tu-e* vs. full grade **teu-e*. When applied to gen. **h$_1$men-e*, we would expect an acc.-obl. **h$_1$mn-e*, with an *-n-*.[235] I believe that this *-n-* can explain the words for 'I, me' in Tocharian that have an otherwise unexplicable anlaut **ñ- < *nV^{front}*:

[235] The fact that the cluster **-mn-* does not seem to have left traces in the IE languages cited above points to a late-PIE assimilation of **-mn-* to **-m-* as is visible in the Ved. instr.sg. of *-man*-stems: e.g. *raśmán-* has instr.sg. *raśmā́* and *drāghmán-* has instr.sg. *drāghmā́*, both from **-mn-oh$_1$*. When the preceding root contained a labial consonant, the cluster *-mn-* was assimilated to *-n-*: Ved. instr.sg. *prathinā́* from *prathimán-*, *preṇā́* from *premán-*, *bhūnā́* from *bhūmán-*, *mahinā́* from *mahimán-* and *variṇā́* from *varmán-*; but also Skt. *budhná-* 'bottom' < **b^{h}ud^h-mno-* as visible in Gr. πυθμήν 'bottom'; Av. *raoγna-* 'butter' < **Hre/oug^h-mno-* as visible in Icel. *rjómi* 'cream' < **reugman-* and MHG *rōme* < **raugman-*; PGerm. *bragna-* 'brain' < **mrog^h-mno-* as visible in Gr. βρέχμα 'skull' (last examples taken from Kroonen 2006).

Sg.	TochB	TochA	TochB	TochA
nom.	*ñäś*	m. *näṣ*, f. *ñuk*	*tuwe*	*tu*
obl.	id.	id.	*ci*	*cu*
gen.	*ñi*	*ñi*	*tañ*	*tñi*
Pl.				
Nom.	*wes*	*was*	*yes*	*yas*
Obl.	id.	id.	id.	id.
Gen.	*wesi*, *wesäñ*	*wasäṃ*	*yesi*, *yesäñ*	*yasäṃ*

All in all, the outer-Anatolian IE languages point to the following basic system (disregarding the dat.sg. forms):

nom.	*$*h_1eǵH$*	**tuH*
obl.	*$*h_1$men- / *$h_1$mn-*	**teu- / tu-*
encl.	**moi*	**toi*
nom.	**uei*	**iuH*
obl.	**ns-*	**us-*
encl.	**nos*	**uos*

2.1.3 The Anatolian system: the singular forms

With the above system in mind, let us first look at the words for 'I, me' and 'you (sg.)'. Of the Anatolian languages, the Hittite forms are best attested and probably reflect the most archaic system:

Hitt.	'I'		'you (sg.)'	
nom.	*ú-uk*		*zi-i-ik*	
acc.	*am-mu-uk*	*=mu*	*tu-uk*	*=t-ta / =d-du*
gen.	*am-me-el*		*tu-e-el*	
dat.	*am-mu-uk*	*=mu*	*tu-uk*	*=t-ta / =d-du*
abl.	*am-me-e-da-az*		*tu-e-da-az*	

The gen.sg.-ending *-ēl* and the abl.-ending *-ēdaz* are clearly of secondary origin, being taken over from the other pronouns. So the basic Hittite system is as follows:

nom.	*ūk*	*zīk*
acc.-dat.	*ammuk*	*tuk*
"obl."	*amm-*	*tu-*
encl.	*=mu*	*=tta / =ttu*

The other Anatolian languages show the following forms:

Palaic				
nom.	--		*ti-i*	
acc.-dat.	--	*=mu*	*tu-ú*	
CLuwian				
nom.	--		*ti-i*	
acc.-dat.	--	*=mu*, *=mi*(?)	--	
gen.adj.	--		*tuu̯a/i-*	
HLuwian				
nom.	*á-mu*		*ti*	
acc.-dat.	*á-mu*	*=mu*	*tu*	*=tu*
gen.adj.	*á-ma/i-*		*tu-wa/i-*	
Lydian				
nom.	*amu*		--	
dat.	*amu*		--	
gen.adj.	*ẽmi-*		--	
Lycian				
nom.	*ẽmu*, *emu*, *amu*		--	
dat.	*emu*		--	
gen.adj.	*ẽmi-*		--	

Since in none of these languages word-final velars are attested, it is likely that these regularly were lost. As I have shown in Kloekhorst 2004: 39, HLuw. *á-mu* must be interpreted as /ʔmu/. Since the hieroglyphic script did not distinguish between single and geminate consonants, *á-mu* can safely be equated with Hitt. *ammuk* < PAnat. */ʔMug/, which in my view is the preform of Lyd. *amu*[236] and Lyc. *emu*[237] as well. It is clear that in these languages the acc.-dat. 'me' has spread at the cost of the original nom. 'I'.

[236] The *ẽ-* of Lyd. gen.adj. *ẽmi-* is the regular outcome of raising of **a-* due to the following *-i-*.

[237] Which has a variant *amu* due to *u*-umlaut.

I therefore arrive at the following Proto-Anatolian reconstruction:

nom.	*ʔúǵ*	**tíǵ*
acc.-dat.	**ʔMúǵ*	**túǵ*
"obl."	**ʔM-*	**tu-*
encl.	**=mu*	**=to*(?) / **=tu*

Note that I interpret Hitt. *ú-uk* as /ʔúg/[238] in analogy to e.g. *e-eš* 'be!' = /ʔés/ < **h₁és*, *e-ep* 'take!' = /ʔép/ < **h₁ép*, *e-et* 'eat!' /ʔéd/ < **h₁éd*, *i-it* 'go!' /ʔíd/ < **h₁idʰi*, etc. There is in my view no indication to assume that *ú-uk* would have a long *ū* (contra Melchert 1994a: 84).

If we compare PAnat. **ʔúǵ* 'I' to the form **h₁eǵH*, which is reconstructed on the basis of the other IE languages, we see that it contains an unexpected *-u-*. It is generally assumed that this *-u-* in one way or another derives from the paradigm of 'you'.

Nevertheless, within the PAnat. paradigm of 'you', nom. **tíǵ* is remarkable in the sense that, when compared with **tuH* as reconstructed on the basis of the other IE languages, it does not contain an *-u-*.

In order to explain this situation, several rather *ad hoc* attempts have been made. For instance, Georgiev (1978) assumes that Hitt. *zīk* (which he falsely reads as *zek*) reflects **tu̯e-ge*, showing a development **tu̯-* > Hitt. *z-*. Apart from the fact that this does not take into account Pal. *tī*, CLuw. *tī* and HLuw. *ti* 'you', a development **tu̯-* > Hitt. *z-* is falsified by e.g. *tuekk-* 'body' < **tuek-*. Melchert (1994a: 84) assumes a development **tú́* > **tyú́* > **tyí́* > **tí́* but such a development is unparalleled in Anatolian. It is important to note that his argument that "the preform **tú́* is independently required in PA[nat.] as the source of the long *ū* of the first singular nominative **ú́ĝ* seen in Hitt. *ūg*" is incorrect since the spelling *ú-uk* does not necessarily point to a long *ū*, but just stands for /ʔúg/.

In my view, the form **tíǵ*, of which the *-g* can easily be of a secondary origin and the *-ī-* must reflect **-ih₁-*,[239] cannot be explained from a pre-form **tuH* in any phonetically regular way. Moreover, I do not see how this form could have been a secondary innovation on the basis of analogy: there is no *-i-* available in the personal pronouns on the basis of which an original **tuH* could be altered to PAnat. **tih₁*. We therefore cannot conclude otherwise than that the Anatolian system **tih₁*, **tu-* is more archaic than the system **tuH*, *tu-* as reflected in the

[238] With /g/ on the basis of *ú-ke-el*, *ú-ki-la* 'I (emph.)'.

[239] Note that ***-ih₂* would have yielded ***-e* (cf. nom.-acc.pl.n. *ke-e* 'these' < **ḱih₂*).

other IE languages[240] and that this latter system therefore must have been an innovation, namely taking over the obl.-stem *tu-* into the nominative[241] and altering **tih$_1$* to **tuH* (which therefore must be identified as **tuh$_1$*).[242]

This means that **ʔúǵ* 'I' cannot have gotten its *-u-* from 'you' (which was never **tuH*, but always **tih$_1$*), and therefore must have been influenced by **ʔMúg* (again nominative influenced by obl.)

All in all I arrive at the following scenario:

PIE		
nom.	**h$_1$éǵH*	**tíh$_1$*
acc.	**h$_1$mn-*	**tu-*
obl.	**h$_1$mn-*	**tu-*

stage (1): the *-u-* of acc. **tu-* is taken over to **h$_1$mn-*

nom.	**h$_1$éǵH*	**tíh$_1$*
acc.	**h$_1$mnu-*	**tu-*
obl.	**h$_1$mn-*	**tu-*

stage (2): spread of *-u-* of acc. **h$_1$mnu-* to nom. **h$_1$eǵH*; assimilation of *-mn-* to *-M-*; loss of word-final laryngeal

nom.	**h$_1$úǵ*	**tī́*
acc.	**h$_1$Mu-*	**tu-*
obl.	**h$_1$M-*	**tu-*

stage (3): either addition of the element **-ge* in nom. and acc., or spread of word-final **-ǵ* of **h$_1$uǵ*

nom.	**h$_1$úǵ*	**tī́-$\overset{(e)}{ǵ}$(e)*
acc.	**h$_1$Mú-$\overset{(e)}{ǵ}$(e)*	**tú-$\overset{(e)}{ǵ}$(e)*
obl.	**h$_1$M-*	**tu-*

[240] Including Tocharian where TochA *tu*, TochB *tuwe* reflect **tuH(om)*.

[241] Which is a very common development, compare e.g. the Luwian languages where PAnat. nom. **ʔúǵ* 'I' was replaced by acc.-dat. **ʔMúg* 'me'.

[242] Thus already Cowgill 1965: 169[56]. The fact that the Anatolian branch retained the older situation, **tiH*, **tu-*, whereas all the other IE languages (including Tocharian) show the innovated system **tuH*, *tu-*, is an argument in favour of the view that the Anatolian branch was the first one to split off from PIE, cf. § 0.6.

stage (4): loss of word-final *-e*

PAnat.		
nom.	**ʔúǵ*	**tíǵ(ʷ)*
acc.-dat.	**ʔMúǵ(ʷ)*	**túǵ(ʷ)*
obl.	**ʔM-*	**tu-*

For a treatment of the enclitic forms, I refer to their own lemmas.

2.1.4 The Anatolian system: the plural forms

In Hitite, the plural forms are as follows:

nom.	*ú-e-eš*		*šu-me-eš*	
acc.	*an-za-a-aš*	*=(n-)na-aš*	*šu-ma-a-aš*	*=š-ma-aš*
gen.	*an-ze-el*		*šu-me-en-za-an*	
dat.	*an-za-a-aš*	*=(n-)na-aš*	*šu-ma-a-aš*	*=š-ma-aš*
abl.	*an-ze-da-az*		*šu-me-e-da-az*	

Again, the endings *-ēl*, *-edaz* and *-enzan* are likely taken over from the other personal pronouns and are irrelevant. So the basic system is

nom.	*u̯ēš*	*šumeš*
acc.-dat.	*anzāš*	*šumāš*
obl.	*anz-*	*šum-*
encl.	*=(n)naš*	*=šmaš*

In the other Anatolian languages, these pronouns are only scarcely attested:

CLuwian		
nom.	--	--
acc.-dat.	*an-za*, *a-an-za*, *an-za-aš*	*u-za-aš*
HLuwian		
nom.	*a-zu*$^{?}$*-za*	*u-zu*$^{?}$*-sa*, *u-zu*$^{?}$*-za*
acc.-dat.	-- *=nz*	--
abl.-instr.	--	*u-za-ri+i*
gen.adj.	*a-za/i-*	--

The plural forms of the first person ('we') are directly comparable to the PIE system, which had nom. **uei* (with Hitt. *u̯ēš* < **uei-s* or **uei-es*, compare Goth. *weis* < **uei-s*), obl. **ns-* and encl. **nos*. The Hitt. acc.-dat. *anzāš* shows the ending *-āš*, which is the accentuated variant of the normal dat.-loc.pl.-ending *-aš*. In HLuwian, where *a-zu*$^{?}$*-za* and *a-za/i-* likely stand for /ant^{s}-/, the oblique stem **ns-* was taken over into the nominative as well (compare 'I' above).

The interpretation of the plural forms of the second person ('you') is far less clear. The Hitt. stem *šum-* and the Luwian stem *uz-* do not seem to fit into one PAnatalion pre-form easily. Often, *šumeš* has been interpreted as the metathesized outcome of **usme* as visible in PIIr. **usmá* and Gr. ὔμμε. The element **-me* seems to be a Graeco-Indo-Iranian innovation, however, and does not occur in the Hittite paradigm of 'we, us' (where we would have expected **asme-* or similar). Moreover, this assumption does not explain the enclitic *=šmaš*.

2.2 THE HITTITE VERBAL SYSTEM

The Hittite verbal system knows many different inflection types, all with its characteristic forms. Each of this inflection type has its own prehistory. When we look at the Hittite texts diachronically, we see that this verbal system is in decline, however. Some inflection types are disappearing in the course of Hittite, whereas others are expanding rapidly. This causes the situation that a single verb sometimes can show forms that belong to a great number of different inflection classes. Since the historical linguist is mainly interested in the oldest linguistic situation as this provides the best information on the prehistory of a language, it is very important that in the case of the verbal system, the oldest inflection type of each verb is established, and that of each verb a detailed description is made of the development it shows during the attested period. In this way we can establish which inflection types were productive, which inflection type usually was taken over into a specific other inflection type, etc. With this knowledge, we should be able to gain a better insight in the possible origins of verbs that are not very well attested.

In order to do so, it is important that we classify the different inflection types that are available in Hittite. Such a task was taken up by Oettinger in his 1979 masterpiece *Die Stammbildung des hethitischen Verbums*. Although this book is still of very much value today, I believe that it is outdated in certain respects and that the views presented in it cannot all be upheld anymore. I therefore have chosen to set up my own classification that, although for the largest part based on Oettinger's work, is in some respects different. In the following chapter I will present the classification of the Hittite verbal system that I have used throughout this book. Of each inflection type, which are all provided with their own code, the following information will be given: original paradigm; prehistory; development during the attested Hittite texts; list of verbs that belong to this type originally.

2.2.1 Basic division and sub-grouping

The first division that can be made within the Hittite verbal system is between verbs that show an original active and verbs that show an original middle

inflection. This presents us with the first problem: some verbs show active as well as middle forms in the oldest texts already. Usually these verbs show a semantic difference between the active and the middle forms (e.g. *eš-*$^{a(ri)}$ 'to seat oneself' vs. *eš-*^{zi} 'to sit'), but sometimes such a difference is not graspable (e.g. *paḫš-*$^{a(ri)}$ besides *paḫš-*^{i}, both 'to protect, to be loyal to'). Formally, these verbs sometimes use one stem (e.g. *eš-*$^{a(ri)}$ / *aš-* besides *eš-*^{zi} / *aš-*), but sometimes the stems are different (e.g. *ḫuett-*$^{tta(ri)}$ besides *ḫuttiie/a-*^{zi} 'to draw, to pull', or *nē-*$^{a(ri)}$ besides *nai-*^{i} / **ni-* 'to turn'). It must be noted that in the case of originally different stems for the active and the middle, in the course of time these stems heavily influenced each other (see under their respective lemmas for the development in the latter two verbs). The active verbs are codified here with the roman numbers I and II (see below for the difference between I and II), whereas the middle verbs are codified with the roman number III.

2.2.2 The active verbs

Within the group of verbs that show an active inflection, the number of different inflection types is the largest. Nevertheless, we first can make another basic division within the active verbs, namely in verbs that show the *mi*-inflection and verbs that show the *ḫi*-inflection. The difference between these two is determined by their verbal endings. In the present tense, for instance, *mi*-inflected verbs have the endings *-mi*, *-ši*, *-zi* for the singular and *-u̯eni*, *-tteni*, *-anzi* for the plural, whereas *ḫi*-inflected verbs show *-ḫḫi* (*-ḫḫe*), *-tti*, *-i* (*-e*), *-u̯eni*, *-šteni*, *-anzi*. It must be noted that sometimes an ending of the one type spreads at the cost of the ending of the other type (e.g. the *mi*-ending 2sg.pres.act. *-ši* is gradually being replaced by the *ḫi*-ending *-tti* throughout Hittite, whereas the *ḫi*-ending 2pl.pres.act. *-šteni* is being replaced by the *mi*-ending *-tteni*; see at their respective lemmas for a full treatment of the verbal endings and their rise or fall within the Hittite period), but nevertheless, the basic division between *mi*-inflection types and *ḫi*-inflection types is present up to the last Hittite texts. It is important to notice that a particular verbal suffix in principle always takes the same set of endings: e.g. *-i̯e/a-* (= the *-i̯e/a*-class) always uses *mi*-endings, but *-ai-/-i-* (= the *dāi/tii̯anzi*-class) always *ḫi*-endings. It therefore is not useful to say that, for instance, the verb *nai- / *ni-* 'to turn', which was originally *ḫi*-conjugated, is becoming *mi*-conjugated in younger Hittite. We should rather say that the stem *nai-*^{i} / **ni-* (inflecting according to the *dāi/tii̯anzi*-class, which happens to be *ḫi*-conjugating) from MH times onwards is being replaced by the

stem *niḭe/a-*^{zi} (according to the *-ḭe/a*-class, which happens to be *mi*-conjugating). The inflection types that use *mi*-endings are codified with roman I, whereas the *ḫi*-conjugating inflection types are codified with II.

I = *mi*-conjugation

2.2.2.1 Within the *mi*-conjugated verbs three types must be distinguished: (a) unextended *mi*-verbs that show ablaut; (b) *mi*-verbs that do not show ablaut; (c) *mi*-verbs that show a thematic suffix.

Ia = unextended ablauting *mi*-verbs

2.2.2.1.a The ablauting *mi*-verbs go back to two PIE verbal categories, namely the root-present and the root-aorist.

For the root-present we can compare the verb 'to be'.

	PIE	Gr.	Skt.	Hitt.
1sg.	**$h_1$és-mi*	εἰμί	*ásmi*	*ēšmi*
2sg.	**$h_1$és-si*	εἶ	*ási*	*ēšši*
3sg.	**$h_1$és-ti*	ἐστί	*ásti*	*ēšzi*
1pl.	**h_1s-mé(s)*	ἐσμέν	*smás*	**ašuēni*
2pl.	**h_1s-th$_1$é*	ἐστέ	*sthá*	**aštēni*
3pl.	**h_1s-énti*	εἰσί	*sánti*	*ašanzi*

For the root-aorist we can compare the verb 'to put'. Because there is no trace of an augment in Hittite, I have cited here the injunctive forms as attested in Greek (with additional forms out of the paradigm of ἵστημι 'to stand') and in Sanskrit (with an additional example of *var-* 'to cover'). The Hittite verb *tē-*^{zi} in fact denotes 'to speak' (the plural forms are taken from compound verbs like *peḫute-*^{zi} */ peḫut-* 'to bring (away)' and *uu̯ate-*^{zi} */ uu̯at-* 'to bring (here)').

	PIE	Gr.	Skt.	Hitt.
1sg.	**d^{h}éh$_1$-m*	[στῆν]	**dhā́m*	*tēnun*
2sg.	**d^{h}éh$_1$-s*	[στῆς]	*dhā́s*	*tēš*
3sg.	**d^{h}éh$_1$-t*	[στῆ]	*dhā́t*	*tēt*
1pl.	**d^{h}h$_1$-mé*	θέμεν	**dhā́ma*	°*tumen*
2pl.	**d^{h}h$_1$-té*	θέτε	**dhā́ta*	°*tatten*
3pl.	**d^{h}h$_1$-ént*	θέσαν	*dhúr*, [*vran*]	°*tēr*, °*danzi*

On the basis of the fact that the formation of the PIE imperfect (ablaut **e/Ø*, secondary endings) was identical to the formation of the root-aorist (also **e/Ø*-ablaut and secondary endings), the two categories easily fell together in Hittite. On the basis of the root-aorist a new inflection with primary endings (= addition of *-i*) was created which had presentic meaning and was formally identical to the root-present.

As we see, the PIE ablaut was **e* (in the singular) vs. **Ø* (in the plural). This PIE ablaut-type yielded six different ablaut-types in synchronic Hittite: *e/Ø*, *a/Ø*, *e/a*, *a/a*, *e/ɨ*, *a/ɨ*. The verb *pai̯i-*^{zi} / *pai-* 'to go' has its own class.

Ia1 *mi*-verbs with *e/Ø*-ablaut.

2.2.2.1.b This class consists of verbs of the structure *CueC-*, *Cmen-* and of the structure **Ceh*$_1$*-*, to which the nasal-infix verbs of the structure **CR-ne-h*$_1$*-* belong as well. Note that in *zinni-*^{zi} / *zinn-* and *duu̯arni-*^{zi} / *duu̯arn-* original **-ē-* < **-eh*$_1$*-* has been raised to *-i-*. The verbs of this type most clearly reflect the PIE **e/Ø*-ablaut.

aršane-^{zi} ***/ aršan-*** 'to be envious' < **h*$_{1/3}$*rs-ne-h*$_1$*- / *h*$_{1/3}$*rs-n-h*$_1$*-*; ***ḫuek-***^{zi} ***/ ḫuk-*** 'to slaughter' < **h*$_2$*ueg*$^{(h)}$*- / *h*$_2$*ug*$^{(h)}$*-*; ***ḫuek-***^{zi} ***/ ḫuk-*** 'to conjure' < **h*$_2$*ueǵ*^{h}*- / *h*$_2$*uǵ*^{h}*-*; ***ḫuiš-***^{zi} ***/ ḫuš-*** 'to live' **h*$_2$*ues- / *h*$_2$*us-*; ***ḫulle-***^{zi} / ***ḫull-*** 'to smash' < **h*$_2$*ul-ne-h*$_1$*- / *h*$_2$*ul-n-h*$_1$*-*; ***kuen-***^{zi} / ***kun-*** 'to kill' < **g*^{wh}*en- / *g*^{wh}*n-*; ***kuer-***^{zi} / ***kur-*** 'to cut' < **k*^{w}*er- / *k*^{w}*r-*; ***peḫute-***^{zi} ***/ peḫut-*** 'to bring (there)' < **h*$_1$*poi + *h*$_2$*ou + *d*^{h}*eh*$_1$*- / *d*^{h}*h*$_1$*-*; ***pei̯e-***^{zi} ***/ pei̯-*** 'to send' < **h*$_1$*poi + *h*$_1$*ieh*$_1$*- / *h*$_1$*ih*$_1$*-*; ***šamen-***^{zi} ***/ šamn-*** 'to pass by' < **smen- / *smn-*; ***tē-***^{zi} 'to state, to say' < **d*^{h}*eh*$_1$*-*; ***duu̯arni-***^{zi} ***/ duu̯arn-*** 'to break' < **d*^{h}*ur-ne-h*$_1$*- / *d*^{h}*ur-n-h*$_1$*-*; ***ui̯e-***^{zi} ***/ ui̯-*** 'to send (here)' < **h*$_2$*ou + *h*$_1$*ieh*$_1$*- / *h*$_1$*ih*$_1$*-*; ***uu̯ate-***^{zi} ***/ uu̯at-*** 'to bring (here)' < **h*$_2$*ou + x + *d*^{h}*(e)h*$_1$*- / *d*^{h}*h*$_1$*-*; ***u̯erite-***^{zi} ***/ u̯erit-*** 'to fear' < *x + *d*^{h}*eh*$_1$*- / *d*^{h}*h*$_1$*-*; ***u̯ete-***^{zi} ***/ u̯et-*** 'to build' < *x + *d*^{h}*eh*$_1$ */ *d*^{h}*h*$_1$*-*; ***zinni-***^{zi} ***/ zinn-*** 'to finish' < **ti-ne-h*$_1$*- / *ti-n-h*$_1$*-*.

Ia2 *mi*-verbs with *a/Ø*-ablaut.

2.2.2.1.c This class consists of verbs in which the **e* of the singular forms regularly is coloured to *a* by a neighbouring laryngeal or due to the development **eRCC* > *aRCC*.

ḫā-^{zi} ***/ ḫ-*** 'to believe' < **h*$_3$*eH- / *h*$_3$*H-* or **h*$_2$*eh*$_3$*- / *h*$_2$*h*$_3$*-*; ***ḫarna-***^{zi} ***/ ḫarn-*** 'to sprinkle' < **h*$_2$*r-ne-h*$_{2/3}$*- / *h*$_2$*r-n-h*$_{2/3}$*-*; ***kallišš-***^{zi} ***/ kališš-*** /kaLɨS- / klɨS-/ 'to call' < **kelh*$_1$*s- / *klh*$_1$*s-*, ***ma-***^{zi} ***/ m-*** 'to disappear(?)' < **meh*$_{2/3}$*- / *mh*$_{2/3}$*-*??

Ia3 *mi*-verbs with *e/a*-ablaut: the *e/a*-class.

2.2.2.1.d This class consists of *mi*-verbs that show a synchronic ablaut *e/a*. It contains important verbs like *eš-*^{zi} / *aš-* 'to be' and *ed-*^{zi} / *ad-* 'to eat'. Although it is clear that *-e-* of the strong stem directly reflects PIE **-e-*[243], the origin of *-a-* of the weak stem has caused some debate.

In some of the verbs of this class, it is quite clear that the *-a-* as written in the weak stem is not phonologically real: *ta-ra-an-zi* 'they speak' reflects **tr-énti* and therefore must represent phonological /trántˢi/; *ma-ra-an-du* 'they must disappear' < **mr-éntu* must be phonologically interpreted as /mrántu/. So in verbs of the stucture **CeR-* the PIE zero-grade stem **CR-* yielded Hitt. *CR-* that is spelled *CaR-*, with an empty *-a-*.

Regarding the interpretation of the *a-* as found in the weak stems of the verbs *eš-*^{zi} / *aš-* 'to be', *ed-*^{zi} / *ad-* 'to eat', *eku-*^{zi} / *aku-* 'to drink' and *epp-*^{zi} / *app-* 'to seize', matters are less clear. These verbs all show the structure **h_1eC-*, and it therefore seems obvious to assume that the weak stems *aC-* reflect **h_1C-*. Nevertheless, in view of the loss of initial **h_1-* before consonants in isolated forms (**h_1C- > C-*, cf. Kloekhorst fthc.c), the retention of **h_1-* in these verbs cannot be phonetically regular.[244] I therefore assume that at the time that **h_1* was regularly lost in word-initial position before consonant, the ablaut of stems of the structure /ʔeC- / ʔC-/ still corresponded to the other ablauting *mi*-verbs, which showed an ablaut **Ce(R)C- / *C(R)C-*. In order to avoid an alternation **/ʔeC- / C-/, which would have been fully aberrant in comparison to all other verbs that showed **Ce(R)C- / *C(R)C-*, the initial /ʔ-/ of the full grade was restored.

The question now is: what is the relationship between */ʔC-/ and the spelling *aC-*? It has been claimed that *aC-* shows a vocalization of the initial **h_1-* to *a-*. There is, however, no proof anywhere in Hittite that **h_1* would vocalize to *-a-* in any environment. As I have argued in Kloekhorst fthc.c, we should rather assume

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[243] In the literature, we still often find the view that the plene spelling of *e* in the singular forms (e.g. *e-eš-mi* 'I am', *e-et-mi* 'I eat' or *še-e-eš-mi* 'I sleep') of some of these verbs indicates original length and points to acrostatic (i.e. 'Narten') inflection (e.g. Oettinger 1979a: 87, but also still LIV^2, where e.g. *e-et-mi* is given as *ēdmi*, reflecting ***h$_1$ēd-mi*). This view must be abandoned. The plene spelling only indicates the fact that **e* is accentuated. For each verb, cf. their respective lemma for my view that all *e/a*-ablauting verbs go back to normal root-presents with **e/Ø*-ablaut.

[244] A common other view is that these verbs introduced the *a-* in the weak stem in analogy to *šeš-*^{zi} / *šaš-* 'to sleep' (e.g. Melchert 1994a: 66-7, Kimball 1999: 390). This, however, is highly improbable: it is hard to believe that in Hittite a wide-scale leveling within the paradigm of verbs like 'to be', 'to eat' and 'to drink' took place in analogy to one less frequent verb only. Moreover, the *-a-* of *šaš-* probably is an empty vowel as well.

that a spelling like *a-ša-an-zi* must be read as *'a-ša-an-zi*[245] and therefore is comparable to e.g. *ta-ra-an-zi* = /tránt^{s}i/ in the sense that it stands for /ʔsánt^{s}i/ < *$h_1$sénti*, where *-a-* is nothing more than an empty vowel. The same goes for *ša-ša-an-zi* = /ssánt^{s}i/ < **ss-énti* 'they sleep'.

All in all, the synchronic ablaut *e/a* of class Ia3 is equivalent to the ablaut *e/Ø* of class Ia1 in the sense that the vowel *-a-* of the weak stem in the former type is just a graphic device to spell the initial consonant cluster /CC-/ and therefore is identical to phonological /Ø/.

eku-^{zi} / aku- 'to drink' < *h_1eg^{wh}- / *h_1g^{wh}-; ***epp-^{zi} / app-*** 'to seize' < *$h_1$ep- / *h_1p-; ***ed-^{zi} / ad-*** 'to eat' < *$h_1$ed- / *h_1d-; ***eš-^{zi} / aš-*** 'to be' < *$h_1$es- / *h_1s-; ***eš-^{zi} / aš-*** 'to sit' < *$h_1$es- / *h_1s-; ***mer-^{zi} / mar-*** 'to disappear' < **mer-* / **mr-*; ***peš-^{zi} / *paš-*** 'to rub' < **pes-* / **ps-*; ***šeš-^{zi} / šaš-*** 'to sleep' < **ses-* / **ss-*; ***ter-^{zi} / tar-*** 'to speak' < **ter-* / **tr-*; ***u̯eḫ-^{zi} / u̯aḫ-*** 'to turn' of secondary origin; ***u̯en-^{zi} / u̯u̯an-*** 'to copulate' < *$h_{1/3}$uenh$_1$- / *$h_{1/3}$unh$_1$-.

Ia4 *mi*-verbs with *a/a*-"ablaut".

2.2.2.1.e This class consists of verbs of the structure **CeRC-*. In the full-grade forms, **-e-* yielded Hitt. *-a-* because of the sound law **eRCC* > Hitt. *aRCC* (note that all endings of the singular start in a consonant). In the zero-grade forms, however, **CRC-* yielded Hitt. /CRC-/, which is phonetically realized as [CəRC-]. In spelling, the full grade stem /CaRC-/ fell together with the zero grade stem /CRC-/: both are spelled *CaRC-*. This is the reason why these verbs are usually regarded as synchronically non-ablauting. Although I must admit that for the bulk of these verbs it in principle cannot be proven that synchronically in Hittite ablaut still existed, I do believe that in one case this is clear. The verb *ārš-^{zi} / arš-* 'to flow' shows a synchronic ablaut between the strong stem *ārš-* (*a-ar-aš-*, *a-ar-š°*) and the weak stem *arš-* (*ar-aš-*, *ar-š°*). As I have argued under its lemma, this difference in spelling can only be explained by assuming that *ārš-* represents /ʔars-/ < *$h_1$ers-, whereas *arš-* represents /ʔrs-/ < *$h_1$rs-. This means that *ārš- / arš-* retained its ablaut throughout Hittite. I therefore think that it is likely that at least a part of the verbs that I have gathered under this class show ablaut in Hittite as well. This ablaut unfortunately cannot be seen in spelling, however.

[245] Taking the sign A as having the value *'a$_x$* as is known from Boğazköy Akkadian (cf. Durham 1976: 117).

ārš-^{zi} / arš- ‘to flow’ < *$*h_1ers$- / *$*h_1rs$-; ***ḫar(k)-^{zi} / ḫar(k)-*** ‘to hold, to keep’ < *$*h_2erk$- / *$*h_2rk$-; ***ḫark-^{zi} / ḫark-*** ‘to perish’ < *$*h_3erg$- / *$*h_3rg$-; ***ḫarp-^{zi} / ḫarp-*** ‘to separate oneself and (re)associate oneself esewhere’ < *$*h_3erb^h$- / *$*h_3rb^h$-; ***išpart-^{zi} / išpart-*** ‘to escape’ *$*sperd^h$- / *$*sprd^h$-; ***ištalk-^{zi} / ištalk-*** ‘to make level, to flatten’ *$*stelǵ^h$- / *$*stlǵ^h$-; ***ištar(k)-^{zi} / ištar(k)-*** ‘to ail, afflict’ < *$*sterḱ$- / *$*strḱ$-; ***karp-^{zi} / karp-*** ‘to take away, to pick, to pluck’ < *$*kerp$- / *$*krp$-; ***karš-^{zi} / karš-*** ‘to cut off’ < *$*kers$- / *$*krs$-; ***lapp-^{zi} / lapp-*** ‘to catch fire’ < *$*leh_2p$- / *$*lh_2p$-; ***papparš-^{zi} / papparš-*** ‘to sprinkle’ < *$*-pers$- / *$*-prs$-; ***parḫ-^{zi} / parḫ-*** ‘to chase’ < *$*b^herh_2$- / *$*b^hrh_2$-; ***parš-^{zi} / parš-*** ‘to flee’ < *$*b^hers$- / *$*b^hrs$-; ***šalk-^{zi} / šalk-*** ‘to knead’ < *$*selK$- / *$*slK$-; ***ša(n)ḫ-^{zi} / ša(n)ḫ-*** ‘to seek’ < *$*senh_2$- / *$*snh_2$-; ***ša(n)ḫu-^{zi} / ša(n)ḫu-*** ‘to roast’ < *$*senh_2u$- / *$*senh_2u$-; ***tarḫu-^{zi} / tarḫu-*** ‘to siege’ < *$*terh_2u$- / *$*trh_2u$-; ***tar(k)u-^{zi} / tar(k)u-*** ‘to dance’ < *$*terk^w$- / *$*trk^w$-; ***u̯alḫ-^{zi} / u̯alḫ-*** ‘to hit’ < *$*u̯elh_3$- / *$*u̯lh_3$-; ***u̯alk-^{zi} / u̯alk-*** ‘to damage(?)’ < *$*u̯elg$- / *$*u̯lg$-; ***u̯arp-^{zi} / u̯arp-*** ‘to wash’ < *$*u̯erp$- / *$*u̯rp$-.

Ia5 *mi*-verbs with *e/i*-ablaut.

2.2.2.1.f This class consists of two verbs only, namely of *u̯ekk-^{zi}* ‘to wish’ and *terepp-^{zi}* ‘to plough’. This class cannot be treated without referring to the other verbs in Hittite that show a vowel *-e/i-* in their weak stem, namely the verbs of class Ia6 (*tamāšš-^{zi} / tame/išš-* ‘to (op)press’) and of class IIa3 (*karāp-^{i} / gare/ip-* ‘to devour’, *šarāp-^{i} / šarip-* ‘to sip’, *ašāš-^{i} / aše/iš-* ‘to seat’ and *ḫamank-^{i} / ḫame/ink-* ‘to tie’). As I have shown in detail in Kloekhorst fthc.f, the *-e/i-* in the weak stem *tame/išš-* must be regarded as an anaptyctic vowel */ɨ/* that emerged in the cluster *$*dmh_2s$-. In my opinion, this vowel */ɨ/* is the one found in the weak stem forms of these verbs as well.

The case of *terepp-^{zi}* must be taken together with *karāp-^{i} / kare/ip-* and *šarāp-^{i} / šarip-*. In my view it is significant that these verbs are the only ones in Hittite that show a structure *$*CReC$-. In principle, we would expect that the zero-grade form of these verbs, *$*CRC$-, would regularly yield Hitt. [CəRC-] (compare at class Ia4 and IIa2), spelled *CaRC-*. We therefore would expect that the ablauting pairs would be *$*CReC$- / *$*CRC$- > Hitt. *CReC-* / *CaRC-* when *mi*-conjugated, and *$*CróC$- / *$*CRC$- > Hitt. *CRāC- : CaRC-* when *ḫi*-conjugated. Note that in synchronic Hittite it looks as if the vowel is shifting place: strong stem CR**V**C- vs. weak stem C**V**RC-. Since such a Schwebe-ablaut is further absent in Hittite verbs, I believe that it was eliminated here. The zero-grade stem *CRC-* secondarily received the anaptyctic vowel */ɨ/* on the place of the full grade vowel. In this way, *mi*-conjugating verbs of the structure *$*CRéC$- / *$*CRC$- were altered to synchronic *CReC- / CRɨC-*, whereas *ḫi*-conjugating verbs of the structure

**CRóC- / *CRC-* were altered to synchronic *CRāC- / CRɨC-*. In both cases, the weak stem is spelled *CRe/iC-*.

With this scenario in mind, we can explain *terepp-^{zi}* as an ablauting verb ***terepp-^{zi} / tere/ipp-*** 'to plough', which stands for phonological /trep- / trɨp-/, the 'regular' adaptation of PIE **trep- / *trp-*.

The case of *u̯ekk-^{zi}* is slightly different. As I have shown under its lemma, here we are dealing with the principle that a PIE ablaut **u̯e/oC- / *uC-* is eliminated in Hittite. In analogy to the **u̯-* of the full grade, the zero-grade **uC-* is altered to **u̯C-*. This initial cluster then received an anaptyctic vowel, which is /ɨ/ when the following consonant is a stop. So I interpret ***u̯ekzi / u̯ekkanzi*** as /uéktˢi / uɨkántˢi/ < **u̯ek-ti / *uk-énti*.

Ia6 ***tamāšš-^{zi} / tame/išš-*** 'to (op)press'.

2.2.2.1.g This verb constitutes a class of its own, since it shows a unique synchronic *ā/ɨ-* ablaut. As I have shown under its lemma, I regard *tame/išš-* as the regular outcome of the zero-grade stem **dmh$_2$s-*, whereas *tamāšš-* replaced **tamaḫš-*, which would have been the regular outcome of the full grade stem **dmeh$_2$s-*.

Ia7 ***pa̯i-^{zi} / pai-*** 'to go'.

2.2.2.1.h This verb, too, has its own class, as it shows a unique inflection. Although in the bulk of the attestations both the strong and the weak stem seems to be *pai-*, the oldest texts show a strong stem *pa̯i-*. See its lemma for the discussion of the prehistory of this verb.

Ablautpattern of the Ia-verbs

2.2.2.1.i In all *mi*-verbs that show ablaut, this ablaut can be traced back to the PIE ablaut **e/Ø* that is inherited from the PIE root present and root aorist. I have recorded the distribution of these ablaut-vowels over the verbal paradigms in the following schemes, first giving the attested Hittite forms (the verb *kue(n)-^{zi} / kun-* 'to kill' with additional forms from *epp-^{zi} / app-* 'to seize', *tē-^{zi}* 'to state', *eš-^{zi} / aš-* 'to be' and *i-^{zi}* 'to go'), then an abstraction of these Hittite data, followed by the reconstructed PIE forms, exemplified by Sanskrit forms (the verbs *han-/ghn-* 'to kill' and *as-/s-* 'to be'), using the present injunctive as the counterpart of the Hittite preterite. Forms between square brackets show the historically unexpected ablaut grade. Forms marked with † are in fact unattested.

pres.					
1sg.	*ku-e-mi*	*CéC-mi*	**CéC-mi*	*hánmi*	*ásmi*
2sg.	*ku-e-ši*	*CéC-si*	**CéC-si*	*háṃsi*	*ási*
3sg.	*ku-e-en-zi*	*CéC-zi*	**CéC-ti*	*hánti*	*ásti*
1pl.	*ap-pu-e-ni*	*CC-u̯éni*	**CC-més(i)*	[*hanmaḫ*]	*smási*
2pl.	*ap-te-ni*	*CC-téni*	**CC-th₁é*	*hathá*	*sthá*
3pl.	*ku-na-an-zi*	*CC-ánzi*	**CC-énti*	*ghnánti*	*sánti*
pret.					
1sg.	*ku-e-nu-un*	*CéC-un*	**CéC-m*	†*hánam*	†*ásam*
2sg.	*te-e-eš*	*CéC-s*	**CéC-s*	*hán*	†*áḫ*
3sg.	*ku-en-ta*, *te-e-et*	*CéC-t*	**CéC-t*	*hán*	†*áḫ*
1pl.	[*ku-e-u-en*]	*CC-u̯én*[246]	**CC-mé*	†*hamáḫ*	†*smáḫ*
2pl.	[*ku-en-ten*]	**CC-tén*[247]	**CC-té*	†*hatá*	†*stá*
3pl.	[*ku-e-ner*]	**CC-ḗr*[248]	**CC-ént*	†*hán*	*sán*
imp.					
1sg.	*e-eš-li-it*	*CéC-lit*[249]			
2sg.	*ku-e-ni*	*CéCi*			
	e-ep	*CéC*			
	i-it	*CC-t*	**CC-dʰí*	*jahí*	[*edhi*]
3sg.	*ku-en-du*	*CéC-tu*	**CéC-tu*	*hántu*	*ástu*

[246] Synchronically in Hittite, the normal form of 1pl.pret.act. is *CeC-u̯en*: *e-ep-pu-en*, *e-šu-en*, *e-du-en*, *e-ku-en*, *še-eš-u-en* etc. Nevertheless, the original form probably was *CC-u̯en*, as still visible in *ap-pu-en* 'we seized' (KUB 34.77 obv. 2 (OH or MH/NS)), *ú-e-tu₄-me-en* 'we built' (KBo 4.1 i 28 (NH)), *ḫu-ul-lu-mé-en* (KUB 23.21 obv. 29 (MH/NS)), *ḫu-ul-lu-um-me-*[*en*] (KBo 3.15, 6 (NS)) 'we smashed', and possibly *ḫu-u-ga-u-en* 'we conjured' (KUB 18.12 obv. 13 (NH)). This *CC-u̯en* corresponds to the zero-grade form that we find in the *ḫi*-conjugated verbs.

[247] Synchronically in Hittite the normal form of 2pl.pret.act. is *CeC-ten*, cf. *e-ep-te-en*, *e-eš-te-en*, *ku-en-ten*, etc. Nevertheless, on the basis of the original zero-grade in 1pl.pret.act. and on the zero-grade forms in the preterite plural of *ḫi*-conjugated verbs I assume that originally this form was *CC-ten*.

[248] Synchronically in Hittite, the normal form of 3pl.pret.act. is *CéC-er*, however: *e-ep-pér*, *e-ku-er*, *e-še-er*, *e-te-er*, *ku-e-re-er*, *še-e-š*[*e-er*]. Nevertheless, on the basis of the original zero-grade in 1pl.pret.act. and on the zero-grade forms in the preterite plural of *ḫi*-conjugated verbs I assume that originally this form was **CC-ḗr* as well. This **CC-ḗr* is possibly visible *ú-u̯a-te-er*, *ú-e-te-er* and *pé-e-ḫu-te-er* although these verbs in principle could reflect both **dʰh₁-ḗr* as well as **dʰéh₁-ēr*.

[249] See at the lemma *-llu*, *-lit* for a detailed treatment of the formation of the 1sg.imp.-form.

2pl.	[*ku-en-te-en*], *i-it-te-en*	*CC-tén*[250]	**CC-té*	*hatá*	†*stá*
3pl.	*ku-na-an-du*	*CC-ándu*	**CC-éntu*	*ghnantu*	*sántu*
part.	*ku-na-an-t-*	*CC-ánt-*	**CC-ént-*	*ghnánt-*	*sánt-*
v.n.	*e-šu-u̯a-ar*	*CéC-u̯ar*	**CéC-ur*	--	
v.n.	*ap-pa-a-tar*	*CC-a̋tar*			
inf.I	*e-ep-pu-u̯a-an-zi*	*CéC-u̯anzi*			
inf.II	*ap-pa-an-na*	*CC-a̋nna*			
impf.	*ap-pí-iš-ke/a-*	*CC-ské/á-*	**CC-ské/ó-*	e.g. *uchá-* < **us-ské/ó-*	

Ib = non-ablauting *mi*-verbs

2.2.2.1.j Within this class we need to distinguish three types, which I have called Ib1, Ib2 and Ib3.

Ib1 unextended non-ablauting *mi*-verbs.

2.2.2.1.k This class consists of *mi*-verbs that do not show a suffix (at least from a synchronic point of view) and that do not show ablaut. This does not mean that they never showed ablaut however: in a few of these verbs it is clear that of an original ablauting pair only one stem was generalized throughout the paradigm: e.g. *ḫane/išš-*^{zi} 'to wipe' originally belonged to an ablauting verb *ānš-*^{i} */ ḫane/išš-* < **h₂omh₁s-* / **h₂mh₁s-*, of which eventually both stems formed their own paradigm (cf. *ānš-*^{i} 'to wipe'); *kane/išš-*^{zi} 'to recognize' originally belonged to an ablauting verb **kanāš-*^{zi} */ kane/išš-* < **ǵneh₃s-* / **ǵnh₃s-*, of which the weak stem *kane/išš-* has been generalized; *gulš-*^{zi} 'to carve' originally belonged to an ablauting verb **kuels-* / *kuls-* < **k^{w}els-* / **k^{w}ls-* in which the weak stem *gulš-* has been generalized.

In other verbs, the original full-grade and zero-grade (graphically) merged, e.g.: *takš-*^{zi} 'to devise, to unify' may stand for /taks- / tks-/ < **teks-* / **tks-*, of which both the stem /taks-/ and /tks-/ are spelled *takš-*; *ūpp-*^{zi} 'to come up (of the sun)' probably reflects **h₁eup-* / **h₁up-*, both of which yield Hitt. *upp-*; *lukk-*^{zi} 'to set fire to' probably reflects **leuk-* / **luk-*, both of which yield Hitt. *lukk-*. Of again other verbs only a few forms are known, which means that it is possible that the

[250] The archaic *i-it-te-en* 'you must go' < **h₁i-té* (Gr. ἴτε, Skt. *itá*) clearly shows that the original form was *CC-tén*. Synchronically in Hittite, the normal form of 2pl.imp.act. is *CeC-ten*, however: *ku-en-te-en*, *e-ep-te-en*, etc.

second stem is unattested by chance: *neku-*^{zi} < **neg^{wh}-* 'to become evening' is attested in singular forms only, which is the reason that its weak stem counterpart is not attested (we would expect **ng^{wh}-* > Hitt. ***naku-*?).

Some of these verbs probably never showed ablaut, however, e.g. *ištamašš-*^{zi} 'to hear', which clearly is of denominative origin (*ištaman-* 'ear' + *-s-*).

āšš-^{zi} 'to remain'; ***ḫane/išš-***^{zi} 'to wipe'; ***ḫaššikk-***^{zi} 'to satiate oneself'; ***i-***^{zi} 'to go'; ***ištamašš-***^{zi} 'to hear'; ***kammarš-***^{zi} 'to defecate'; ***kanen-***^{zi} 'to bow down'; ***kane/išš-***^{zi} 'to recognize'; ***kiš-***^{zi} 'to comb'; ***kukkurš-***^{zi} 'to mutilate'; ***kukuš-***^{zi} 'to taste'; ***gulš-***^{zi} 'to carve'; ***kuu̯ašš-***^{zi} 'to kiss'; ***le/išš-***^{zi} 'to pick, to gather'; ***lip(p)-***^{zi} 'to lick up'; ***lukk-***^{zi} 'to set fire to'; ***neku-***^{zi} 'to become evening'; ***pakkušš-***^{zi} 'to pound'; ***punušš-***^{zi} 'to ask'; ***pūš-***^{zi} 'to be eclipsed'; ***šāi-***^{zi} 'to become sullen'; ***takš-***^{zi} 'to devise, to unify'; ***tarupp-***^{zi} 'to collect'; ***ūpp-***^{zi} 'to come up (of the sun)'; ***u̯atku-***^{zi} 'to jump'.

Ib2 *mi*-verbs in *-ē-*, *-ēšš-* and *-nu-*.

2.2.2.1.1 This class consists of verbs that show non-ablauting athematic suffixes, namely the 'stative / fientive' suffix *-ē-* < **-éh$_1$-*,[251] the 'fientive' suffix *-ēšš-* < **-éh$_1$-sh$_1$-* and the 'causative' suffix *-nu-* < **-n(e)u-*.[252] For a treatment of the suffix *-ē-*, cf. Watkins 1973. For a treatment of *-ēšš-* and *-nu-*, see their own lemmas.

Verbs with *-ē-*^{zi}:
ḫaššuē-^{zi} 'to become king'; ***lalukkē-***^{zi} 'to be or become luminous'; ***maršē-***^{zi} 'to become corrupt'; ***miu̯aḫuntē-***^{zi} 'to become old'; ***nakkē-***^{zi} 'to be honoured'; ***paprē-***^{zi} 'to be proven guilty'; ***parkuē-***^{zi} 'to be pure'; ***šullē-***^{zi} 'to become arrogant'.

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[251] The reconstruction **-eh$_1$-* goes back to Watkins 1973a. Recently, Jasanoff (2002-03: 147) has stated that a reconstruction **-eh$_1$-i̯e/o-* is possible as well, assuming that **-eh$_1$-ti* and **-eh$_1$-i̯e-ti* both would yield Hitt. *-ezzi*. In view of the development **VHiV* > OH /ViV/ > NH /VV/ as described in § 1.4.8.1.a, this is incorrect, however. A paradigm **CC-eh$_1$-ie-ti / *CC-eh$_1$-io-nti* would regularly have yielded OH **/CCeiet^{s}i / CCeiant^{s}i/, spelled *°Ce(-e)-i(-e)-ez-zi / °Ce(-e)-i̯a-an-zi*, which further developed into NH **/CCet^{s}i / CCeant^{s}i/, spelled *°Ce(-e)-ez-zi / °Ce(-e)-i̯a-an-zi*. Since a spelling with *-i-* does not occur in any of these verbs (only in 3pl.pres.act. *na-ak-ke-i̯a-a*[*n-zi*], which must represent /nakeant^{s}i/ < virtual *nakke-* + *-anzi*), we must stick to Watkins' reconstruction with *-eh$_1$-*.

[252] As we have seen under its lemma, the suffix *-nu-* does show some traces of original ablaut, however: the forms *u̯a-aḫ-nu-ú-mi* (KBo 17.1 + 25.3 ii 18 (OS)) and *ḫu-e*<*-eš*>*-nu-ú-ut* (KBo 3.28 ii 19 (OH/NS)) show that originally the strong stems showed /-nṹ-/ vs. /-nu-/ of the weak stem, reflecting **CC-néu-ti / *CC-nu-énti*.

Verbs with *-ēšš-*^{zi}:

aḭēšš-^{zi} ‘to become hot(?)’; ***alpuēšš-***^{zi} ‘to be sharp’; ***araṷēšš-***^{zi} ‘to become free’; ***ašiṷantēšš-***^{zi} ‘to become poor’; ***ikunēšš-***^{zi} ‘to become cold’; ***išḫanallēšš-***^{zi} ‘to become a blood-shedder’; ***ḫannitalṷanēšš-***^{zi} ‘to become legal adversaries’; ***ḫappinēšš-***^{zi} ‘to become rich’; ***ḫarkiḭēšš-***^{zi} ‘to become white’; ***ḫaštalēšš-***^{zi} ‘to become brave’; ***ḫatēšš-***^{zi} ‘to become dry’; ***ḫatkuēšš-***^{zi} ‘to become tight’; ***ḫatukēšš-***^{zi} ‘to become terrible’; ***innaraṷēšš-***^{zi} ‘to become strong’; ***išḫaššaruṷēšš-***^{zi} ‘to become a lord(?)’; ***idalaṷēšš-***^{zi} ‘to become evil’; ***karpēšš-***^{zi} ‘to become angry’; ***kartimmiēšš-***^{zi} ‘to become angry’; ***kunnēšš-***^{zi} ‘to turn out right’; ****lazziēšš-***^{zi} ‘to become well’; ***maḭantēšš-***^{zi} ‘to become a young man’; ***makkēšš-***^{zi} ‘to become numerous’; ***maleškuēšš-***^{zi} ‘to become weak’; ***maninkuēšš-***^{zi} ‘to be short’; ***marlēšš-***^{zi} ‘to become foolish’; ***maršēšš-***^{zi} ‘to become desecrated’; $^{(LÚ)}$***miḭaḫuntēšš-***^{zi} ‘to become an old man’; ***miēšš-***^{zi} ‘to grow; to be born’; ***mīēšš-***^{zi} ‘to be mild’; ***milit(t)ēšš-***^{zi} ‘to be sweet’; ***mišriṷēšš-***^{zi} ‘to become bright (of the moon)’; ***nakkēšš-***^{zi} ‘to become important’; ***nakkuššēšš-***^{zi} ‘to be(come) a scape-goat’; ***palḫēšš-***^{zi} ‘to become wide or broad’; ***pankuēšš-***^{zi} ‘to become plentiful(?)’; ***paprēšš-***^{zi} ‘to be found guilty’; ***parkēšš-***^{zi} ‘to become tall’; ***parkuēšš-***^{zi} ‘to become tall’; ***parkuēšš-***^{zi} ‘to be(come) pure’; ***šaknēšš-***^{zi} ‘to be(come) impure’; ***šallēšš-***^{zi} ‘to become large’; ***šannapilēšš-***^{zi} ‘to be emptied’; ***šanezziēšš-***^{zi} ‘to become pleasant’; ***šarazziēšš-***^{zi} ‘to prevail’; ***šarkuēšš-***^{zi} ‘to become mighty’; ***šullēšš-***^{zi} ‘to become arrogant’; ***šuppiēšš-***^{zi} ‘to become purified’; ***talliḭēšš-***^{zi} ‘to be pleasant(?)’; ***dalukēšš-***^{zi} ‘to become long’; ***tameummēšš-***^{zi} ‘to become different’; ***tampuēšš-***^{zi} ‘to become blunt’; ***dankuēšš-***^{zi} ‘to become black’; ***tarḫuēšš-***^{zi} ‘to become powerful’; ***tarḫuilēšš-***^{zi} ‘to become powerful’; ***daššēšš-***^{zi} ‘to become heavy’; ***tekkušše šš-***^{zi} ‘to become visible’; ***tepaṷēšš-***^{zi} ‘to become little’; ***tepšaṷēšš-***^{zi} ‘to become *tepšu*-’; ***tukkēšš-***^{zi} ‘to become important’; ***ulēšš-***^{zi} ‘to hide’; ***ṷantēšš-***^{zi} ‘to become glowing’; ***ṷarḫuēšš-***^{zi} ‘?’; ***ṷarkēšš-***^{zi} ‘to grow fat’; ***ṷeritēšš-***^{zi} ‘to be frightened’; ***zalukēšš-***^{zi} ‘to take long’.

Verbs with *-nu-*^{zi}:

annanu-^{zi} ‘to train’; ***arnu-***^{zi} ‘to make go, to transport’; ***aršanu-***^{zi} ‘to make flow’; ***aše/išanu-***^{zi} ‘to seat, to settle’; ***āššiḭanu-***^{zi} ‘to make beloved (?)’; ***ašnu-***^{zi} ‘to take care of’; ***enu-***^{zi} ‘?’; ***ēšḫarnu-***^{zi} ‘to make bloody’; ***edriḭanu-***^{zi} ‘to feed(?)’; ***ḫalinu-***^{zi} ‘to make kneel’; ***ḫarranu-***^{zi} ‘to grind’; ***ḫarknu-***^{zi} ‘to ruin’; ***ḫargnu-***^{zi} ‘to make white’; ***ḫarnu-***^{zi} ‘to spray’; ***ḫaššik(ka)nu-***^{zi} ‘to satiate’; ***ḫašnu-***^{zi} ‘to bring to birth’; ***ḫatnu-***^{zi} ‘to cause to dry up’; ***ḫatganu-***^{zi} ‘to make tight’; ***ḫatkešnu-***^{zi} ‘to make tight’; ***ḫatuganu-***^{zi} ‘to terrify’; ***ḫinganu-***^{zi} ‘to make bow’; ***ḫuinu-***^{zi} ‘to make run’, ***ḫuišnu-***^{zi} ‘to make recover, to rescue’; ***ḫuntarnu-***^{zi} ‘to grunt’; ***ḫunu-***^{zi} ‘to

make run'; ***ḫušnu-***^{zi} 'to make recover, to rescue'; ***inu-***^{zi} 'to make hot'; ***išḫarnu-***^{zi} 'to make bloody'; ***išparnu-***^{zi} 'to spread'; ***išpiḭanu-***^{zi} 'to saturate'; ***ištantanu-***^{zi} 'to delay'; ***ištappinu-***^{zi} 'to shut'; ***kanganu-***^{zi} 'to have (something) weighed'; ***kari(ḭa)nu-***^{zi} 'to silence'; ***karpanu-***^{zi} 'to pick up'; ***karšnu-***^{zi} 'to cut off; to cancel'; ***kardimi(ḭa)nu-***^{zi} 'to make angry'; ***karūššiḭanu-***^{zi} 'to silence'; ***genušrinu-***^{zi} 'to make kneel'; ***kīnu-***^{zi} 'to open up'; ***kiš(ša)nu-***^{zi} '?'; ***kištanu-***^{zi} 'to extinguish'; ***kuu̯ašnu-***^{zi} 'to make kiss'; ***laknu-***^{zi} 'to fell, to knock over'; ***lalukke/išnu-***^{zi} 'to illuminate'; ***lap(pa)nu-***^{zi} 'to kindle'; ***linganu-***^{zi} 'to make swear'; ***lukkanu-***^{zi} 'to make it light(?)'; ***maknu-***^{zi} 'to increase'; ***mališkunu-***^{zi} 'to make weak'; ***maninkuu̯anu-***^{zi} 'to bring near(?)'; ***marnu-***^{zi} 'to cause to disappear'; ***maršanu-***^{zi} 'to desecrate'; ***mem(iḭ)anu-***^{zi} 'to make (someone) talk'; ***mernu-***^{zi} 'to cause to disappear'; ***miḭanu-***^{zi} 'to make (branches) fruit-bearing'; ***mienu-***^{zi} '?'; ***mīnu-***^{zi} 'to make mild'; ***naḫšarnu-***^{zi} 'to make afraid'; ***ninganu-***^{zi} 'to drench'; ***nu(n)tarnu-***^{zi} 'to hurry'; ***paḫšnu-***^{zi} 'to protect'; ***paknu-***^{zi} 'to defame'; ***palḫanu-***^{zi} 'to broaden'; ***parḫanu-***^{zi} 'to make gallop'; ***parknu-***^{zi} 'to make high'; ***parkiḭanu-***^{zi} 'to raise'; ***parkunu-***^{zi} 'to cleanse'; ***paršnu-***^{zi} 'to make flee'; ***paršnu-***^{zi} 'to break up'; ***pattinu-***^{zi} 'to run off with'; ***pirnu-***^{zi} 'to embezzle(?)'; ***pukkanu-***^{zi}, ***pukkunu-***^{zi} 'to cause (someone) to be hated'; ***šaku(u̯a)ntariḭanu-***^{zi} 'to neglect'; ***šallanu-***^{zi} 'to melt down'; ***šallanu-***^{zi} 'to raise, to bring up'; ***šamenu-***^{zi} 'to bypass'; ***šaminu-***^{zi} 'to burn (something)'; ***šamešanu-***^{zi} 'to burn (something) into smoke'; ***šašnu-***^{zi} 'to make sleep (with someone)'; ***daluknu-***^{zi} 'to lengthen'; ***tamenganu-***^{zi} 'to make attach(?)'; ***dammešḫanu-***^{zi} 'to make punish'; ***taninu-***^{zi} 'to install'; ***dankuḭanu-***^{zi} 'to make black'; ***danku(u̯a)nu-***^{zi} 'to make black'; ***dariḭanu-***^{zi} 'to make tired'; ***taruppiḭanu-***^{zi} 'to bring together'; ***daš(ša)nu-***^{zi} 'to make strong'; ***tekkuš(ša)nu-***^{zi} 'to reveal'; ***tepnu-***^{zi} 'to diminish'; ***tepšanu-***^{zi} 'to make *tepšu*-'; ***tit(ta)nu-***^{zi} 'to install'; ***dušganu-***^{zi} 'to make happy'; ***unu-***^{zi} 'to adorn, to decorate'; ***u̯aḫnu-***^{zi} 'to make turn'; ***u̯aggašnu-***^{zi} 'to leave out'; ***u̯akšiḭanu-***^{zi} 'to deny a person of something'; ***u̯allanu-***^{zi} 'to erase(?)'; ***u̯alganu-***^{zi} '?'; ***u̯arḫu(u̯a)nu-***^{zi} 'to plant densely'; ***u̯argnu-***^{zi} 'to make fat'; ***u̯arnu-***^{zi} 'to set fire to'; ***u̯arš(iḭa)nu-***^{zi} 'to appease (trans.)'; ***u̯aštanu-***^{zi} 'to regard as an offense'; ***u̯atkunu-***^{zi} 'to make jump'; ***u̯eritanu-***^{zi}, ***u̯eritenu-***^{zi} 'to scare'; ***zanu-***^{zi} 'to cook (trans.)'; ***zaluknu-***^{zi} 'to postpone'; ***zapnu-***^{zi} 'to sprinkle'; ***zinu-***^{zi}, ***zainu-***^{zi} 'to make cross'.

Ib3 non-ablauting *mi*-verbs with *n/Ø*-alteration.

2.2.2.1.m This class consists of *mi*-verbs of which the stems end in °*V(n)C*-. In the oldest texts, these verbs show a clear distribution between °*VnCV* and °*VCC*, i.e. the nasal is lost before two or more consonants. This distribution is nicely visible in

the following paradigm (examples from *ḫarni(n)k-*, supplemented by forms from *šarni(n)k-* and *ištarni(n)k-*):

	pres.	pret.	imp.		
1sg.	*ḫarnikmi*	*ḫarninkun*			
2sg.	*ḫarnikši*	*ḫarnikta*	*ḫarnik*	part.	*ḫarninkant-*
3sg.	*ḫarnikzi*	*ḫarnikta*	*ḫarnikdu*	v.n.	*ḫarninkuu̯ar*
1pl.	*ḫarninkueni*	*ištarninkuen*		inf.I	*ḫarninkuu̯anzi*
2pl.	*ḫarnikteni*	--	*ḫarnikten*	impf.	*ḫarninkiške/a-*
3pl.	*šarninkanzi*	*ḫarninker*	*ḫarninkandu*		

I regard the loss of nasal here as a phonetic development[253] that probably took place in recent pre-Hittite times. In young Hittite we come accross forms in which the original distribution between °*VnC-V* and °*VC-C* has been given up, probably due to inner-paradigmatical analogy (e.g. *lingazi* instead of original *likzi*, *linkatta* instead of original *likta*, etc.). For the origin of the nasal-infixed verbs (the verbs in *-ni(n)k-*^{zi} and *tame(n)k-*^{zi}), cf. § 2.2.4 below.

ḫarni(n)k-^{zi} 'to make disappear', ***ḫi(n)k-***^{zi} 'to offer; to bow', ***ḫuni(n)k-***^{zi} 'to bash', ***išta(n)ḫ-***^{zi} 'to taste', ***ištarni(n)k-***^{zi} 'to afflict', ***li(n)k-***^{zi} 'to swear', ***nini(n)k-***^{zi} 'to mobilize', ***ni(n)k-***^{zi} 'to quench one's thirst', ***ša(n)ḫ-***^{zi} 'to seek', ***ša(n)ḫu-***^{zi} 'to roast', ***šarni(n)k-***^{zi} 'to compensate', ***tame(n)k-***^{zi} 'to attach', ***ū(n)ḫ-***^{zi} 'to suck(?)'.

[253] Note that loss of nasal does not occur in verbs like *kān̄k-*^{i} or *ḫamank-*^{i} / *ḫame/ink-* (e.g. *ga-a-an-ga-aḫ-ḫi* /kắnkHi/, *ḫa-ma-an-ga-aḫ-ḫi* /HmắngHi/), but this is in my view due to the fact that we are here dealing with a preceding /ā/. The fact that in /ānCC/ the nasal is retained whereas in e.g. */inCC/ it is lost in my view is comparable to the fact that in Lycian the vowel *a* has a nasalized variant *ã*, but the vowel *i* does not: low vowels apparently were better in retaining a following nasal element than high vowels.

Ic = *mi*-verbs with a thematic suffix[254]

2.2.2.1.n The third group of *mi*-verbs consists of verbs that show a thematic suffix. I distinguish six types, namely Ic1: *mi*-verbs in *-i̯e/a-*; Ic2: *mi*-verbs in *-ae-/-ā-*; Ic3: *mi*-verbs in *-āi̯e/a-*; Ic4: *mi*-verbs in *-ue/a-*; Ic5: *u̯ašše/a-*^{zi}; Ic6: *mi*-verbs in *-ške/a-*. The first five groups belong together in the sense that they all ultimately reflect the PIE verbal suffix **-i̯e/o-*.

Ic1 *mi*-verbs in *-i̯e/a-*: the *-i̯e/a*-class.

2.2.2.1.o This class is one of the most productive verbal classes in Hittite. In NS texts, almost all verbs show at least a few forms that are inflected according to the *-i̯e/a-*class. The suffix *-i̯e/a-* clearly goes back to the PIE verbal suffix **-i̯e/o-*, which is attested in the IE languages on a wide scale. On the one hand it was a productive suffix to mark imperfectivity, e.g. pres. **g^{w}m-i̯é-ti* 'he is going' (Gr. βαίνω, Lat. *veniō*), besides aor. **g^{w}ém-t* 'he went' (within Hittite, this distribution is still visible in e.g. *karp(ii̯e/a)-*^{zi}, *karš(ii̯e/a)-*^{zi}, etc.). On the other, it is used to form denominative verbs, e.g. **h$_3$n(e)h$_3$-mn-i̯e/o-* 'to name' (Gr. ὀνομαίνω, Goth. *namnjan*, ModDu. *noemen*, Hitt. *lamnii̯e/a-*).

The Hittite verbs that belong to the *-i̯e/a*-class are divided in three groups: (A) original *-i̯e/a*-inflecting verbs (i.e. attested in OS and MS texts already); (B) denominative *i̯e/a*-inflecting verbs; and (C) secondarily *i̯e/a*-inflecting verbs (between brackets their original stem).

A: ***anii̯e/a-***^{zi} 'to work, to carry out'; ***arii̯e/a-***^{zi} 'to consult an oracle'; ***arrii̯e/a-***^{zi} 'to be awake'; ***ḫarkii̯e/a-***^{zi} 'to get lost'; ***ḫazzii̯e/a-***^{zi} 'to pierce, to prick'; ***ḫuttii̯e/a-***^{zi} 'to draw, to pull'; ***i̯e/a-***^{zi} 'to do, to make'; ***imii̯e/a-***^{zi} 'to mingle'; ***iškii̯e/a-***^{zi} 'to smear'; ***kariii̯e/a-***^{zi} 'to cover, to hide'; ***karpii̯e/a-***^{zi} 'to take away, to pick, to pluck'; ***karšii̯e/a-***^{zi} 'to cut (off)'; ***lalukkii̯e/a-***^{zi} 'to be or become illuminous'; ***lukkii̯e/a-***^{zi} 'to set fire to'; ***markii̯e/a-***^{zi} 'to disapprove of'; ***mumii̯e/a-***^{zi} 'to crumble(?)'; ***parkii̯e/a-***^{zi} 'to raise, to lift'; ***paršii̯e/a-***^{zi} 'to break'; ***peššii̯e/a-***^{zi} 'to throw away'; ***šii̯e/a-***^{zi} 'to shoot'; ***šapašii̯e/a-***^{zi} 'to scout'; ***šariii̯e/a-***^{zi} 'to embroider'; ***šarḫii̯e/a-***^{zi} 'to attack'; ***šūnii̯e/a-***^{zi} 'to dip'; ***talliii̯e/a-***^{zi} 'to pray'; ***tekkuššii̯e/a-***^{zi} 'to show'; ***tii̯e/a-***^{zi} 'to step'; ***tii̯e/a-***^{zi} 'to bind'; ***tūrii̯e/a-***^{zi} 'to harness'; ***tuškii̯e/a-***^{zi} 'to be

[254] Oettinger 1979a: 259f. also distinguishes an "einfach thematische Klasse", but all the verbs that he regards as belonging here should be interpreted otherwise: "*ḫulle-*" = *ḫulle-*^{zi} / *ḫull-* (Ia1), "*išparre-*" = on the one hand *išpār-*^{i} / *išpar-* 'to spread out' (IIa2) and on the other *išparra-*^{i} / *išparr-* 'to trample' (IIa1γ), "*lukke-*" = *lukk(ii̯e/a)-*^{zi} (Ib1 / Ic1), "*malle-*" = *malla-*^{i} / *mall-* (IIa1γ), "*papre-*" = *papre-*^{zi} (Ib2), "*šarre-*" = *šārr-*^{i} / *šarr-* (IIa2), "*šulle-*" = *šulle-*^{zi} (Ib2), "*šuu̯e-*" = *šuu̯e/a-*^{zi} (Ic4), "*u̯ašše-*" = *u̯ašše/a-*^{zi} (Ic5).

happy'; ***ūššiḭe/a-***^{zi} 'to draw open (of curtains)'; ***u̯emiḭe/a-***^{zi} 'to find'; ***u̯eriḭe/a-***^{zi} 'to call, to name'.

B: ***appat(a)riḭe/a-***^{zi} 'to take in pledge'; ***armizziḭe/a-***^{zi} 'to bridge over'; ***armaniḭe/a-***^{zi} 'to become ill'; ***aršiḭe/a-***^{zi} 'to plant'; ***ermaniḭe/a-***^{zi} 'to become ill'; ***edriḭe/a-***^{zi} 'to feed'; ***ḫaḫriḭe/a-***^{zi} 'to rake'; ***ḫaliḭe/a-***^{zi} 'to watch over'; ***ḫališšiḭe/a-***^{zi} 'to encase'; ***ḫantiḭe/a-***^{zi} 'to face'; ***ḫap(pa)riḭe/a-***^{zi} 'to trade'; ***ḫarnamniḭe/a-***^{zi} 'to churn'; ****ḫaššuu̯ezziḭe/a-***^{zi} 'to become king'; ***ḫē(i̯a)u̯aniḭe/a-***^{zi} 'to rain'; ***ḫulāliḭe/a-***^{zi} 'to enwrap'; ***ḫulḫuliḭe/a-***^{zi} 'to embrace'; ***ḫuntariḭe/a-***^{zi} 'to fart'; ***išḫezziḭe/a-***^{zi} 'to dominate'; ***išḫuzziḭe/a-***^{zi} 'to gird'; ***ištappulliḭe/a-***^{zi} 'to use as a stopper'; ***kaleliḭe/a-***^{zi} 'to tie up'; ***kalutiḭe/a-***^{zi} 'to treat as a group'; ***kanuššariḭe/a-***^{zi} 'to kneel'; ***kartimiḭe/a-***^{zi} 'to be angry'; ***kištanziḭe/a-***^{zi} 'to suffer famine'; ***genuššariḭe/a-***^{zi} 'to kneel'; ***gimaniḭe/a-***^{zi} 'to spend the winter'; ***gimmantariḭe/a-***^{zi} 'to spend the winter'; ***kurkuriḭe/a-***^{zi} 'to scare'; ***kūruriḭe/a-***^{zi} 'to be hostile'; ***kuššaniḭe/a-***^{zi} 'to employ'; ***kuttaniḭe/a-***^{zi} 'to exert force'; ***laḫḫiḭe/a-***^{zi} 'to go on an expedition'; ***lamniḭe/a-***^{zi} 'to name'; ***lazziḭe/a-***^{zi} 'to set straight'; ***naḫšariḭe/a-***^{zi} 'to be afraid'; ***nekumandariḭe/a-***^{zi} 'to undress'; ***nuntariḭe/a-***^{zi} 'to hasten'; ***palaḫšiḭe/a-***^{zi} 'to cover'; ***parkuu̯antariḭe/a-***^{zi} 'to become pure(?)'; ***patalliḭe/a-***^{zi} 'to tie feet, to fetter'; ***pittuliḭe/a-***^{zi} 'to be anxious'; ***puntariḭe/a-***^{zi} 'to be obstinate'; ***putal(l)iḭe/a-***^{zi} 'to tie together'; ***šākiḭe/a-***^{zi} 'to give a sign'; ***šakniḭe/a-***^{zi} 'to anoint'; ***šakuniḭe/a-***^{zi} 'to well up'; ***šakkuriḭe/a-***^{zi} 'to overpower'; ***šakuu̯antariḭe/a-***^{zi} 'to stay, to remain'; ***šamešiḭe/a-***^{zi} 'to burn for fumigation'; ***šeḫuriḭe/a-***^{zi} 'to urinate'; ***šešariḭe/a-***^{zi} 'to sieve'; ***šimišiḭe/a-***^{zi} 'to burn for fumigation'; ***šišš(i)uriḭe/a-***^{zi} 'to irrigate'; ***šittariḭe/a-***^{zi} 'to seal'; ***šiuniḭe/a-***^{zi} '?'; ***šuppariḭe/a-***^{zi} 'to sleep'; ***tiḭantiḭe/a-***^{zi} 'to set up'; ***takšatniḭe/a-***^{zi} 'to level'; ***tarkuu̯alliḭe/a-***^{zi} 'to look angrily'; ***terippiḭe/a-***^{zi} 'to plough'; ***tešḫaniḭe/a-***^{zi} 'to appear in a dream'; ***tuzziḭe/a-***^{zi} 'to encamp'; ***ušniḭe/a-***^{zi} 'to put up for sale'; ***uddanalliḭe/a-***^{zi} 'to speak about'; ***uddaniḭe/a-***^{zi} 'to speak about'; ***u̯akkariḭe/a-***^{zi} 'to rebel against'; ***u̯ešiḭe/a-***^{zi} 'to pasture'; ***u̯ešuriḭe/a-***^{zi} 'to press'; ***zaḫḫiḭe/a-***^{zi} 'to battle'; ***zaḫzaḫḫiḭe/a-***^{zi} 'to battle fiercely'.

C: ***alalamniḭe/a-***^{zi} 'to cry aloud'; ***allaniḭe/a-***^{zi} 'to sweat'; ***ānšiḭe/a-***^{zi} 'to wipe' (*ānš-*^{i}); ***appiḭe/a-***^{zi} 'to be finished' (*āppa-*^{i} */ āppi-*); ***ārriḭe/a-***^{zi} 'to wash' (*ārr-*^{i} */ arr-*); ***aršaniḭe/a-***^{zi} 'to be envious' (*aršane-*^{zi} */ aršan-*); ***ar(aš)šiḭe/a-***^{zi} 'to flow' (*ārš-*^{zi} */ arš-*); ***ḫalziḭe/a-***^{zi} 'to cry out' (*ḫalzai-*^{i} */ ḫalzi-*); ***ḫāniḭe/a-***^{zi} 'to draw (water)' (*ḫān-*^{i} */ ḫan-*); ***ḫarniḭe/a-***^{zi} 'to sprinkle' (*ḫarna-*^{zi} */ ḫarn-*); ***ḫarpiḭe/a-***^{zi} 'to change allegiance' (*ḫarp-*^{zi}); ***ḫaršiḭe/a-***^{zi} 'to till (the soil)' (*ḫāršš-*^{i}); ***ḫulliḭe/a-***^{zi} 'to smash' (*ḫulle-*^{zi} */ ḫull-*); ***išḫamiḭe/a-***^{zi} 'to sing' (*išḫamai-*^{zi} */ išḫami-*); ***išḫiḭe/a-***^{zi} 'to bind' (*išḫai-*^{i} */ išḫi-*); ***išparriḭe/a-***^{zi} 'to spread out' (*išpār-*^{i} */ išpar-*); ***išpartiḭe/a-***^{zi}

‘to escape’ (*išpart-*^{zi}); ***išpiḭe/a-***^{zi} ‘to be satiated’ (*išpai-*^{zi} */ išpi-*); ***ištalkiḭe/a-***^{zi} ‘to level’ (*ištalk-*^{zi}); ***ištarkiḭe/a-***^{zi} ‘to ail’ (*ištar(k)-*^{zi}); ***kaneniḭe/a-***^{zi} ‘to bow down’ (*kanen-*^{zi}); ***malliḭe/a-***^{zi} ‘to mill, to grind’ (*malla-*^{i} */ mall-*); ***memiḭe/a-***^{zi} ‘to speak’ (*mēma-*^{i} */ mēmi-*); ***nana(n)kuššiḭe/a-***^{zi} ‘to be(come) dark’ (*nana(n)kušš-*^{zi}); ***paškiḭe/a-***^{zi} ‘to plant’ (*pāšk-*^{i} */ pašk-*); ***peḭe/a-***^{zi} ‘to send’ (*peḭe-*^{i} */ peḭ-*); ***penniḭe/a-***^{zi} ‘to drive (there)’ (*penna-*^{i} */ penni-*); ***piḭe/a-***^{zi} ‘to give’ (*pai-*^{i} */ pi-*); ***šiḭe/a-***^{zi} ‘to impress’ (*šai-*^{i} */ ši-*); ***šalikiḭe/a-***^{zi} ‘to have contact with’ (*šalǐk-*$^{a(ri)}$); ***šalkiḭe/a-***^{zi} ‘to knead’ (*šalk-*^{zi}); ***šamniḭe/a-***^{zi} ‘to create’ (*šamnae-*^{zi}); ***šartiḭe/a-***^{zi} ‘to rub’ (*šarta-*^{i} */ šart-*); ***šulliḭe/a-***^{zi} ‘to be arrogant’ (*šullē-*^{zi}); ***šunniḭe/a-***^{zi} ‘to fill’ (*šunna-*^{i} */ šunn-*); ***šuppiḭe/a-***^{zi} ‘to sleep’ (*šupp-*$^{(tt)a(ri)}$); ***tiḭe/a-***^{zi} ‘to put, to place’ (*dai-*^{i} */ ti-*); ***taištiḭe/a-***^{zi} ‘to load’ (*tāišta-*^{i} */ tāišti-*); ***dāliḭe/a-***^{zi} ‘to leave’ (*dāla-*^{i} */ dāli-*); ***tapariḭe/a-***^{zi} ‘to rule’ (CLuw. *tapar-*); ***tariḭe/a-***^{zi} ‘to exert oneself’ (*tarai-*^{i} */ tari-*); ***taruppiḭe/a-***^{zi} ‘to collect’ (*tarupp-*^{zi}); ***tetḫiḭe/a-***^{zi} ‘to thunder’ (*titḫ-*^{a}); ***tuḫtuḫḫiḭe/a-***^{zi} ‘to brandish(?)’; ***duṷarniḭe/a-***^{zi} ‘to break’ (*duṷarni-*^{zi} */ duṷarn-*); ***uḭe/a-***^{zi} ‘to send here’ (*uḭe-*^{zi} */ uḭ-*); ***ṷiḭe/a-***^{zi} ‘to cry out’ (*ṷai-*^{i} */ ṷi-*); ***ṷakšiḭe/a-***^{zi} ‘to be lacking’; ***ṷalkiḭe/a-***^{zi} ‘?’; ***ṷappiḭe/a-***^{zi} ‘to bark’; ***ṷarpiḭe/a-***^{zi} ‘to bathe’ (*ṷarp-*^{zi}); ***ṷaššiḭe/a-***^{zi} and ***ṷeššiḭe/a-***^{zi} ‘to wear’ (*ṷašše/a-*^{zi}).

The distribution of the ablaut vowels **e/o* in the suffix **-ḭe/o-* changes throughout the Hittite period:

	PIE	OS	MH/MS	NH
pres.				
1sg.	**-ḭó*	*-ḭa-mi*, *-i-e-mi*	*-ḭa-mi*	*-ḭa-mi*
2sg.	**-ḭé-*	*-i-e-ši*	*-ḭa-ši*	*-ḭa-ši*
3sg.	**-ḭé-*	*-i-e-ez-zi*	*-i-e-ez-zi* / *-ḭa-az-zi*	*-ḭa-az-zi*
1pl.	**-ḭó-*	*-ḭa-u-e-ni*[255]	*-ḭa-u-e-ni*	*-ḭa-u-e-ni*
2pl.	**-ḭé-*	--	*-i-et-ta-ni*, *-ḭa-at-te-ni*	*-ḭa-at-te-ni*
3pl.	**-ḭó-*	*-ḭa-an-zi*	*-ḭa-an-zi*	*-ḭa-an-zi*

[255] Thus in *pé-eš-ši-ḭa-u-e-ni* (KUB 35.164 obv. 6 (OS)), although we would expect *-ḭaṷani* as attested in *i-ḭa-u-ṷa-ni* (KBo 3.8 ii 24 (OH/NS)).

pret.				
1sg.	*-i̯ó-	-i-e-nu-un[256]	-i̯a-nu-un	-i̯a-nu-un
2sg.	*-i̯é-	--[257]	-i̯a-aš	-i̯a-aš / -i̯a-at
3sg.	*-i̯é-	-i-e-et	-i-e-et / -i̯a-at	-i̯a-at
1pl.	*-i̯ó-	-i̯a-u-en	-i̯a-u-en	-i̯a-u-en
2pl.	*-i̯é-	--[258]	-i̯a-at-ten	-i̯a-at-ten
3pl.		-i-er	-i-e-er, -i̯a-er	-i-er, -i̯a-er
imp.				
2sg.		--	-i[259], -i̯a	-i̯a
3sg.		--	-i-e-ed-du / -i̯a-ad-du	-i̯a-ad-du
2pl.		--	-i̯a-at-ten	-i̯a-at-ten
3pl.		--	-i̯a-an-du	-i̯a-an-du
part.		--	-i̯a-an-t-	
v.n.		--	-i̯a-u-u̯a-ar	-i̯a-u-u̯a-ar
inf.I		--	-i̯a-u-u̯a-an-zi	-i̯a-u-u̯a-an-zi
inf.II		--	--	-i̯a-an-na

Ic2 *mi*-verbs in *-ae-/-ā-*: the *ḫatrae*-class

2.2.2.1.p This class is very large and very productive: in NS texts virtually every verb shows forms that are inflected according to the *ḫatrae*-class. The verbs that belong to this class originally are usually derivatives in *-i̯e/o-* of *o*-stem nouns, e.g. *ḫatrae-*^{zi} 'to write' < *$h_2$etro- + -i̯e/o-.

These verbs show the following inflection:

[256] Thus in *ḫa-ap-pa-ri-e-nu-un* (OS), *a-ni-e*[*-nu-un*] (OS), but compare *pé-eš-ši-i̯a-nu-un* (OH/MS).

[257] Unattested in OS texts, but compare 2sg.pret.act. *i-e-eš* (OH/NS).

[258] We would expect **-i̯etten, but this ending is not attested. The 2pl.pret.act.-ending is attested in NS texts only as *-i̯a-at-te-en* and *-i̯a-at-ten* (both OH/NS).

[259] Compare *ḫu-it-ti* (OH/MS). This ending is replaced by *-i̯a* in MH times already (e.g. *i-i̯a* 'do!' (MH/MS), *ti-i̯a* 'step!' (MH/MS)).

	PIE	OS	MH/MS	NH
pres.				
1sg.	*-*Co-i̯ó-*	°*Ca(-a)-e-mi*	°*Ca(-a)-mi*	°*Ca(-a)-mi*
2sg.	*-*Co-i̯é-*	--	°*Ca(-a)-ši*	°*Ca(-a)-ši*
3sg.	*-*Co-i̯é-*	°*Ca(-a)-ez-zi*	°*Ca(-a)-ez-zi*	°*Ca(-a)-ez-zi*
1pl.	*-*Co-i̯ó-*	--	--	°*Ca(-a)-u-e-ni*
2pl.	*-*Co-i̯é-*	--	°*Ca(-a)-at-te-ni*	°*Ca-at-te-ni*
3pl.	*-*Co-i̯ó-*	°*Ca-an-zi*	°*Ca(-a)-an-zi*	°*Ca(-a)-an-zi*
pret.				
1sg.	*-*Co-i̯ó-*	--	°*Ca(-a)-nu-un*	°*Ca(-a)-nu-un*
2sg.	*-*Co-i̯é-*	--	°*Ca-a-eš*	°*Ca-a-eš*, °*Ca(-a)-iš*
3sg.	*-*Co-i̯é-*	°*Ca(-a)-et*	°*Ca-a-et*	°*Ca(-a)-et*
1pl.	*-*Co-i̯ó-*	--	°*Ca(-a)-u-en*	°*Ca(-a)-u-en*
2pl.	*-*Co-i̯é-*	--	°*Ca(-a)-at-ten*	°*Ca-at-ten*
3pl.		--	°*Ca(-a)-er*	°*Ca(-a)-er*

It is not fully clear how these forms were accentuated: *-*ó-i̯e/o-* or *-*o-i̯é/ó-*. The forms with *-*o-i̯o-* do not give information because both *-*ó-i̯o-* and *-*o-i̯ó-* would yield Hitt. *-ā-*. So we should look at the forms that show *-*o-i̯e-*. On the one hand, the frequent plene spelling of *-a-* in e.g. 3sg.pres.act. °*Ca-a*-IZ-*zi* and 2sg.pret.act. °*Ca-a-eš* seems to point to *-*ó-i̯e-*. On the other hand, the fact that the thematic vowel *-*e-* remains *-e-* up to the NH period (cf. spellings like 1sg.pres.act. °*Ca-e-mi*, 2sg.pret.act. °*Ca-a-eš*, which indicate that °*Ca(-a)*-IZ-*zi* and °*Ca(-a)*-IT have to be read as °*Ca(-a)-ez-zi* and °*Ca(-a)-et*, at least in the OH and MH period), seems to point to *-*o-i̯é-*. Because the long *-ā-* can also be explained as the result of compensatory lenghtening after loss of intervocalic **i* (cf. 1.4.8.1.a), we have to assume that the accentuation in fact was *-*o-i̯é/ó-*. So **Co-i̯óCi* > */CaiáCi/[260] > */CaáCi/ > Hitt. /CáCi/ and **Co-i̯éCi* > */CaiéCi/ > OH/MH */CāéCi/. The NH forms that are spelled °*Ca-a-iš* may show that OH/MH /CāéC/ eventually yielded a diphthong /CáiC/ in NH times. Throughout this book, forms with the spelling °*Ca(-a)*-IZ-*zi* and °*Ca(-a)*-IT therefore have been transliterated as °*Ca(-a)-ez-zi* and °*Ca(-a)-et* in OS and MS texts, but as °*Ca(-a)-iz-zi* and °*Ca(-a)-it* in NS texts.

[260] Note that **ó* > Hitt. short /á/ when in internal syllables.

Verbs that originally belong to this class:
āppalae-^{zi} ‘to entrap’; ***arae-***^{zi} ‘to rein in’; ***arkuu̯ae-***^{zi} ‘to pray’; ***arḫae-***^{zi} ‘to go down the line’; ***armae-***^{zi} ‘to be pregnant’; ***armuu̯alae-***^{zi} ‘to shine (of the moon)’; ***aruu̯ae-***^{zi} ‘to bow’; ***ašandulae-***^{zi} ‘to be on garrison duty’; ***egae-***^{zi} ‘to cool down’; ***ēšḫarnumae-***^{zi} ‘to make bloody’; ***ḫaluganae-***^{zi} ‘to bring news’; ***ḫantae-***^{zi} ‘to arrange (together)’; ***ḫandandae-***^{zi} ‘(+ *parā*) to show providence’; ***ḫantiiae-***^{zi} ‘to support’; ***ḫappešnae-***^{zi} ‘(+ *arḫa*) to dismember’; ***ḫapae-***^{zi} ‘to wet’; ***ḫap(pa)rae-***^{zi}; ***ḫappirae-***^{zi} ‘to trade’; ***ḫarnae-***^{zi} ‘to stir, to churn’; ***ḫarpae-***^{zi} ‘to heap up’; ***ḫaru(u̯a)nae-***^{zi} ‘to dawn’; ****ḫaššuezнae-***^{zi} ‘to be king’; ***ḫattaluu̯ae-***^{zi} ‘to bolt’; ***ḫattarae-***^{zi} ‘to prick’; ***ḫatrae-***^{zi} ‘to write’; ***ḫilae-***^{zi} ‘to have a halo’; ***ḫuu̯antalae-***^{zi} ‘to spare’; ***ḫultalae-***^{zi} ‘to spare’; ***ikae-***^{zi} ‘to cool down’; ***irḫae-***^{zi} ‘to go down the line’; ***išḫarnumae-***^{zi} ‘to make bloody’; ***ištantae-***^{zi} ‘to stay put’; ***galaktarae-***^{zi} ‘to make drowsy’; ***kappae-***^{zi} ‘to diminish’; ***kappilae-***^{zi} ‘to pick a fight’; ***kartae-***^{zi} ‘to cut off’; ***kattuu̯ae-***^{zi} ‘to be aggrieved’; ***genzuu̯ae-***^{zi} ‘to treat gently’; ***kinae-***^{zi} ‘to (as)sort’; $^{\text{TÚG}}$***kurešnae-***^{zi} ‘to provide with head-dress’; ***kururae-***^{zi} ‘to be hostile’; ***kutruu̯ae-***^{zi} ‘to bear witness’; ***lappinae-***^{zi} ‘to insert a wick(?)’; ***lelae-***^{zi} ‘to conciliate’; ***lelḫuntae-***^{zi} ‘to use a pitcher’; ***lipae-***^{zi} ‘to lick up’; ***līšae-***^{zi} ‘?’; ***mălae-***^{zi} ‘to approve of’; ***manniiaḫḫae-***^{zi} ‘to be in charge of’; ***markištae-***^{zi} ‘to take someone by surprise’; ***marlae-***^{zi} ‘to become mad’; ***marzae-***^{zi} ‘to crumble(?)’; ***mītae-***^{zi} ‘to tie with red wool(?)’; ***mūgae-***^{zi} ‘to invoke’; ***munnae-***^{zi} ‘to hide’; ***mūtae-***^{zi} ‘to root’; ***nekumandae-***^{zi} ‘to undress oneself’; ***palaḫšae-***^{zi} ‘to cover’; ***paluu̯ae-***^{zi} ‘to cry out’; ***palzaḫae-***^{zi} ‘to stretch out’; ***paršae-***^{zi} ‘to crumble’; ***paršnae-***^{zi} ‘to squat(?), to crouch(?)’; ***paršul(l)ae-***^{zi} ‘to crumble’; ***pašiḫae-***^{zi} ‘to rub’; ***patalḫae-***^{zi} ‘to fetter’; ***peianae-***^{zi} ‘to reward (someone)’; ***pittae-***^{zi} ‘to bring; to carry’; ***pittalae-***^{zi} ‘to abandon’; ***pūu̯ae-***^{zi} ‘to pound’; ***puruttae-***^{zi} ‘to cover with mud’; ***šaḫešnae-***^{zi} ‘to fortify(?)’; ***šallakartae-***^{zi} ‘to offend someone through arrogance’; ***šamnae-***^{zi} ‘to create’; ***šarlae-***^{zi} ‘to exelt; to praise’; ***šaruu̯ae-***^{zi} ‘to loot’; ***šau̯itištae-***^{zi} ‘to wean’; ***šēḫurae-***^{zi} ‘to urinate’; ***šiptamae-***^{zi} ‘to seven(?)’; ***takšulae-***^{zi} ‘to agree’; ***damme/išḫae-***^{zi} ‘to damage’; ***tarmae-***^{zi} ‘to nail’; ***taruu̯ae-***^{zi} ‘to fix (magically)’; ***tattarae-***^{zi} ‘?’; ***tuḫḫae-***^{zi} ‘to produce smoke’; ***tuḫušiiae-***^{zi} ‘to await’; ***ulae-***^{zi} ‘to hide’; ***uranae-***^{zi} ‘to bring a fire-offering’; ***urkiiae-***^{zi} ‘to track down’; ***u̯ašdulae-***^{zi} ‘to offend’; ***u̯arrae-***^{zi} ‘to come to help’; ***u̯arpae-***^{zi} ‘to suppress’; ***u̯arpa/ilae-***^{zi} ‘to surround(??)’; ***u̯ešuu̯ae-***^{zi} ‘?’; ***u̯edae-***^{zi} ‘to bring (here)’; ***zaḫḫurae-***^{zi} ‘to break, to crush’; ***zammurae-***^{zi} ‘to insult’.

Stems that secondarily inflect according to the *ḫatrae*-class (in brackets their original stem):

appae-^{zi} ‘to be finished’ (*āppa-*^{i} */ āppi-*); ***arae-***^{zi} ‘to (a)rise’ (*arai-*^{i} */ ari-*); ***ḫalae-***^{zi} ‘to set in motion’ (*ḫalai-*^{i} */ ḫali-*); ***ḫarrae-***^{zi} ‘to grind’; (*ḫarra-*^{i} */ ḫarr-*); ***ḫarkiia-***^{zi} ‘to get lost’ (*ḫark-*^{zi}); ***ḫuua-***^{zi} ‘to run’ (*ḫuuai-*^{i} */ ḫui-*); ***išḫuua-***^{zi} ‘to scatter’ (*išḫuuai-*^{i} */ išḫui-*); ***išgae-***^{zi} ‘to smear’ (*iškiie/a-*^{zi}); ***išgarae-***^{zi} ‘to stab’ (*iškār-*^{i} */ iškar-*); ***išpae-***^{zi} ‘to be satiated’ (*išpai-*^{i} */ išpi-*); ***išparzae-***^{zi} ‘to escape’ (*išpart-*^{zi}); ***ištalgae-***^{zi} ‘to level’ (*ištalk-*^{zi}); ***ištantae-***^{zi} ‘to stay put, to linger’ (*ištantāie/a-*^{zi}); ***kappuuae-***^{zi} ‘to count’ (*kappuue/a-*^{zi}); ***karšae-***^{zi} ‘to cut (off)’ (*karš(iie/a)-*^{zi}); ***kišae-***^{zi} ‘to comb’ (*kiš-*^{zi}); ***lae-***^{zi} ‘to loosen’ (*lā-*^{i} */ l-*); ***laḫuuae-***^{zi} ‘to pour’ (*lāḫu-*^{i} */ laḫu-*); ***lukkae-***^{zi} ‘to set fire to’ (*lukk(iie/a)-*^{zi}); ***pae-***^{zi} ‘to go’ (*paii-*^{zi} */ pai-*); ***paškae-***^{zi} ‘to stick in’ (*pāšk-*^{i} */ pašk-*); ***paškuuae-***^{zi} ‘to reject’ (*paškuu-*^{zi}); ***pattae-***^{zi} ‘to run’ (*pattai-*^{i} */ patti-*); ***peššiiae-***^{zi} ‘to throw away’ (*peššiie/a-*^{zi}); ***šae-***^{zi} ‘to become sullen’ (*šāi-*^{zi}); ***šākuuae-***^{zi} ‘to see, to look’ (*šākuuāie/a-*^{zi}); ***šarae-***^{zi} ‘to embroider’ (*šar-*$^{(tt)a(ri)}$; *šariie/a-*^{zi}); ***šartae-***^{zi} ‘to wipe’ (*šarta-*^{i} */ šart-*); ***šešḫae-***^{zi} ‘to decide’ (*šišḫa-*^{i} */ šišḫ-*); ***šullae-***^{zi} ‘to become arrogant’ (*šulle-*^{zi}); ***šuuae-***^{zi} ‘to push away’ (*šuue/a-*^{zi}); ***šuuae-***^{zi} ‘to spy’ (*šuuāie/a-*^{zi}); ***tae-***^{zi} ‘to steal’ (*tāie/a-*^{zi}); ***daištiiae-***^{zi} ‘to load’ (*tāišta-*^{i} */ tāišti-*); ***dālae-***^{zi} ‘to leave in peace’ (*dāla-*^{i} */ dāli-*); ***tapariiae-***^{zi} ‘to lead, to decide’ (*tapariie/a-*^{zi}); ***tarnae-***^{zi} ‘to allow’ (*tarna-*^{i} */ tarn-*); ***taruppae-***^{zi} ‘to collect’ (*tarupp-*^{zi}); ***tekkuššiiae-***^{zi} and ***tekkuššae-***^{zi} ‘to show’ (*tekkuššiie/a-*^{zi}); ***duuarnae-***^{zi} and ***duuarniiae-***^{zi} ‘to break’ (*duuarni-*^{zi} */ duuarn-*); ***unuuae-***^{zi} ‘to decorate’ (*unu-*^{zi}); ***uiiae-***^{zi} ‘to cry out’ (*uai-*^{i} */ ui-*); ***uaššae-***^{zi} and ***uaššiiae-***^{zi} ‘to wear’ (*uašše/a-*^{zi}); ***uaštae-***^{zi} ‘to sin’ (*uašta-*^{i} */ uašt-*); ***zae-***^{zi} ‘to cross’ (*zai-*^{i} */ zi-*); ***zankilae-***^{zi} ‘to fine’ (*zankila-*^{i} */ zankil-*).

Ic3 *mi*-verbs in *-āie/a-*: the *tāie/a-*class.

2.2.2.1.q This class consists of four verbs only that go back to **-eh₂-ié/ó-*. Because of the fact that an OH intervocalic *-i-* is lost within the Hittite period (cf. 1.4.8.1.a), these verbs in principle regularly develop into *ḫatrae*-class verbs in NH times (e.g. *ištantāie/a-* > *ištantae-*, OS *šu-ua-i-ez-zi* > NS *šu-ua-a-iz-zi*), although we often find NH forms in which *-i-* has been restored (NH *ta-a-i-e-ez-zi*). See at their respective lemmas for these verb’s inflections.

ištantāie/a-^{zi} ‘to stay put, to linger’; ***šākuuāie/a-***^{zi} ‘to see, to look’; ***šuuāie/a-***^{zi} ‘to spy’; ***tāie/a-***^{zi} ‘to steal’.

Ic4 *mi*-verbs in *-uue/a-*.

2.2.2.1.r The sequence *-uue/a-* as found in the verbs of this class clearly goes back to **-u-ié/ó-*. On the one hand they are denominative verbs that are derived from *u*-stem

nouns and on the other verbs of the structure **Cu-i̯é/ó-*. For the prehistory of ***u̯e-***^{zi} / ***uu̯a-*** 'to come', see its own lemma.

ḫušue/a-^{zi}, ***ḫuišue/a-***^{zi} 'to stay alive'; ***kappuu̯e/a-***^{zi} 'to count, to calculate'; ***genzuu̯e/a-***^{zi} 'to treat gently'; ***šakuruu̯e/a-***^{zi} to water (animals)'; ***šarkuu̯e/a-***^{zi} 'to put on footwear'; ***šaruu̯e/a-***^{zi} 'to loot'; ***šuu̯e/a-***^{zi} 'to fill'; ***šuu̯e/a-***^{zi} 'to push (away)'; ***u̯e-***^{zi} ***/ uu̯a-*** 'to come'.

Ic5 ***u̯ašše/a-***^{zi} 'to dress'.

2.2.2.1.s This verb consitutes a class of its own, because it is the only verb that shows the sound law **Vsi̯V* > Hitt. *VššV*. See at its lemma for an elaborate treatment, in which I show that *u̯ašše/a-*^{zi} ultimately goes back to **us-i̯é/ó-*.

Ic6 imperfectives in *-šḱe/a-*.

2.2.2.1.t See at its own lemma for an elaborate treatment of the suffix *-šḱe/a-* < **-sḱé/ó-*. The distribution between the thematic vowels *-e-* and *-a-* are changing throughout the Hittite periode, compare the following overview:

	PIE	OS	MH/MS	NH
pres.				
1sg.	**-sḱó-*	*°š-ke-e-mi*	*°š-ke-mi*	*°š-ke-mi*
2sg.	**-sḱé-*	*°š-ke-e-ši*	*°š-ke-ši*	*°š-ke-ši*
3sg.	**-sḱé-*	*°š-ke-ez-zi*	*°š-ke-ez-zi*	*°š-ke-ez-zi*
1pl.	**-sḱó-*	*°š-ke-e-u̯a-ni*	*°š-ke-u-e-ni*, *°š-ga-u-e-ni*	*°š-ke-u-e-ni*
2pl.	**-sḱé-*	*°š-ket$_9$-te-ni*	*°š-ke-et-ta-ni*, *°š-ke-et-te-ni*	*°š-ke-et-te-ni*
3pl.	**-sḱó-*	*°š-kán-zi*	*°š-kán-zi*	*°š-kán-zi*
pret.				
1sg.	**-sḱó-*[261]	--	*°š-ke-nu-un*	*°š-ke-nu-un*
2sg.	**-sḱé-*	--	*°š-ke-eš*	*°š-ke-eš*
3sg.	**-sḱé-*	*°š-ke-e-et*	*°š-ke-et*	*°š-ke-et*
1pl.	**-sḱó-*	--	*°š-ga-u-en*	*°š-ke-u-en*
2pl.	**-sḱé-*	--	*°š-ke-et-ten*	*°š-ke-et-ten*
3pl.	--	*°š-ke-e-er*	--	*°š-ke-er*

[261] Perhaps reflected in the one attestation *da-aš-ga-nu-un* (KUB 13.35+ i 40, 44 (NS)).

imp.				
2sg.	**-sḱé*	*°š-ki-i*	*°š-ki*	*°š-ki*
3sg.	**-sḱé-*	--	*°š-ke-ed-du*	*°š-ke-ed-du*
2pl.	**-sḱé-*	--	*°š-ke-et-tén*	*°š-ke-et-tén*
3pl.	**-sḱo-*	--	*°š-kán-du*	*°š-kán-du*
part.	**-sḱó-*	*°š-kán-t-*	--	--
sup.	--	*°š-ke-u̯a-an*	*°š-ke-u-u̯a-an*	*°š-ke-u-u̯a-an*

Often, this suffix is transliterated with the vowel *-i-*: *°š-ki-mi*, *°š-ki-ši*, *°š-ki-iz-zi*, etc. This is incorrect, however, as is clearly shown by cases like 2sg.pret.act. *°š-ke-eš* (never ***°š-ki-iš*) and plene spellings like *°š-ke-e-mi*, *°š-ke-e-et*. It must be admitted that plene spellings predominantly occur in OS texts, but occasional NH cases like *a-ri-iš-ke-e-nu-un* (KUB 14.13 i 53 (NH)) and *me-mi-eš-ke-e-zi* (KUB 23.93 rev. 21 (NH)) indicate that in NH times, too, the suffix contained the vowel *-e-*. The case of 2sg.imp.act. is different, however. Here we find several plene spellings *°š-ki-i*,[262] including an OS one, which indicate that we are dealing with /-skí/. Apparently, absolute word final *-*é*# > Hitt. /-í/.

Because the number of imperfectives in *-ške/a-* is very large, I did not find it useful to list them all here.

II = *ḫi*-conjugation

2.2.2.2 Within the *ḫi*-conjugated verbs only two classes can be distinguished: (a) *ḫi*-verbs that show ablaut; (b) *ḫi*-verbs that do not show ablaut. It should be noted that, unlike under the *mi*-verbs, there are no *ḫi*-verbs that show a thematic suffix. The only suffixes that can be found within the *ḫi*-conjugation are the ablauting *-*oi*-/-*i*-suffix (see IIa4 and IIa5), the imperfective suffixes *-šša-/-šš-* (see under IIa1β) and *-ānna-* / *-ānni-* (see under IIa5), and the nasal-infix (mainly under IIa1γ, but cf. also § 2.2.4).

IIa = ablauting *ḫi*-verbs

2.2.2.2.a The origin of the Hittite *ḫi*-conjugation is fiercely debated. Nevertheless, I think that it is clear that formally the *ḫi*-conjugation can be compared to the PIE

[262] E.g. *ak-ku-uš-ki-i* 'drink!' (KBo 7.28 obv. 23 (OH/MS)), *az-zi-ik-ki-i* 'eat!' (KBo 7.28 obv. 23 (OH/MS), KBo 21.60 rev. 15 (OH/NS)), *uš-ki-i* 'see!' (KBo 25.123, 10 (OS)).

perfect, with the only difference that in Hittite there are no traces of a reduplication syllable. So structurally, the Hittite *ḫi*-verbs are best compared to the isolated PIE verb **uoid-* 'to know', which was unreduplicated but inflected as a perfect. For the matter of comparison, I have given here the paradigm of the perfect of the Skt. verb *dā-* 'to give', the preterite paradigm of Hitt. *dā-^{i} / d-* 'to take' (with the plural forms taken from the compound verbs *peda-^{i} / ped-* and *uda-^{i} / ud-*) as well as the Greek paradigm of οἶδα 'to know':

	PIE	Skt.	Hitt.	cf. Gr.		
1sg.	**de-dóh$_3$-h$_2$e*	*dadáu*	*dāḫḫun*	(Ϝ)οἶδα	<	**uóid-h$_2$e*
2sg.	**de-dóh$_3$-th$_2$e*	*dadátha*	*dātta*	(Ϝ)οἶσθα	<	**uóid-th$_2$e*
3sg.	**de-dóh$_3$-e*	*dadáu*	*dāš* (cf. pres. *dāi*)	(Ϝ)οἶδε	<	**uóid-e*
1pl.	**de-dh$_3$-mé*	*dadimá*	*°tumen*	(Ϝ)ἴδμεν	<	**uid-mé*
2pl.	**de-dh$_3$-+V́*	*dadá*	*°tišten*	(Ϝ)ἴστε	<<	**uid-+V́*
3pl.	**de-dh$_3$-ér*	*dadúr*	*°ter*	(Ϝ)ἴσᾶσι	<<	**uid-ér*

As I will explain below, I believe that the PIE ablaut **o/Ø* underlies all the ablauting *ḫi*-verbs as attested in Hittite. Within the ablauting *ḫi*-verbs I distinguish five types, namely verbs that show an ablaut *ā/Ø* (with subtypes), *ā/a*, *ā/i̯*, *-ai-/-i-* and *-a-/-i-*.

IIa1 *ḫi*-verbs with *ā/Ø*-ablaut

2.2.2.2.b For the sake of convenience, I have subdivided this class into three groups.

The first group (IIa1α) consists of verbs that show a structure **CueC-* and **Ceu(C)-*. Note that the two verbs that show the structure **Ceu(C)-*, *au-^{i} / u-* 'to see' and *mau-^{i} / mu-* 'to fall', use a secondary, *mi*-inflecting stem in their 3sg.-forms: *aušš-* and *maušš-* . This is probably because expected **āu̯i* and **māu̯i* were too intransparent and therefore were changed to *aušzi* and *maušzi* on the basis of 3sg.pret.act. **auš* and **mauš*, which afterwards received *mi*-endings themselves as well: *ašta* and *mašta*.

au-^{i} / u- 'to see' < **h$_2$ou- / *h$_2$u-*; ***ḫuu̯app-^{i} / ḫupp-*** 'to hurl; to do evil' < **h$_2$uoph$_1$- / *h$_2$uph$_1$-*; ***ḫuu̯art-^{i} / ḫurt-*** 'to curse' < **h$_2$uort- / *h$_2$urt-*; ***mau-^{i} / mu-*** 'to fall' < **mouh$_1$- / *muh$_1$-*.

It should be noted that in none of these verbs the plene vowel *ā* < **ó* is attested as such. In the verbs *au-/u-* and *mau-/mu-* this is regular since **-óu-* yields Hitt. /áu/ and not **/áu/ (cf. **-ói-* > /ái/ and not **/ái/ in class IIa4 below), but in *ḫuu̯app-/ḫupp-* and *ḫuu̯art-/ḫurt-* we would have expected **ḫu-u̯a-a-ap-p°* and **ḫu-u̯a-a-ar-t°* in the oldest texts. The absence of these spellings must be ascribed to the fact that both verbs are unattested in OS texts in combination with the fact that an OH sequence /áCCV/ develops into NH /áCCV/ (so shortening of OH /á/ in non-final closed syllable within the Hittite periode, cf. § 1.4.9.3).

2.2.2.2.c The second group (IIa1β) consists of two monosyllabic verbs that end in **-eh$_{1/3}$-*, namely ***dā-^{i} / d-*** 'to take' < **doh$_3$- / *dh$_3$-* and ***lā-^{i} / l-*** 'to loosen, to release' < **loh$_1$- / *lh$_1$-*. The original inflection of these verbs is as follows:

	pres.	pret.	imp.		
1sg.	*Ca-a-aḫ-ḫé*	*Ca-a-aḫ-ḫu-un*			
2sg.	*Ca-a-at-ti*	*Ca-a-at-ta*	*Ca-a*	part.	*Ca-an-t-*
3sg.	*Ca-a-i*	*Ca-a-aš*	*Ca-a-ú*	v.n.	*Ca-a-u-u̯a-ar*
1pl.	*Cu-me-e-ni*	*Ca-a-u-en*		inf.I	*Ca(-a)-u-u̯a-an-zi*
2pl.	*Ca-at-te-e-ni*	*Ca-a-at-te-en*	*Ca-a-at-te-en*	inf.II	*Ca-a-an-na*
3pl.	*Ca-an-zi*	*Ca-a-er*	*Ca-an-du*	impf.	*Ca-aš-ke/a-*

Note that *lā-^{i} / l-* from MH times onwards is being replaced by *lae-^{zi}*, according to the productive *ḫatrae*-class inflection. In the verb *dā-^{i} / d-* the development OH /áCCV/ > NH /áCCV/ gives rise to a slightly different NH paradigm:

	pres.	pret.	imp.		
1sg.	*da-aḫ-ḫi*	*da-aḫ-ḫu-un*			
2sg.	--	*da-at-ta*	*da-a*	part.	*da-an-t-*
3sg.	*da-a-i*	*da-a-aš*	*da-a-ú*	v.n.	--
1pl.	*tu$_4$-me-e-ni*	--		inf.I	*da-a-u-u̯a-an-zi*
2pl.	*da-at-te-e-ni*	*da-at-te-en*	*da-at-te-en*	inf.II	*da-an-na*
3pl.	*da-an-zi*	*da-a-er*	*da-an-du*	impf.	*da-aš-ke/a-*

2.2.2.2.d The third group (IIa1γ), which is called the *tarn(a)*-class, consists of verbs that show a stem *CVCa-* besides *CVC-*, e.g. *tarna-^{i} / tarn-*. Some of these verbs also go back to roots that end in **-eh$_{1/3}$-*, but the difference with group IIa1β (*dā-^{i} / d-*

and *lā-^{i} / l-*) is that these latter are monosyllabic whereas the *tarn(a)*-class verbs are polysyllabic (e.g. *peda-^{i} / ped-*). This makes the inflection of the *tarn(a)*-class quite different:

pres.		
1sg.	°*Ca-aḫ-ḫé*	*tar-na-aḫ-ḫé* (OS), *pé-e-ta-aḫ-ḫé* (OS)
2sg.	°*Ca-at-ti*	*pé-e-da-at-ti* (OS)
3sg.	°*Ca-i*	*tar-na-i* (OS), *ḫal-zi-iš-ša-i* (OS), *pé-e-ta-i* (OS)
1pl.	°*Cu-me-e-ni*	*pé-e-tu-me-e-ni* (OS), *ú-du-me-e-ni* (OS)
2pl.	°*C-štēni* > °*Ca-at-te-ni*	*i-iš-te-e-ni* (OS); *tar-na-at-te-ni* (MS)
3pl.	°*Ca-an-zi*	*tar-na-an-zi* (OS), *ḫal-zi-iš-ša-an-zi* (OS)
pret.		
1sg.	°*Ca-aḫ-ḫu-un*	*tar-na-aḫ-ḫu-un* (OS), *ú-daḫ-ḫu-un* (OS)
2sg.	°*Ca-at-ta* > °*Ca-aš*, °*Ci-iš-ta*	*u̯a-aš-ta-at-ta* (OH/NS); *pé-e-da-aš* (MS); *ḫal-zi-iš-ši-iš-ta* (NH)
3sg.	°*Ca-aš* > °*Ci-iš-ta*	*tar-na-aš* (OS), *pé-e-da-aš* (OS); *tar-ni-iš-ta* (NH)
1pl.	°*Cu-me-en*	*pé-e-tu-mé-en* (OS)
2pl.	*°*C-šten* > °*Ca-at-te-en*	*u̯a-aš-ta-at-ten* (MS), *tar-na-at-ten* (NS)
3pl..	°*Ce-er*	*i-iš-še-er* (OS), *pé-e-te-er* (OS), *ú-ter* (OS)
imp.		
2sg.	°*Ca*	*tar-na* (OS), *ḫal-zi-iš-ša* (OS), *pé-e-da* (MS)
3sg.	°*Ca-ú*	*tar-na-ú* (OS)
2pl.	°*Ci-iš-te-en* > °*Ca-at-te-en*	*i-iš-te-en* (OS), *pé-ti-iš-te-en* (OS), *tar-na-at-ten* (MS)
3pl.	°*Ca-an-du*	*pé-e-ta-an-tu* (OS)
part.	°*Ca-an-t-*	*tar-na-an-t-* (OS)
v.n.	°*Cu-mar*	*tar-nu-mar* (NS)
inf.I	°*Cu-ma-an-zi*	*pé-e-tu$_{4}$-ma-an-zi* (MS)

Note that the vowel of the strong stem is long in the monosyllabic verbs, whereas it is short in the polysyllabic verbs (*da-a-i* vs. *pé-e-da-i*), and that we find full grade forms in the preterite plural of the monosyllabic verbs, but zero-grade in these forms of the polysyllabic verbs (*da-a-u-en* vs. *pé-e-tu-mé-en* and *da-a-er* vs. *pé-e-te-er*).

In the older literature, the *tarn(a)*-class is often called 'thematic' but this is incorrect. Although the strong stem *CVCa*- at first sight resembles the structure of some thematic *mi*-verbs, and although this stem spreads into the 2pl.-forms (where the original form **CVC-stēni* often yielded awkward clusters), the fact that we find forms like 1pl. *CVC-umēni*, *CVC-umen*, verb.noun *CVC-umar* and inf.I *CVC-umanzi* throughout Hittite shows that the basic ablaut-distinction between the strong stem *CVCa*- and the weak stem *CVC*- remains intact.

The *tarn(a)*-class verbs go back to two groups. On the one hand, we find verbs with the structure **CR-no-$h_{1/3}$-* (nasal-infixed verbs, see § 2.2.4), **Ce-C(R)o$h_{1/3}$-* (reduplicated verbs) and verbs in *-šša-^{i} / -šš-* (imperfective-suffix) < **-soh_1- / *-sh_1-*:

ḫalzišša-^{i} / ḫalzišš- 'to cry out, to call' < **$h_2$lt-i-soh_1- / *$h_2$lt-i-sh_1-*; ***ḫanna-^{i} / ḫann-*** 'to sue, to judge' < **h_3e-$h_3$noh$_3$- / *h_3e-$h_3$nh$_3$-*; ***išša-^{i} / išš-*** 'to do, to make' < **HH-i-soh_1- / *HH-i-sh_1-*; ***mimma-^{i} / mimm-*** 'to refuse' < **mi-moh$_1$- / *mi-mh$_1$-*; ***peda-^{i} / ped-*** 'to take (away)' < **$h_1$poi-doh$_3$- / *$h_1$poi-dh$_3$-*; ***pippa-^{i} / pipp-*** 'to tear down' < **pi-poh$_{1/3}$- / *pi-ph$_{1/3}$-*; ***šanna-^{i} / šann-*** 'to hide' < *sn-no-h_1- / *sn-n-h_1-*; ***šišša-^{i} / šišš-*** 'to impress' < **sh_1-i-soh_1- / *sh_1-i-sh_1-*; ***šunna-^{i} / šunn-*** 'to fill' < **su-no-$h_{1/3}$- / *su-n-$h_{1/3}$-*; ***tarna-^{i} / tarn-*** 'to let (go)' < **tr$^{(}$k$^{)}$-no-$h_{1/3}$- / *tr$^{(}$k$^{)}$-n-$h_{1/3}$-*; ***uda-^{i} / ud-*** 'to bring (here)' < **$h_2$ou-doh$_3$- / *$h_2$ou-dh$_3$-*; ***u̯arišša-^{i} / u̯arišš-*** 'to help'.

On the other hand, we find verbs with the structure **CoCh$_{2/3}$-*. We would have expected that these verbs, which showed an original ablaut **CoCh$_{2/3}$- / *CCh$_{2/3}$-* ended up in the class IIa1α or IIa2. That this is not the case is in my view caused by the 3sg.pres.act.-form. In verbs of the structure **CoCh$_{2/3}$-*, the 3sg.pres.act. **CoCh$_{2/3}$-e-i* yielded Pre-Hittite **CoCai*, whereas in verbs of class IIa1α and IIa2, 3sg.pres.act. **CC-oh$_1$-e-i* and **CoC-e-i* yielded Pre-Hittite **CC-ae* and **CoCe*, respectively. At the time when the ending **-e* was replaced by *-i* (in analogy to the *mi*-endings that all ended in *-i*), the ending *-ai* of *CoCai* fell together with the ending of *CCai* of the *tarn(a)*-class, and not with *CoCi* of class IIa1α and IIa2. On the basis of this 3sg.-form, the whole paradigm was taken over into the *tarn(a)*-class.[263] This scenario explains the inflection of the following verbs:

[263] Note that this did not happen in verbs of the structure **Ceh$_2$-*, which ended up in class IIa2 (*nāḫ-^{i} / naḫḫ-*, *zāḫ-^{i} / zaḫḫ-*). The different outcome of **CóCh$_2$ei* > *CaCai* on the one hand and **Cóh$_2$ei* > *Cāḫi* on the other is due to the fact that in the former verb the regular loss of **h$_2$* after consonant

ḫarra-^{i} / ḫarr- ‘to grind’ < *h_2orh_3-ei / *h_2rh_3-enti*; ***iškalla-^{i} / iškall-*** ‘to split’ < *$skolh_{2/3}$-ei / *$sklh_{2/3}$-enti*; ***išparra-^{i} / išparr-*** ‘to trample’ < *$sporh_{2/3}$-ei / *$sprh_{2/3}$-enti*; ***malla-^{i} / mall-*** ‘to mill’ < *$molh_2$-ei / *mlh_2-enti*; ***padda-^{i} / padd-*** ‘to dig’ < *$b^hod^hh_2$-ei / *$b^hd^hh_2$-enti*; ***šarta-^{i} / šart-*** ‘to wipe, to rub’ < *$sord^hh_{2/3}$-ei / *$srd^hh_{2/3}$-enti*.

From MH times onwards, the *tarn(a)*-class inflection is becoming productive, and we therefore find several verbs that sometimes show forms that secondarily inflect according to the *tarn(a)*-class (in brackets their original stem):

ǎrra-^{i} / ǎrr- ‘to wash’ (*ārr-^{i} / arr-*), ***ezza-^{i} / ezz-*** ‘to eat’ (*ed-^{zi} / ad-*), ***ḫaliḫla-^{i} / ḫaliḫl-*** ‘to genuflect’ (*ḫaliḫla-^{i} / ḫaliḫli-*), ***ḫatta-^{i} / ḫatt-*** ‘to pierce’ (*ḫatt-$^{a(ri)}$*), ***ḫu(u̯a)rta-^{i} / ḫu(u̯a)rt-*** ‘to curse’ (*ḫuu̯art-^{i} / ḫurt-*), ***išḫuu̯a-^{i} / išḫu-*** (*išḫuu̯ai-^{i} / išḫu(i)-*), ***išgara-^{i} / išgar-*** ‘to stab’ (*iškār-^{i} / iškar-*), ***išparra-^{i} / išparr-*** ‘to spread out’ (*išpār-^{i} / išpar-*), ***išparza-^{i} / išparz-*** ‘to escape’ (*išpart-^{zi}*), ***ganga-^{i} / gang-*** ‘to hang’ (*kānk-^{i} / kank-*), ***karša-^{i} / karš-*** ‘to cut’ (*karš(iu̯e/a)-^{zi}*), ***kuenna-^{i} / kuenn-*** ‘to kill’ (*kuen-^{zi} / kun-*), ***laḫuu̯a-^{i} / laḫu-*** ‘to pour’ (*lāḫu-^{i} / laḫu-*), ***lilḫuu̯a-^{i} / lilḫu-*** ‘to pour’ (*lilḫuu̯a-^{i} / lilḫui-*), ***malda-^{i} / mald-*** ‘to recite’ (*māld-^{i} / mald-*), ***mēma-^{i} / mēm-*** ‘to speak’ (*mēma-^{i} / mēmi-*), ***nanna-^{i} / nann-*** ‘to drive’ (*nanna-^{i} / nanni-*), ***parḫa-^{i} / parḫ-*** ‘to chase’ (*parḫ-^{zi}*), ***parippara-^{i} / parippar-*** ‘to blow (a horn)’ (*parippara-^{i} / parippari-*), ***penna-^{i} / penn-*** ‘to drive (there)’ (*penna-^{i} / penni-*), ***šalika-^{i} / šalik-*** ‘to touch’ (*šalǐk-$^{a(ri)}$*), ***šarra-^{i} / šarr-*** ‘to divide up’ (*šārr-^{i} / šarr-*), ***šišḫa-^{i} / šišḫ-*** ‘to decide, to appoint’ (*šišḫa-^{i} / *šišḫi-*), ***taišta-^{i} / taišt-*** ‘to load’ (*taišta-^{i} / taišti-*), ***dāla-^{i} /dāl-*** ‘to let, to leave’ (*dāla-^{i} /dāli-*), ***tetḫa-^{i} / tetḫ-*** ‘to thunder’ (*titḫ-^{a}*), ***titta-^{i} / titt-*** ‘to install, to assign’ (*titta-^{i} / titti-*), ***duu̯arna-^{i} / duu̯arn-*** ‘to break’ (*duu̯arni-^{zi} / duu̯arn-*), ***ūnna-^{i} / ūnn-*** ‘to send (here)’ (*ūnna-^{i} / ūnni-*), ***uppa-^{i} / upp-*** ‘to send (here)’ (*uppa-^{i} / uppi-*), ***zinna-^{i} / zinn-*** ‘to finish’ (*zinni-^{zi} / zinn-*).

This phenomenon is often called ‘thematization’, but as we saw above, this term should be avoided since the *tarn(a)*-class has nothing to do with being ‘thematic’.

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caused phonologization of the ending /-ai/, whereas in **Cóh$_2$ei*, which despite its phonetic pronunciation [Cắhai] phonologically remained /Cắhei/ due to the presence of *-ḫ-*, we are dealing with the ending /-ei/. This ending then regularly developed into /-e/ and later on was replaced by *-i*, so **Cóh$_2$ei* > */Cắhe/ >> *Cāḫi*.

IIa2 *ḫi*-verbs with *ā/a*-ablaut

2.2.2.2.e This class consists of verbs with a root structure **HeC-*, **Ceh₂(C)-*, **CeR(C)-*, **TeT-*, **seT-* and **Ces-*. In these verbs, the full grade vowel **ó* yielded Hitt. *-ā-*, whereas in the initial cluster of the zero-grade stem an empty vowel *-a-* is used in spelling (e.g. *akkanzi* = /ʔkántˢi/, *ḫananzi* = /Hnántˢi/, *išparanzi* = /ɨspránt^si/, *maldanzi* = /mldántˢi/, *paḫšanzi* = /pHsántˢi/, *dakkanzi* = /tkántˢi/, etc.). The often found distribution of single stop in the full grade stem vs. geminate stop in the zero grade stem (e.g. *āki* : *akkanzi*) is due to lenition of consonants after **ó*. Note that not of all verbs a plene spelling *-ā-* is indeed attested, but this is due to the inner-Hittite shortening of OH /ā́/ to NH /á/ in non-final closed syllables (OH /ā́CCV/ > NH /áCCV/, cf. § 1.4.9.3): so if a certain verb of the structure *CaCC-* is attested in NH texts only, it will not show a long *-ā-* anymore. Nevertheless, I assume that in all these verbs we have to reckon with original *-ā-* in the full grade stem.

āk-^{i} / akk- 'to die' < **h₁/₃ok- / *h₁/₃k-*; ***ār-^{i} / ar-*** 'to come' < **h₁or- / *h₁r-*; ***ārr-^{i} / arr-*** 'to wash' < **h₁orh₁- / *h₁rh₁-*; ***ārk-^{i} / ark-*** 'to cut off' < **h₁or(ḱ)- / *h₁r(ḱ)-*; ***ārk-^{i} / ark-*** 'to cover, to copulate' < **h₃orǵʰ- / *h₃rǵʰ-*; ***ḫān-^{i} / ḫan-*** 'to draw (water)' < **h₂on- / *h₂n-*; ***ḫāš-^{i} / ḫašš-*** 'to give birth' < **h₂oms- / *h₂ms-*; ***ḫāt-^{i} / ḫat-*** 'to dry up' < **h₂od- / *h₂d-*; ***ḫatk-^{i} / ḫatk-*** 'to shut, to close' < **h₂od^hǵʰ- / *h₂d^hǵʰ-*; ***iškār-^{i} / iškar-*** 'to stab' < **skor- / *skr-*; ***išpānt-^{i} / išpant-*** 'to libate' < **spond- / *spnd-*; ***išpār-^{i} / išpar-*** 'to spread' < **spor- / *spr-*; ***ištāp-^{i} / ištapp-*** 'to shut' < **stop- / *stp-*; ***kānk-^{i} / kank-*** 'to hang' < **ḱonk- / *ḱnk-*; ***kalank-^{i} / kalank-*** 'to soothe' < **glonǵʰ- / *glnǵʰ-*; ***lāḫu-^{i} / laḫu-*** 'to pour' < **loh₂u- / *lh₂u-*; ***lāk-^{i} / lag-*** 'to make lie down' < **logʰ- / *lgʰ-*; ***mālk-^{i} / malk-*** 'to spin' < **molK- / *mlK-*; ***māld-^{i} / mald-*** 'to recite' **moldʰ- / *mldʰ-*; ***mārk-^{i} / mark-*** 'to divide, to separate' < **mork- / *mrk-*; ***nāḫ-^{i} / naḫḫ-*** 'to fear' < **noh₂- / *nh₂-*; ***paḫš-^{i} / paḫš-*** 'to protect' < **poh₂s- / *ph₂s-*; ***palāḫ-^{i} / palaḫḫ-*** 'to call(?)' < **Ploh₂- / *Plh₂-*?; ***papparš-^{i} / papparš-*** 'to sprinkle' < **-pors- / *-prs-*; ***pāš-^{i} / paš-*** 'to swallow, to gulp down' < **poh₃-s- / *ph₃-s-*; ***šākk-^{i} / šakk-*** 'to know' < **sokh₁- / *skh₁-*; ***dākk-^{i} / dakk-*** 'to resemble' **do(ḱ)h₁- / *d(ḱ)h₁-*; ***u̯āk-^{i} : u̯akk-*** 'to bite' < **u̯oh₂g- / *u̯h₂g-*; ***u̯arš-^{i} / u̯arš-*** 'to harvest, to wipe' < **u̯ors- / *u̯rs-*; ***u̯āš-^{i} / *u̯aš-*** 'to sell' < ** u̯os- / * u̯s-*; ***zāḫ-^{i} / zaḫḫ-*** 'to beat' < **tioh₂- / *tih₂-*.

IIa3 *ḫi*-verbs with *ā/ɨ*-ablaut

2.2.2.2.f This class consists of the verbs *ašāš-^{i} / aše/iš-* 'to sit', *ḫamank-^{i} / ḫame/ink-* 'to tie', *karāp-^{i} / kare/ip-* 'to devour' and *šarāp-^{i} / šarip-* 'to sip'. These verbs show

the vowel *-ā-* in the strong stem forms and the vowel *-e-* or *-i-* in the weak stem forms. It should be noted that the verb that is usually cited as key example of this class, "*šākk-/šekk-*" 'to know', in fact does not belong here. As I have shown under its lemma, its oldest forms show that this verb in fact is *šākk-^{i} / šakk-* and belongs with class IIa2 (*ā/a*-ablaut).

The origin of the ablaut *-ā-/-e/i-* has always been problematic. E.g. Oettinger (1979a: 114) assumes that the source of the *-ā-/-e/i-* ablaut is the verb "*šākk- / šekk-*": in his opinion, the vowel *-e-* is the regular outcome of a reduplication syllable **se-sg-*. Apart from the fact that this etymological interpretation of this verb has proven to be incorrect, the verb in fact is *šākk-^{i} / šakk-* and does not originally belong to the *-ā-/-e/i-*ablauting type at all (see at its lemma for a detailed description of its prehistory).

A view that has gained much support was initiated by Jasanoff (1979: 86) who assumes that the Hittite ablaut "*ā/e*" can only be explained by assuming that it reflects a PIE ablaut **o/e*. The simplicity of this solution has appealed to many scholars (e.g. Melchert (1994: 81), who reconstructs *šākk-/šekk-* < **sók-/sék-* and *karāp-/garip-* < **gróp-/gréb-*). Nevertheless, it is in my view quite problematic that no instances of verbal **o/e*-ablaut from any other IE language are known. Either this means that the Hittite *-ā-/-e/i-*ablaut is very archaic, or it means that Jasanoff's idea is incorrect.

As I have explained under class Ia5 (cf. § 2.2.2.1.f), I believe that the weak stem vowel *e/i* that we find in the *mi*-inflecting verbs of classes Ia5 and Ia6 must be compared to the vowel *e/i* as attested in the *ḫi*-verbs of the present class, and that this vowel must be identified as the anaptyctic vowel /ɨ/. This vowel was used in the zero-grade forms of these verbs for different reasons.

The verbs *karāp-^{i} / kare/ip-* and *šarāp-^{i} / šarip-* must be taken together with *terepp-^{zi} / tere/ipp-* 'to plough' (from class Ia5). As I have stated in § 2.2.2.1.f more elobarately, it is in my view significant that these are the only three verbs in Hittite that show a structure **CReC-*. I therefore assume that the phonetically expected outcomes of the ablauting pair **CReC- / *CRC-* > Hitt. *CReC- / CaRC-* (when *mi*-conjugated) and **CRóC- / *CRC-* > Hitt. *CRāC- / CaRC-* (when *ḫi*-conjugated) was too aberrant (it looks as if the stem vowel is shifting place) and therefore has been eliminated: in the zero-grade form the anaptyctic vowel /ɨ/ was secondarily placed on the place of the vowel of the full grade form. In this way, a *mi*-conjugating verb **CRéC- / *CRC-* was altered to synchronic *CReC- / CRɨC-*, whereas the *ḫi*-conjugating **CRóC- / *CRC-* was altered to synchronic *CRāC- / CRɨC-*. In both cases, the weak stem is spelled *CRe/iC-*.

With this scenario in mind, we can explain ***karāp-^{i} / kare/ip-*** ‘to devour’ as phonological /krāb- / krɨb-/, the ‘regular’ secondary outcome of *$g^{h}róbh_{1}$- / *$g^{h}rbh_{1}$-, and ***šarāp-^{i} / šarip-*** ‘to sip’ as phonological /srāb- / srɨb-/, the ultimate outcome of *$srob^{h}$- / *srb^{h}-.

The interpretation of *$ašāš$-^{i} / aše/iš-* ‘to seat’ and *$ḫamank$-^{i} / ḫame/ink-* ‘to tie’ is less clear. Nevertheless, in the case of *ašāš- / aše/iš-*, which reflects either *$h_{1}sh_{1}os$- / *$h_{1}sh_{1}s$- or *$h_{1}h_{1}sh_{1}oh_{1}s$- / *$h_{1}h_{1}sh_{1}h_{1}s$- (thus LIV^{2}, in analogy to Oettinger 1979a: 431), the assumption of an anaptyctic vowel to release the cluster *$h_{1}sh_{1}s$- or *$h_{1}h_{1}sh_{1}h_{1}s$- seems unproblematic to me (cf. the phonetically regular development of *CRHsV > Hitt. CRɨššV* (Kloekhorst fthc.f and § 1.4.4.3)). This means that ***ašāš-^{i} / aše/iš-*** ‘to seat’ must be phonologically interpreted as /ʔsās- / ʔsɨs-/ < *$h_{1}(h_{1})sh_{1}ó(h_{1})s$- / *$h_{1}(h_{1})sh_{1}(h_{1})s$-.

In the case of *$ḫamank$-^{i} / ḫame/ink-* we are dealing with a zero-grade stem *$h_{2}mnǵ^{h}$-. As we will see in § 2.2.4, a pre-Hittite cluster *CNNC* regularly develops into /CNɨNC/. So here, *$h_{2}mnǵ^{h}$-* yields Hitt. /Hmɨng-/, spelled *ḫame/ink-*. All in all, ***ḫamank-^{i} / ḫame/ink-*** ‘to tie’ must be phonologically interpreted as /Hmāng- / Hmɨng-/ < *$h_{2}monǵ^{h}$- / *$h_{2}mnǵ^{h}$-.

IIa4 *ḫi*-verbs in *-ai-/-i-*: the *dāi/tiḫanzi*-class.

2.2.2.2.g The formal interpretation of this class has been elaborately treated in Kloekhorst fthc.a. As I have explained there, these verbs almost all go back to a structure *CC-oi- / *CC-i-*, i.e. the zero-grade of a verbal root followed by an ablauting suffix *-oi-/-i-*:

arai-^{i} / ari- ‘to (a)rise’ < *$h_{3}r$-oi- / *$h_{3}r$-i-; ***ḫalai-^{i} / ḫali-$^{?}$*** ‘to set in motion’ < *$h_{2}l$-oi- / *$h_{2}l$-i-; ***ḫalzai-^{i} / ḫalzi-*** ‘to call out’ < *$h_{2}lt$-oi- / *$h_{2}lt$-i-; ***ḫuu̯ai-^{i} / ḫui-*** ‘to run’ < *$h_{2}uh_{1}$-oi- / *$h_{2}uh_{1}$-i-; ***išḫai-^{i} / išḫi-*** ‘to bind’ < *sh_{2}-oi- / *sh_{2}-i-; ***išḫamai-^{i} / išḫami-*** ‘to sing’ < *$sh_{2}m$-oi- / *$sh_{2}m$-i-; ***išḫuu̯ai-^{i} / išḫui-*** ‘to throw, to scatter’ *$sh_{2}u$-oi- / *$sh_{2}u$-i-; ***išpai-^{i} / išpi-*** ‘to be satiated’ < *sph_{1}-oi- / *sph_{1}-i-; ***mai-^{i} / mi-*** ‘to grow’ < *mh_{2}-oi- / *mh_{2}-i-; ***nai-^{i} / *ni-*** ‘to turn’ < *$noih_{1/3}$- / *$nih_{1/3}$-; ***pai-^{i} / pi-*** ‘to give’ < *$h_{1}p$-oi- / *$h_{1}p$-i-; ***parai-^{i} / pari-*** ‘to blow’ < *prh_{1}-oi- / *prh_{1}-i-; ***paddai-^{i} / patti-*** ‘to run, to flee’ < *pth_{1}-oi- / *pth_{1}-i-; ***šai-^{i} / ši-*** ‘to press’ < *sh_{1}-oi- / *sh_{1}-i-: ***šalai-^{i} / šali-*** ‘?’ < *sl-oi- / *sl-i-?; ***dai-^{i} / ti-*** ‘to put, to place’ < *$d^{h}h_{1}$-oi- / *$d^{h}h_{1}$-i-; ***tarai-^{i} / tari-*** ‘to exert oneself’ < *Tr-oi- / *Tr-i-; ***u̯ai-^{i} / u̯i-*** ‘to cry’ < *u̯oi- / *u̯i-; ***zai-^{i} / zi-*** ‘to cross’ < *$h_{1}t$-oi- / *$h_{1}t$-i-.

The original inflection of these verbs was as follows:

pres.			imp.		
1sg.	**CC-ói-h_2e-i*	*°Ce-e-eḫ-ḫé*			
2sg.	**CC-ói-th$_2$e-i*	*°Ca-it-ti*	2sg.	**CC-ói*	*°Ca-i*
3sg.	**CC-ói-e-i*	*°Ca-a-i*	3sg.	**CC-ói-u*	*°Ca-a-ú*
1pl.	**CC-i-u̯éni*[264]	*°Ci-u-e-ni*			
2pl.	**CC-i-sténi*[265]	*°Ci-iš-te-e-ni*	2pl.	**CC-i-stén*[266]	*°Ci-iš-te-en*
3pl.	**CC-i-énti*	*°Ci-an-zi*	3pl.	**CC-i-éntu*[267]	*°Ci-an-du*

pret.					
1sg.	**CC-ói-h_2e*	*°Ce-e-eḫ-ḫu-un*	part.	**CC-i-ént-*[268]	*°Ci-an-t-*
2sg.	**CC-ói-th$_2$e*	*°Ca-it-ta*	v.n.	**CC-ói-u̯r*	*°Ca-u-u̯a-ar*
3sg.	**CC-ói-s*	*°Ca-iš*	v.n.	**CC-i-ă̯tar*	*°Ci-i̯a-a-tar*
1pl.	**CC-i-u̯én*[269]	*°Ci-u-en*	inf.I	**CC-i-u̯anzi*[270]	*°Ci-u-u̯a-an-zi*
2pl.	**CC-i-stén*[271]		inf.II	**CC-i-anna*	*°Ci-an-na*
3pl.	**CC-i-ḗr*[272]	*°Ci-e-er*	impf.	**CC-ske/a-*[273]	

This is the paradigm as found in OH texts. From the MH period onwards, we find generalization of the long *-ā-* as found in 3sg.pres.act. *°Ca-a-i*, yielding forms

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[264] Thus in *pí-u-e-ni*. All other verbs show *CC-i̯a-u̯eni* according to class Ic1.

[265] Thus in *pí-iš-te-ni* and *zi-iš-te-e-ni*. Secondary *CC-oi-teni* (with the *mi*-ending *-tteni*) in *ta-a-it-te-ni*.

[266] Thus in *iš-pí-iš-te-en*, *ḫal-zi-iš-te-en* and *pí-iš-te-en*. Secondary *CC-oi-sten* in *da-iš-ten*, and *pa-iš-ten*.

[267] But compare 3pl.imp.act. *a-ra-an-du* from *arai-*^{i} / *ari-* 'to (a)rise'. Does this form and the ones mentioned in notes 268 and 273 point to a situation in which non-finite forms of this paradigm were *-i*-less?

[268] But compare part. *a-ra-an-t-* from *arai-*^{i} / *ari-* 'to (a)rise', cf. note 267.

[269] Thus *ḫal-zi-u-en* and *pí-u-en*. Secondary *CC-oi-u̯en* in *da-i-u-en*.

[270] Thus *ti-u-u̯a-an-zi*. All other verbs have *CC-i̯a-u̯anzi* according to class Ic1.

[271] This form on the basis of 2pl.imp.act. **CC-i-stén*. Secondary **CC-oi-sten* in *iš-ḫa-iš-te-en*.

[272] Thus in *ḫal-zi-i-e-er*, *ḫu-i-e-er*, *iš-ḫi-i-e-er*, *iš-pí-i-e-er* and *pí-i-e-er*. Secondary *CC-oi-ē̯r* in *da-i-e-er* and *ḫu-u̯a-a-er*.

[273] **CC-sḱé/ó-* is the only possible reconstruction for *zaške/a-* /tske/a-/, *zikke/a-* /tsɨke/a-/ < **d^{h}h$_1$-sḱé/ó-*, but also *ḫalziške/a-* besides *ḫalzeške/a-* and *piške/a-* besides *peške/a-* point more to an interpretation **Cəske/a-*, reflecting **h$_2$lt-sḱé/ó-* and **h$_1$p-sḱé/ó-*, than to **C-i-ske/a-* from **h$_2$lt-i-sḱé/ó-* and **h$_1$p-i-sḱé/ó-*. Cf. note 267.

like 2sg.pres.act. °*Ca-a-it-ti*, 2sg.pret.act. °*Ca-a-it-ta*, 3sg.pret.act. °*Ca-a-iš*, 2sg.imp.act. °*Ca-a-i*, and 2pl.imp.act. °*Ca-a-iš-tén* (with introduction of strong stem). Moreover, from MH times onwards, the *dāi/tiḭanzi*-class inflection is gradually being replaced by the *-ḭe/a*-class (Ic1) and, to a lesser extant, by the *ḫatrae*-class (Ic2). The taking over into the *-ḭe/a*-class is triggered by forms like 3pl.pres.act. °*Cianzi*, 3pl.pret.act. °*Cier*, 3pl.imp.act. °*Ciandu*, part. °*Ciant-*, etc., whereas the taking over into the *ḫatrae*-class is based on the trivial replacement of 3sg.pres.act. °*Cāi* by °*Cāizzi* and on the basis of the fact that e.g. 2sg.imp.act. °*Cai* and verb.noun °*Caṷar* are identical in both classes.

IIa5 *ḫi*-verbs in *-a-/-i-*: the *mēma/i*-class.

2.2.2.2.h In the oldest texts, the verbs of this class show two stems: we find a strong stem ending in *-a-* besides a weak stem ending in *-i-*. The original inflection can be schematized thus:

	pres.	pret.	imp.		
1sg.	°*Caḫḫe*	°*Caḫḫun*			
2sg.	°*Catti*	--	°*Ci*		
3sg.	°*Cai*	°*Ciš*[?]	°*Cau*		
1pl.	°*Ciṷeni*	°*Ciṷen*		part.	°*Ciant-*
2pl.	°*Cišteni*	°*Cišten*	°*Cišten*	inf.I	°*Ciṷanzi*
3pl.	°*Cianzi*	°*Cier*	°*Ciandu*	impf.	°*Ciške/a-*

The ablaut *-a-/-i-* cannot reflect a PIE situation however, and therefore it is likely that the *mēma/i*-class is of a secondary origin. There are a few clues that shed some light on the prehistory of this class.

First, some of the verbs that belong to this class are derived from *dāi/tiḭanzi*-inflected verbs: *penna-*^{i} */ penni-*, *ūnna-*^{i} */ ūnni-* and *nanna-*^{i} */ nanni-* derive from *nai-*^{i} */ *ni-* 'to lead' (the first two showing the preverbs *pe-* and *u-*, the third one showing reduplication) and *uppa-*^{i} */ uppi-* derives from *pai-*^{i} */ pi-* 'to give' (with the preverb *u-*).

Secondly, the *mēma/i*-class is not a very stable inflection type. If we look at a diachronic overview of attestations, we see that from MH times onwards on the one hand *tarn(a)*-class inflected forms (printed in bolt) are spreading throughout the paradigm, and, to a lesser extent, *-ḭe/a*-class inflected forms (printed with underlining).

	OS	MH	NH
pres.			
1sg.	°*Ca-aḫ-ḫé*	°*Ca-aḫ-ḫi*	°*Ca-aḫ-ḫi*
2sg.	--	°*Ca-at-ti*	°*Ca-at-ti*
3sg.	°*Ca-i*	°*Ca-i*, °*Ca-a-i*	°*Ca-a-i*
1pl.	°*Ci-u-e-ni*	°*Ci-u-e-ni*, ***°Ca-u-e-ni***	°*Ci-i̯a-u-e-ni*
2pl.	--	°*Ci-iš-te-ni*	***°Ca-at-te-ni***
3pl.	°*Ci-an-zi*	°*Ci-i̯a-an-zi*, ***°Ca-an-zi***	°*Ci-i̯a-an-zi*, ***°Ca-an-zi***
pret.			
1sg.	°*Ca-aḫ-ḫu-un*	°*Ca-aḫ-ḫu-un*	°*Ca-aḫ-ḫu-un*
2sg.	--	--	°*Ci-iš-ta*, *Ci-eš-ta*, *Ci-eš*
3sg.	--	°*Ci-iš*, °*Ci-iš-ta*	°*Ci-iš*, °*Ci-iš-ta*, ***°Ca-aš***, °*Ci-it*, °*Ci-i̯a-at*
1pl.	--	°*Ci-u-en*, ***°Cu-me-en***, ***°Ca-u-en***	***°Ca-u-en***, °*Ci-i̯a-u-en*
2pl.	--	--	°*Ci-iš-ten*, °*Ci-i̯a-at-ten*
3pl.	°*Ci-er*	°*Ci-e-er*	°*Ci-er*, ***°Ce-er***
imp.			
1sg.	--	--	***°Ca-al-lu***
2sg.	--	°*Ci*, ***°Ca***	°*Ci*, ***°Ca***
3sg.	--	°*Ca-a-ú*	°*Ca-a-ú*, ***°Ca-at-tu₄***, °*Ci-iš-du*
2pl.	--	°*Ci-iš-te-en*, °*Ci-eš-te-en*	°*Ci-iš-ten*, °*Ci-eš-ten*, ***°Ca-at-ten***
3pl.	--	°*Ci-an-du*	°*Ci-an-du*, ***°Ca-an-du***
part.	--	°*Ci-an-t-*	°*Ci-i̯a-an-t-*, ***°Ca-an-t-***
v.n.	--	--	°*Ci-i̯a-u̯a-ar*, ***°Cu-mar***
inf.I	--	°*Ci-u̯a-an-zi*, °*Ci-i̯a-u̯a-an-zi*	°*Ci-i̯a-u̯a-an-zi*, ***°Ca-u̯a-an-zi***, ***°Cu-ma-an-zi***
impf.	°*Ci-iš-ke/a-*	°*Ci-iš-ke/a-*	°*Ci-iš-ke/a-*, °*Ci-eš-ke/a-*

In my view, these two facts clearly indicate that the *mēma/i*-class consists of verbs that belonged to the *dāi/tii̯anzi*-class originally, but that were gradually being taken over into the *tarn(a)*-class from pre-Hittite times onwards. This replacement first took place in the singular forms, which yielded the OH situation as attested: stems in *-a-* in the present en preterite singular, stems in *-i-* elsewhere.

From MH times onwards, the replacement is taking place in the plural and infinite forms as well. The occasional *-i̯e/a-*inflected forms can be explained by the fact that *dāi/tii̯anzi-*class verbs in NH times as a rule are being taken over into the *-i̯e/a-*class.

The question then is, of course, why have not all *dāi/tii̯anzi-*class verbs been taken over into the *tarn(a)-*class? Why do e.g. *penna/i-*, *ūnna/i-*, *nanna/i-* and *uppa/i-* belong to the *mēma/i-*class, and their basic verbs *nai- / *ni-* and *pai-/pi-* not? In my view, the answer lies in the fact that *penna/i-*, *ūnna/i-*, *nanna/i-* and *uppa/i-* are polysyllabic whereas *nai-/ni-* and *pai-/pi-* are not. This has consequences for the ending of the 3sg.pres.act.-form. If we take the original (reconstructed) paradigms of *pai-/pi-*, *uppa/i-* and *tarn(a)-* we get the following:

1sg.	*peḫḫi*	**uppeḫḫi*	*tarnaḫḫi*
2sg.	*paitti*	**uppaitti*	*tarnatti*
3sg.	***pāi***	***uppai***	***tarnai***
1pl.	*pii̯eni*	*uppii̯eni*	*tarnumeni*
2pl.	*pišteni*	*uppišteni*	*tarništeni*
3pl.	*pianzi*	*uppianzi*	*tarnanzi*

Although the paradigms of *pai-/pi-* and **uppai-/uppi-* are almost identical, they differed in the 3sg.-form, where *pai-/pi-* has a long vowel, *pāi*, and **uppai-/uppi-* a short vowel: *uppai*. The 3sg.-ending of **uppai-/uppi-* was identical, however, to the ending of the *tarn(a)-*class, which had a short vowel as well: *tarnai*. In my view, this form therefore triggered a secondary rebuilding of the polysyllabic *dāi/tii̯anzi-*verbs in analogy to the *tarn(a)-*verbs. First, the singular forms were changed (**uppeḫḫi* > *uppaḫḫi*, **uppaitti* > *uppatti*), and then the other forms (*uppii̯eni* > *uppau̯eni*, *uppišteni* > *uppatteni*, *uppianzi* > *upp**a**nzi*, etc.).

The verbs that inflect according to the *mēma/i-*class are: ***āppa-^{i} / āppi-*** to be finished'; ***ḫaliḫla-^{i} / ḫaliḫli-*** 'to genuflect' < **$h_2$li-$h_2$loi- / *$h_2$li-$h_2$li-*; ***lilḫuu̯a-^{i} / lilḫui-*** 'to pour' < **li-lh$_2$u-oi- / *li-lh$_2$u-i-*; ***mēma-^{i} / mēmi-*** 'to speak' < **me-h$_1$m-oi- / *me-h$_1$m-i-*?; ***nanna-^{i} / nanni-*** 'to drive' < **no-noiH- / *no-niH-*; ***parippara-^{i} / parippari-*** 'to blow (a horn)' < **pri-prh$_1$-oi- / *pri-prh$_1$-i-*; ***penna-^{i} / penni-*** 'to drive (there)' < **h$_1$poi+noiH- / *h$_1$poi+niH-*; ***šišḫa-^{i} / *šišḫi-*** 'to decide, to appoint' < **si-sh$_2$-oi- / *si-sh$_2$-i-*; ***taišta-^{i} / taišti-*** 'to load' < **d^{h}oh$_1$-es+d^{h}h$_1$-oi- / *d^{h}oh$_1$-es+d^{h}h$_1$-i-*; ***dāla-^{i} /dāli-*** 'to let, to leave' < **dā+lh$_1$-oi- / *dā+lh$_1$-i-*; ***titta-^{i} / titti-*** 'to install, to assign' < **d^{h}i-d^{h}h$_1$-oi- / *d^{h}i-d^{h}h$_1$-i-*; ***ūnna-^{i} / ūnni-*** 'to send

(here)' < *$h_2$ou+noiH- / *$h_2$ou+niH-; ***uppa-^{i} / uppi-*** 'to send (here)' < *$h_2$ou+h_1p-oi- / *$h_2$ou+h_1p-i-.

The verbs showing the imperfective-suffix *-anna-/-anni-* also belong to this class: ***ḫallanna-^{i} / ḫallanni-*** 'to trample down'; ***ḫaluganna-^{i} / ḫaluganni-*** 'to make an anouncement'; ***ḫattanna-^{i} / ḫattanni-*** 'to pierce'; ***ḫuganna-^{i} / ḫuganni-*** 'to conjure'; ***ḫuttiy̯anna-^{i} / ḫuttiy̯anni-***; ***ḫuittiy̯anna-^{i} / ḫuittiy̯anni-*** 'to draw'; ***iy̯anna-^{i} / iy̯anni-*** 'to march'; ***išḫuu̯anna-^{i} / išḫuu̯anni-*** 'to throw'; ***iškaranna-^{i} / iškaranni-*** 'to sting'; ***šippandanna-^{i} / šipandanni-*** 'to libate'; ***išparanna-^{i} / išparanni-*** 'to spread'; ***laḫḫiy̯anna-^{i} / laḫḫiy̯anni-*** 'to go on an expedition'; ***piy̯anna-^{i} / piy̯anni-*** 'to give'; ***parḫanna-^{i} / parḫanni-*** 'to chase'; ***paršiy̯anna-^{i} / paršiy̯anni-*** 'to break'; ***peššiy̯anna-^{i} / peššiy̯anni-*** 'to throw away'; ***piddanna-^{i} / piddanni-*** 'to bring away'; ***šallanna-^{i} / šallanni-*** 'to pull'; ***takšanna-^{i} / takšanni-*** 'to level'; ***tiy̯anna-^{i} / tiy̯anni-*** 'to lay down'; ***tuḫšanna-^{i} / tuḫšanni-*** 'to cut off'; ***u̯alḫanna-^{i} / u̯alḫanni-*** 'to hit'; ***u̯eriy̯anna-^{i} / u̯eriy̯anni-*** 'to call'.

Ablautpattern of the IIa-verbs

2.2.2.2.i In all *ḫi*-verbs that show ablaut, this ablaut can be traced back to the PIE ablaut **o/Ø*. Therewith it is likely that the *ḫi*-conjugation etymologically is connected with the PIE perfect, albeit that in Hittite no reduplication is found. The best comparandum therefore is the PIE root **uoid-* 'to know'.

In the following scheme I have recorded the distribution of the ablaut-vowels over the verbal paradigms, first giving the attested Hittite forms (the verb *au-^{i} / u-* 'to see', augmented by forms from *ištāp-^{i} / ištapp-* 'to plug up', *āk-^{i} / akk-* 'to die', *pai-^{i} / pi-* 'to give', *ārr-^{i} / arr-* 'to bathe' and *mēma-^{i} / mēmi-* 'to speak'), then an abstraction of these Hittite data, followed by the reconstructed PIE forms, exemplified by the Sanskrit paradigm of *ved-* 'to know'.

pres.		
1sg.	*u-uḫ-ḫi*	*CóC-ḫi*
2sg.	*a-ut-ti*	*CóC-ti*
3sg.	*iš-ta-a-pí*	*CóC-i*
1pl.	*ú-me-(e-)ni*	*CC-u̯éni*
2pl.	*uš-te-ni*	*CC-sténi*[274]
3pl.	*ú-u̯a-an-zi*	*CC-ánzi*

[274] See its own lemma for a treatment of the 2pl.-ending *-šten(i)*.

pret.				
1sg.	*u-uḫ-ḫu-un*	*CóC-ḫun*	**CóC-h_2e*	*véda*
2sg.	*a-uš-ta*	*CóC-ta*	**CóC-th_2e*	*véttha*
3sg.	*a-ak-ki-iš*	*CóC-s*	**CóC-e*[275]	*véda*
1pl.	*pí-u-en*	*CC-u̯én*	**CC-mé*	*vidmá*
2pl.	--	**CC-stén*	**CC-sV́ ?*[276]	*vidá*
3pl.	*pí-i-e-er*	*CC-ḗr*	**CC-ḗr*	*vidúh*
imp.				
1sg.	*ú-u̯a-al-lu*, *ú-u̯e$_5$-el-lu-ut*	*CC-(e)llu(t)*		
2sg.	*a-ú*, *iš-ta-a-pí*	*CóC(-i)*		
3sg.	*iš-ta-a-pu*	*CóC-u*		
2pl.	*pí-iš-te-en*	*CC-stén*		
3pl.	*ú-u̯a-an-du*	*CC-ándu*		
part.	*ú-u̯a-an-t-*	*CC-ant-*		
v.n.	*ú-u̯a-tar*[277]	*CC-ā́tar*		
v.n.	gen.sg. *a-ar-ru-u̯a-aš*	*CóC-u̯ar*		
inf.I	*me-mi-u̯a-an-zi*	*CC-u̯ánzi*		
inf.II	*ú-u̯a-an-na*	*CC-ā́nna*		
impf.	*ú-uš-ke/a-*	*CC-ské/á-*		

IIb = non-ablauting *ḫi*-verbs

2.2.2.2.j The only verbs that belong to this class are on the one hand verbs of which it is clear that originally they showed ablaut but that one of the stems has spread throughout the paradigm:

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[275] The form **CóC-e* is still visible in 3sg.pres.act. *CóC-i* < **CóC-e-i*. For a treatment of the 3sg.pret.act.-ending *-š* (**CóC-s*), see its own lemma.

[276] Usually, this ending is reconstructed as **-é* on the basis of Skt. *-á*. See the lemma *-šten(i)* as well as Kloekhorst fthc.d, however, for the possibility that Hitt. *-šteni* together with the PToch. 2pl.pret.-ending **-sə* points to a PIE ending with an element *-s-*.

[277] Note that the spelling *ú-u̯a-tar* phonologically stands for /ʔuā́dr/ < **Hu-ó-tr*, which contrasts with the spelling *u̯a(-a)-tar* 'water' that denotes /uā́dr/ < **uódr* without initial glottal stop.

ānš-^{i} ‘to wipe’ originally belonged to an ablauting verb *ānš-*^{i} / *ḫane/išš-* < **h₂omh₁s-* / **h₂mh₁s-*. Both stems formed their own paradigm: *ānš-*^{i} and *ḫane/išš-*^{zi}.

ḫārš-^{i} ‘to till the soil’ originally belonged to an ablauting verb *ḫārš-*^{i} / ***ḫare/išš-* < **h₂órh₃-s-* / **h₂rh₃-s-*. After the initial *ḫ-* of the weak stem spread to the strong stem (which regularly should have yielded ***ārš-*^{i}), the stem *ḫārš-* was generalized.

šāḫ-^{i} ‘to stuff up’ reflects **soh₂-* / **sh₂-*. Here the strong stem **soh₂-* > *šāḫ-* was generalized because the weak stem **sh₂-* phonetically yielded ***išḫ-*, which was too aberrant.

u̯āš-^{i} ‘to buy’ is only attested with strong stem forms, so its weak stem cannot be determined. It reflects **uos-* / **us-*, the weak stem of which should regularly have yielded ***uš-* as attested in *ušniu̯e/a-*^{zi} ‘to put up for sale’. Within the paradigm *u̯āš-* / ***uš-* it is likely that the latter stem was eliminated and replaced by *u̯āš-*, or that it received an anaptyctic vowel, resulting in *u̯aš-* (cf. *u̯ašše/a-*^{zi} for a similar scenario).

u̯eu̯akk-^{i} ‘to demand’ goes back to **ue-uoḱ-* / **ue-uḱ-*. Here, too, the strong stem was generalized because the weak stem **ue-uḱ-* phonetically yielded ***u̯ūk-*, which was too aberrant.

On the other hand, this class consists of the factitives in *-aḫḫ-*^{i} (see at its own lemma for a treatment of this suffix):

alu̯anzaḫḫ-^{i} ‘to bewitch’; ***arau̯aḫḫ-***^{i} ‘to make free’; ***armaḫḫ-***^{i} ‘to make pregnant’; ***ēšḫaru̯aḫḫ-***^{i} ‘to make blood-red’; ***ḫaḫlaḫḫ-***^{i} ‘to make yellow(green)’; ***ḫantezziu̯aḫḫ-***^{i} ‘to make foremost’; ***ḫappinaḫḫ-***^{i} ‘to enrich’; ***ḫattaḫḫ-***^{i} ‘to instruct’; ***ikunaḫḫ-***^{i} ‘to make cold’; ***in(n)araḫḫ-***^{i} ‘to make strong’; ***innarauu̯aḫḫ-***^{i} ‘to make strong’; ***išḫaššaru̯aḫḫ-***^{i} ‘to make lordly’; ***išḫiulaḫḫ-***^{i} ‘to bind by treaty’; ***idālau̯aḫḫ-***^{i} ‘to treat badly’; ***kallaraḫḫ-***^{i} ‘to make inauspicious’; ***kappilaḫḫ-***^{i} ‘to get in a fight’; ***kardimiu̯aḫḫ-***^{i} ‘to make angry’; ***katteraḫḫ-***^{i} ‘to lower’; ***kunnaḫḫ-***^{i} ‘to set aright’; ***kūruriu̯aḫḫ-***^{i} ‘to wage war on’; ***kutruu̯aḫḫ-***^{i} ‘to summon as witness’; ***lazziu̯aḫḫ-***^{i} ‘to make right’; ***leliu̯aḫḫ-***^{i} ‘to make haste’; ***lūriu̯aḫḫ-***^{i} ‘to humiliate’; ***mau̯antaḫḫ-***^{i} ‘to rejuvenate’; ***maniu̯aḫḫ-***^{i} ‘to distribute’; ***man(n)i(n)kuu̯aḫḫ-***^{i} ‘to approach’; ***manikuu̯andaḫḫ-***^{i} ‘to make short’; ***markištaḫḫ-***^{i} ‘to take someone by surprise(?)’; ***marlaḫḫ-***^{i} ‘to make foolish(?)’; ***maršaḫḫ-***^{i} ‘to desecrate’; ***meḫuu̯andaḫḫ-***^{i}; ***miu̯aḫuu̯antaḫḫ-***^{i} ‘to make old’; ***mišriu̯aḫḫ-***^{i} ‘to make *mišriu̯ant-*’; ***nakkiu̯aḫḫ-***^{i} ‘to become a concern to someone’; ***neknaḫḫ-***^{i} ‘to regard someone as a brother’; ***nēu̯aḫḫ-***^{i} ‘to renew’; ***palšiu̯aḫḫ-***^{i}

'to set on the road'; ***papraḫḫ-***^{i} 'to defile'; ***pararaḫḫ-***^{i} 'to chase'; ***pedaššaḫḫ-***^{i} 'to install'; ***šakiḭaḫḫ-***^{i} 'to give a sign'; ***šallakartaḫḫ-***^{i} 'to offend someone through arrogance'; ***šannapilaḫḫ-***^{i} 'to empty'; ***šanezziḭaḫḫ-***^{i} 'to make pleasant'; ***šarāzziḭaḫḫ-***^{i} 'to make win'; ***šumumaḫḫ-***^{i} 'to braid together(?)'; ***šuppiḭaḫḫ-***^{i} 'to purify'; ***dankuu̯aḫḫ-***^{i} 'to make black'; ***taruppaḫḫ-***^{i} '?'; ***taruppiḭaḫḫ-***^{i} '?'; ***dašuu̯aḫḫ-***^{i} 'to make blind'; ***tatraḫḫ-***^{i} 'to incite'; ***tepau̯aḫḫ-***^{i} 'to make little'; ***u̯(a)lkiššaraḫḫ-***^{i} 'to make perfectly'; ***u̯aštaḫḫ-***^{i} 'to sin'; ***u̯ātarnaḫḫ-***^{i} 'to order; to instruct'.

2.2.3 The middle verbs

It is commonly known that two separate endings can be used to express the 3sg.pres.midd.-form, namely *-tta(ri)* and *-a(ri)*. Although synchronically they do not express any difference in meaning, a given verb in principle always uses the same ending. It must be noted that in many verbs that originally use the ending *-a(ri)*, in younger texts the ending *-tta(ri)* is also used. Of the few verbs that are attested with both *-a(ri)* and *-tta(ri)* and of which too little forms are found to set up a chronological overview of attestations, we may therefore assume that *-a(ri)* is the original ending.

In the literature we sometimes come across the habit to interpret the ending *-tta(ri)* as "*mi*-conjugated" and *-a(ri)* as "*ḫi*-conjugated". This should be abandoned, however: the choice of a verb to use either *-tta(ri)* or *-a(ri)* has nothing to do with the inflection that it uses in active forms (cf. also their respective lemmas).

Although synchronically no difference in meaning between *-tta(ri)* and *-a(ri)* can be determined, it is remarkable that the impersonal verbs of the type *tukkāri* 'is visible, is important' (IIIf) all use the ending *-āri*. This fits in well with the fact that Kortlandt (1981: 126-7) on the basis of the distribution of the Sanskrit endings *-e* and *-te* assumes a semantic diffirence between these endings, namely **-o* = 'deponent' and **-to* = 'transitive'.[278] It is therefore important to distinguish between the use of the ending *-a(ri)* and *-tta(ri)* when classifying the middle verbs. Another criterion is whether or not the verbal root originally showed full grade or zero grade. Furthermore, the impersonally used middles show some

[278] See also Oettinger 1976b, who states that the ending **-o* originally belonged to 'statives' and the ending **-to* to 'middles'. Falsely e.g. Jasanoff (2003: 51), who merely sees "**-to(r)* as a modernized form of **-o(r)*".

remarkable formal features, on the basis of which they must have had a special position.

Taking into account all these criteria, I arrive at the following six basic categories: (a) middle verbs of the structure **CéC-o*; (b) middle verbs of the structure **CéC-to*; (c) middle verbs of the structure **CC-ó*; (d) middle verbs of the structure *CC-tó*; (e) impersonally used middle verbs of the structure **CéC-o*; (f) impersonally used middle verbs of the structure **CC-ó*. To these must be added (g) middle verbs in *-i̯e/a-$^{tta(ri)}$* and (h) middle verbs of other structures, which are probably from secondary origins.

In order to explain the formal peculiarities of the first six categoreis, their prehistory may be envisaged thus:

(1) Original situation.
(2) Addition of **-r* (e.g. out of 3pl.-ending).
(3) Phonetic loss of word-final **-r* after an unaccented vowel.
(4) Addition of the presential *-i* as an optional marker for present tense, in analogy to the active verbs. Because the impersonals are not used as a fully inflected verb, here the *-i* was not added.
(5) The element *-ri* is reinterpreted as the new middle marker, replacing *-i*
(6) Phonetic developments: unaccented **o* > *a* (§ 1.4.9.3.c); accented **ó* > /á/ in internal syllables (§ 1.4.9.3.a), but > /á/ in initial and final syllables (§ 1.4.9.3).
(7) Spread of the ending *-a(ri)* and *-tta(ri)*. The presential marker *-i* is transferred to the impersonals ending in *-ār* as well. Result: situation as attested.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(a)	**CéC-o*	**CéC-or*	**CéC-o*	**CéC-o(i)*	**CéCo(ri)*	**CeCa(ri)*	*CeCa(ri)*
(b)	**CéC-to*	**CéC-tor*	**CéC-to*	**CéC-to(i)*	**CéCto(ri)*	**CeCta(ri)*	*CeCta(ri)*
(c)	**CC-ó*	**CC-ór*	**CC-ór*	**CC-ór(i)*	**CCóri*	**CCari*	*CCa(ri)*
(d)	**CC-tó*	**CC-tór*	**CC-tór*	**CC-tór(i)*	**CCtóri*	**CCtari*	*CCta(ri)*
(e)	**CéC-o*	**CéC-or*	**CéC-o*	**CéC-o*	**CéCo*	**CeCa*	*CeCa*
(f)	**CC-ó*	**CC-ór*	**CC-ór*	**CC-ór*	**CCór*	**CCār*	*CCāri*

IIIa middle verbs of the structure **CéC-o*

2.2.3.1 ***ā(i)-$^{a(ri)}$*** 'to be hot' < **$h_1$éh$_3$i-o*? (>> *a̯i-$^{tta(ri)}$* (NH)); ***eš-$^{a(ri)}$*** 'to sit down' < **$h_1$éh$_1$s-o* (>> *eš-$^{tta(ri)}$* (NH)); ***ḫapp-$^{a(ri)}$*** 'to work out' < **$h_2$ép-o* (>> *ḫapp-$^{tta(ri)}$* (MH)); ***ḫatt-***

$^{a(ri)}$ ‘to pierce, to prick’ < *$h_2$ét-o (>> ḫazziḭe/a-$^{tta(ri)}$ (NH)); **ḫuetti-$^{a(ri)}$** ‘to draw, to pull’ (>> ḫuettiḭe/a-$^{tta(ri)}$); **kīš-$^{a(ri)}$ / kiš-** ‘to happen, to occur’ < *ǵéis-o; ***kikkiš-$^{a(ri)}$** ‘to happen, to occur’ < *ǵéis-o (>> kikkiš-$^{tta(ri)}$ (NH)); **nē-$^{a(ri)}$** ‘to turn’ < *néih$_{1/3}$-o; **paḫš-$^{a(ri)}$** ‘to protect’ < *péh$_2$s-o (>> paḫš-$^{tta(ri)}$ (NH)); **park-$^{tta(ri)}$** ‘to rise’ (>> parkiḭe/a-$^{tta(ri)}$); **šalīk-$^{a(ri)}$** ‘to touch’ if from *sléi$^{(ʿ)}$ǵ-o; **u̯eḫ-$^{a(ri)}$** ‘to turn oneself’ < *uéih$_2$-o (>> u̯eḫ-$^{tta(ri)}$ and u̯eḫa-$^{tta(ri)}$ (MH)); **zē-$^{a(ri)}$** ‘to cook (intr.)’ < *tiéh$_1$-o.

IIIb middle verbs of the structure *CéC-to

2.2.3.2 **ḫarp-$^{tta(ri)}$** ‘to change allegiance’ < *$h_3$érb^{ʰ}-to; **ḫuett-$^{tta(ri)}$** ‘to draw, to pull’ < *$h_2$uéTH-(t)o (>> ḫuettiḭe/a-$^{a(ri)}$ (OH)); **ki-$^{tta(ri)}$** ‘to lie’ < *ḱéi-to; **lukk-^{tta}** ‘to get light’ < *léuk-to (>> lukka-^{tta} ?(OH)); **u̯arš-$^{tta(ri)}$** ‘to lift oneself’; **u̯ešš-^{tta}** ‘to be dressed’ < *ués-to (>> u̯aššiḭe/a-$^{tta(ri)}$ (NH)).

IIIc middle verbs of the structure *CC-ó

2.2.3.3 **ark-$^{a(ri)}$** ‘to mount, to copulate’ < *h_3rǵ^{ʰ}-ó (>> ark-$^{tta(ri)}$ (MH)); **ḫalzi-$^{a(ri)}$** ‘to cry out’ < *$h_2$lt-i-ó (>>ḫalziḭe/a-$^{tta(ri)}$ (NH)); **parši-$^{a(ri)}$ / parš-$^{a(ri)}$** ‘to break’ < *$b^{ʰ}$rs(-i)-ó (>> paršiḭe/a-$^{tta(ri)}$ (NH)); **tuḫš-$^{a(ri)}$** ‘to (be) cut off’.

IIId middle verbs of the structure *CC-tó

2.2.3.4 **ar-$^{tta(ri)}$** ‘to stand’ < *h_3r-tó; **karp-$^{tta(ri)}$** ‘to be angry’ < *ḱrp-tó (?) (>> karpiḭe/a- (NH)); **tarupp-$^{tta(ri)}$** ‘to collect oneself’ < *trup-tó.

IIIc/d middle verbs whose original structure (*CC-ó or *CC-tó) cannot be determined

2.2.3.5 **pukk-$^{(tt)a(ri)}$** ‘to be hateful’; **šar-$^{(tt)a(ri)}$** ‘to embroider’< *sr-(t)ó; **šupp-$^{(tt)a(ri)}$** ‘to sleep’ < *sup-(t)ó.

IIIe impersonally used middle verbs of the structure *CéC-o

2.2.3.6 **tiṭḫ-$^{a(ri)}$** ‘to thunder’ (preform unclear).

IIIf impersonally used middle verbs of the structure *CC-ó

2.2.3.7 **ištu-^{āri}** ‘to be exposed’ < *stu-ór-i; **kišt-^{āri}** ‘to perish’ < *ǵ$^{(ʿ}$ǵ$^{ʰ)}$sd-ór-i; **lag-^{āri}** ‘to fall’ < *lg^{ʰ}-ór-i; **mi-^{āri}** ‘to be born’ < *mh$_2$i-ór-i (?); **tukk-^{āri}** ‘to be visible’ < *tuk-ór-i; **ur-^{āri}** ‘to burn’ < *urh$_1$-ór-i; **u̯akk-^{āri}** ‘to be lacking’ < *uh$_2$g-ór-i.

IIIg middle verbs in *-i̯e/a-*$^{tta(ri)}$

2.2.3.8 ***āššii̯e/a-***$^{tta(ri)}$ ‘to be loved’; ***armanii̯e/a-***$^{tta(ri)}$ ‘to become ill’; ***armalii̯e/a-***$^{tta(ri)}$ ‘to become ill’; ***ḫallii̯e/a-***$^{a(ri)}$ ‘to kneel down’; ***ḫandae-***$^{tta(ri)}$ < **ḫandai̯e/a-* ‘to get fixed’; ****ḫaššuezzii̯e/a-***$^{tta(ri)}$ ‘to become king’; ***i̯e/a-***$^{tta(ri)}$ ‘to go’; ***imii̯e/a-***$^{tta(ri)}$ ‘to mingle’; ***išḫaḫruu̯e/a-***$^{tta(ri)}$ < **išḫaḫruii̯e/a-* ‘to weep’; ***karii̯e/a-***$^{(tt)a(ri)}$ ‘to be gracious towards’; ***karpii̯e/a-***$^{tta(ri)}$ ‘to be angry’; ***kardimii̯e/a-***$^{tta(ri)}$ ‘to be angry’; ***kištanzii̯e/a-***$^{tta(ri)}$ ‘to suffer famine’; ***lāzzii̯e/a-***$^{tta(ri)}$ ‘to be good’; ***lelanii̯e/a-***$^{tta(ri)}$ ‘to infuriate’; ***marrii̯e/a-***$^{tta(ri)}$ ‘to melt down’; ***naḫšarii̯e/a-***$^{tta(ri)}$ ‘to show respect’; ***pangarii̯e/a-***$^{(tt)a(ri)}$ ‘to become widespread’; ***šallii̯e/a-***$^{tta(ri)}$ ‘to melt down’; ***šarrii̯e/a-***$^{tta(ri)}$ ‘to be divided’; ***u̯ešii̯e/a-***$^{tta(ri)}$ ‘to pasture’; ***u̯išurii̯e/a-***$^{tta(ri)}$ to suffocate’.

IIIh other middle verbs

2.2.3.9 This group consists of the middle verbs that cannot be classified as belonging to one of the classes described above (sometimes beacuse the etymology is unknown). Note that these also include verbs like *ḫanna-*$^{a(ri)}$, *marra-*$^{tta(ri)}$ and *tarra-*$^{tta(ri)}$, which are sometimes called ‘thematic’. In my view, it is possible that in these verbs the *-a* of the 3sg.pres.midd.-ending has spread throughout the paradigm (cf. e.g. at *tarra-*$^{tta(ri)}$ for an elaboration of this idea).

āšš-$^{a(ri)}$ ‘to be loved’; ***ḫai(n)k-***$^{tta(ri)}$, ***ḫink-***$^{a(ri)}$ ‘to bow’; ***ḫanna-***$^{a(ri)}$ ‘to sue’; ***ḫinik-***$^{tta(ri)}$ ‘to pour(?)’; ***marra-***$^{tta(ri)}$ ‘to melt down’; ***šalla-***$^{tta(ri)}$ ‘to melt down’; ***šarra-***$^{tta(ri)}$ ‘to be divided’; ***šuppiaḫḫ-***$^{a(ri)}$ ‘to purify’; ***damiummaḫḫ-***$^{tta(ri)}$ ‘to change’; ***tarra-***$^{tta(ri)}$ ‘to be able’.

2.2.4 Excursus: The Prehistory of the Nasal-infixed verbs

In Hittite, we find a number of verbs that can be regarded as containing a nasal infix. Although most of these verbs inflect according to the *mi*-conjugation, there are a few *ḫi*-inflected nasal infixed verbs: *ḫamank-*^{i} / *ḫame/ink-* ‘to tie’, *šanna-*^{i} / *šann-* ‘to hide’, *šunna-*^{i} / *šunn-* ‘to fill’ and *tarna-*^{i} / *tarn-* ‘to let (go)’. Because I do not see how these *ḫi*-verbs could have been created secondarily (there is no model in analogy to which they could have been formed), we must assume that they are archaic.

Within the group of Hittite nasal infixed verbs we must distinguish three types:
(1) Verbs with an infix *-ni(n)-*: ***ḫarnikzi* / *ḫarninkanzi*** 'to make disappear' from **$h_3$erg-*; ***ḫunikzi / ḫuninkanzi*** 'to bash' from **$h_2$ueg$^{(h)}$-*; ***ištarnikzi / ištarninkanzi*** 'to afflict' from **sterḱ-*; ***ninikzi / nininkanzi*** 'to mobilize' from **neik-*; and ***šarnikzi / šarninkanzi*** 'to compensate' from **serḱ-*.
(2) Verbs with an infix *-Vn-*: ***ḫamanki / ḫame/inkanzi*** 'to tie' from **$h_2$emǵ^h-* and ***tamekzi / tame/inkanzi*** 'to attach' from **temk-*.
(3) Verbs with an infix *-nV-*:[279] ***aršanezzi / aršananzi*** 'to be envious' from **$h_{1/3}$ersh$_1$-* or **$h_{1/3}$resh$_1$-*; ****ḫarnazi / ḫarnanzi*** 'to sprinkle' from **$h_2$erh$_{2/3}$-* or **$h_2$reh$_{2/3}$-*; ***ḫullezi / ḫullanzi*** 'to smash' from **$h_2$uelh$_1$-*; ***kinae-^{zi}*** 'to (as)sort' from **kieh$_2$-*, ***munnae-^{zi}*** 'to hide' from **meuh$_{2/3}$-*, ***šannai / šannanzi*** 'to hide' from **senh$_1$-*; ***šunnai / šunnanzi*** 'to fill' from *seuh$_{1/3}$-*; ***tarnai / tarnanzi*** 'to let (go)' from **ter(ḱ)h$_{1/3}$-*; ***duu̯arnizzi / duu̯arnanzi*** 'to break' from **d^{h}uerh$_1$-*; and ***zinnizzi / zinnanzi*** 'to finish' from **tieh$_1$-*.

It should be noted that the verbs of type (1) and (2) show the development **e/inCC* > Hitt. *e/iCC* (whereas the *-n-* is preserved in *e/inCV*), which is also known from e.g. *likzi / linkanzi* < **$h_1$leng^h-* (see also § 1.4.7.2.b). This means that e.g. *ḫarnikzi* goes back to **ḫarninkzi*, *ḫunikzi* < **ḫuninkzi*, and, in type (2), *tamekzi* < **tamenkzi*.

On the basis of the nasal infixed verbs as attested in the other IE languages, the classical view is that the PIE nasal presents inflected according to the structure **CR-né-C-ti / *CR-n-C-énti* (e.g. Skt. *bhinátti / bhindánti* < **b^{h}i-né-d-ti / *b^{h}i-n-d-énti* from the root **b^{h}eid-*). Indeed, this structure seems to underly the Hittite type (3), e.g. *duu̯arnizzi / duu̯arnanzi* < **d^{h}ur-né-h$_1$-ti / *d^{h}ur-n-h$_1$-énti* and *šannai / šannanzi* < **sn-nó-h$_1$-ei / *sn-n-h$_1$-énti*.

The other two types, are less clear regarding their interpretation, however. Type (1) seems to reflect a structure **CR-nV́n-C-ti / *CR-nVn-C-énti*. Despite attempts by several scholars to derive this type out of the classical model, I know of no convincing solution for this type. Type (2) seems to reflect the structures **CR-én-C-ti / *CR-n-C-énti* and **CR-ón-C-ei / *CR-n-C-énti*, respectively. To my knowledge, no attempts have been made to explain this type.

In my view, the three types cannot be treated without reference to each other. Moreover, it is significant that each type of nasal infix corresponds to a specific

[279] The verbs *kinae-^{zi}* < **ki-né-h$_2$-ti / *ki-n-h$_2$-énti* and *munnae-^{zi}* < **mu-né-h$_{2/3}$-ti / *mu-n-h$_{2/3}$-énti* form their own sub-category. See at their lemmas for further treatment.

type of verbal root: type (1), *-nin-*, is formed of roots of the structure **CeRK-* and **CReK-* in which $R \neq$ *-m-* and K = any velar; type (2), *-Vn-*, is formed of roots of the structure **CemK-*; and type (3), *-nV-*, is formed of roots that end in a laryngeal. This is an important establishment when treating the prehistory of the Hittite nasal infixed verbs.

Typologically speaking, infixation is a very rare phenomenon and always the result of epenthesis. It is therefore attractive to assume that the nasal infix as attested in the IE languages derives from an earlier *n*-suffix.[280] In view of the athematic *i*-presents **tḱ-éi-ti / *tḱ-i-énti* and **$d^{h}h_{1}$-ói-e / *$d^{h}h_{1}$-i-ḗr* or the original form of the *s*-presents, **CC-és-ti / *CC-s-énti*,[281] it is likely that in (pre-)PIE, the structure of the *n*-suffixed verbs was **CRC-én-ti / *CRC-n-énti* and **CRC-ón-e / *CRC-n-ḗr*, respectively. In order to derive from these structures the structures as attested in Hittite and the other IE languages, we can envisage the following scenario (exemplified by the roots **h_{3}erg-*, **temk-* and **d^{h}uerh_{1}-*).

(1) Original situation:

**h_{3}rg-én-ti*, **h_{3}rg-n-énti* **tmk-én-ti*, **tmk-n-énti* **tih$_{1}$-én-ti*, *tih$_{1}$-n-énti*

(2) In the forms with **CRC-n-* *n*-epenthesis occurs: the stops preceding *-n-* become prenasalized[282]:

**h_{3}rgénti*, **$h_{3}r^{n}$gnénti* **tmkénti*, **tm^{n}knénti* **tih$_{1}$énti*, **ti$^{n}h_{1}$nénti*

(3) The prenasalized stop of the plural spreads throughout the paradigm:

**$h_{3}r^{n}$génti*, **$h_{3}r^{n}$gnénti* **tm^{n}kénti*, **tm^{n}knénti* **ti$^{n}h_{1}$énti*, **ti$^{n}h_{1}$nénti*

(4) The cluster **-^{n}Cn-* is simplified to *-nC-*:

**$h_{3}r^{n}$génti*, **h_{3}rngénti* **tm^{n}kénti*, **tmnkénti* **ti$^{n}h_{1}$énti*, **tinh$_{1}$énti*

(5) Under pressure of the plural forms, which seem to contain a root **CRnC-*, the singular stem **CR^{n}Cen-* metathesizes to **CRne^{n}C-*:

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[280] Cf. Thurneysen 1883: 301-2.

[281] Cf. Pedersen 1921: 26.

[282] Cf. Thurneysen 1883 for the Latin phenomena that can be explained by prenasalization (the mediae found in Lat. *pandō* < **peth$_{2}$-*, *pingō* < **peiḱ-*, *ē-mungō* < **meuk-*, *mandō* < **meth$_{2}$-*, etc.), and cf. Kortlandt 1979: 61 for prenasalization in e.g. the BSl. stem **undn-* 'water' < **ud-n-*.

$h_3rné^{n}gti$, *$h_3rngénti$* *tmné^{n}kti*, *tmnkénti* *tiné$^{n}h_1ti$*, *$tinh_1énti$*

At this stage, the Anatolian branch splits off from Proto-Indo-European. In the latter group only one further development takes place:

(6a) The nasalized consonants lose their nasalization, which leads to the classical model **CR-né-C-ti / *CR-n-C-énti*:

$h_3rnégti$, *$h_3rngénti$* *tmnékti*, *tmnkénti* *$tinéh_1ti$*, *$tinh_1énti$*

In Anatolian, the following developments take place:

(6b) The laryngeals lose their nasalization, and the cluster **Cmne-* is assimilated to **Cme-*:

$h_3rné^{n}gti$, *$h_3rngénti$* *tmé^{n}kti*, *tmnkénti* *$tinéh_1ti$*, *$tinh_1énti$*

(7) The nasalization of the velars develops into a real nasal consonant:

$h_3rnéngti$, *$h_3rngénti$* *tménkti*, *tmnkénti* *$tinéh_1ti$*, *$tinh_1énti$*

(8) On the basis of the full grade stem **CRnenK-* in type (1), the zero grade stem **CRnK-* is altered to **CRnnK-*

$h_3rnéngti$, *$h_3rnngénti$* *tménkti*, *tmnkénti* *$tinéh_1ti$*, *$tinh_1énti$*

(9) In the sequence **CNNC* an anaptyctic /i/ develops:

$h_3rnéngti$, *$h_3rningénti$* *tménkti*, *tminkénti* *$tinéh_1ti$*, *$tinh_1énti$*

(10) **-nenK- > -ninK-*

$h_2rníngti$, *$h_2rningénti$* *tménkti*, *tminkénti* *$tinéh_1ti$*, *$tinh_1énti$*

(11) **e/inCC > *e/iCC*

ḫarnikzi, *ḫarninkanzi*	*tamekzi*, *tame/inkanzi*	*zinizzi*, *zinnanzi*
/Hrníkt^{s}i, Hrninkánt^{s}i/	/tmékt^{s}i, tminkánt^{s}i/	/t^{s}iNít^{s}i, t^{s}iNánt^{s}i/