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. ḫaṣṣā- ‘hearth’, ḫuḫḫa- ‘grandfather’, keššar-/kiššer-/kišr- ‘hand’, ḫtatt- ‘day’, tğaŋ / 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 I

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):

<table>
<thead>
<tr>
<th>Category</th>
<th>Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stops</td>
<td>p</td>
</tr>
<tr>
<td></td>
<td>t</td>
</tr>
<tr>
<td></td>
<td>k</td>
</tr>
<tr>
<td></td>
<td>k̂</td>
</tr>
<tr>
<td></td>
<td>b</td>
</tr>
<tr>
<td></td>
<td>d̂</td>
</tr>
<tr>
<td></td>
<td>ǵ</td>
</tr>
<tr>
<td></td>
<td>ǵ̂</td>
</tr>
<tr>
<td></td>
<td>ĝ</td>
</tr>
<tr>
<td></td>
<td>g̃</td>
</tr>
<tr>
<td>Fricatives</td>
<td>ŝ</td>
</tr>
<tr>
<td>Laryngeals</td>
<td>h₁</td>
</tr>
<tr>
<td></td>
<td>h₂</td>
</tr>
<tr>
<td></td>
<td>h₃</td>
</tr>
<tr>
<td>Liquids</td>
<td>l̂</td>
</tr>
<tr>
<td></td>
<td>r̂</td>
</tr>
<tr>
<td>Nasals</td>
<td>m̂</td>
</tr>
<tr>
<td></td>
<td>n̂</td>
</tr>
<tr>
<td>Semivowels</td>
<td>î</td>
</tr>
<tr>
<td></td>
<td>û</td>
</tr>
<tr>
<td>Vowels</td>
<td>ê</td>
</tr>
<tr>
<td></td>
<td>ô</td>
</tr>
</tbody>
</table>

11 Note that I do not reconstruct a PIE phoneme "œ" or "œ̂": all PIE forms for which some scholars reconstruct *œ or *œ̂ 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 *œ or *œ̂, but these are incorrect as well. (1) "*n̂₁s-" 'nose' must reflect *neh₂-s-, *neh₁-s-, *neh₂-s- (cf. Kortlandt 1985: 119). (2) "*k̂₁rh-" 'to proclamate' is based on Skt. k̂₁ṛ̥- 'singer' and k̂₁ṛ̥ 'fame'. The former may reflect *keh₂-r̥-, the latter *kṛh₂-d̃- with metathesis from *kṛh₂-d̃- (Schrijver 1991: 4). (3) "*h₁j̃ḡ-" 'to praise' is based on Gr. ἁγνός, ἁγνός 'holy' besides Skt. j̃ṛ̥ḍ- 'sacrifice'. The former two words reflect *ih₂ḡ- (cf. Beekes 1988c: 24-5) and the latter *eh₂ḡ- (with loss of laryngeal before media + consonant, cf. Lubotsky 1981: 135). (4) "*h̃₂gr̂̄p-" '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, *k, *k’) in fact were plain fortis stops [p, t, k, k’], the traditional ‘voiced’ series (*b, *d, *g, *g”) were lenis (pre-)glottalized stops [p, i, k, k”] and the traditional ‘aspirated voiced’ stops (*bʰ, *dʰ, *gʰ, *g”ˈ) were plain lenis stops [p, t, k, k”]. 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.\(^\text{12}\)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>stops fortis</td>
<td>p</td>
</tr>
<tr>
<td></td>
<td>b</td>
</tr>
<tr>
<td>fricative</td>
<td>s</td>
</tr>
</tbody>
</table>

based on “heth. *huapzi ‘schädigt’ (mit grundstufigem ə̆) besides PGerm. *stilaz ‘evil’. The cited form, *huapzi, is the NH secondary replacement of an original *š-conjugated form *huappp. Because all *š-verbs reflect *o- ablaut, the Hitt. stem *huappp- must reflect *u-oph-, with o-grade (cf. the lemmas *hanapp- / *happp-). (5) *kuaš- ‘to kiss’ is based on “heth. *kuazzi ‘kült’ mit grundstufigem ə̆” As I show under its lemma, the Hittite verb in fact is *kuazzi with geminate šš, which cannot be explained by a reconstruction *kuas-. I therefore reconstruct *kuas-, which would explain the vowel ə̆ as well as the geminate šš- by regular sound laws. Note that the nasal is visible in Gr. *cuvǎ ‘to kiss’ as well.

\(^{12}\) For the possibility of the existence of a PAnt. phoneme */t/ as well (thus Melchert 1994a: 53, 63), cf. footnote 196.

\(^{13}\) Melchert (1994a: 53, 63) works with PIE *[z] > PAnt. *[z] as well, a “voiced allophone of */š/”, giving e.g. “Hitt. *heššaśr ‘twigs, brush’ < (virtual) *he-š-š-r” as an example. Since I do not see any indication of voicedness as a distinctive feature in Proto-Indo-European, PaAnatolian or Hittite (see especially § 1.3.2 below), I will not follow him in this regard.
<table>
<thead>
<tr>
<th>‘laryngeals’</th>
<th>?</th>
<th>H</th>
<th>H&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>liquids</td>
<td>l</td>
<td>r</td>
<td></td>
</tr>
<tr>
<td>nasals</td>
<td>m</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>vowels</td>
<td>i, ī</td>
<td>u, ē</td>
<td></td>
</tr>
<tr>
<td></td>
<td>e, ē</td>
<td>o, ē</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a, ā</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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. *k > Luw. z, Lyc. s vs. *k > Luw. k, Lyc. k), and therefore must have been distinct in PAnatolian as well.

In Kloekhorst ft. 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 */l/ and */H/, which is valid for word-internal position as well. Moreover I have shown that because the Hittite phoneme /Hŋ/ < *h2u corresponds to the Lycian phoneme q = [kʷ] < *h2u it is likely that this phoneme, /Hŋ/, was PAnatolian already.

Because the old PIE laryngeal system collapses (*h₂ and *h₃ merge in *H- and *CRH’ to PAnat. */H/, *h₂ and *h₁ merge in all other position as PAnat. */l/), the allophonic colouring of pre-PAnat. *e due to adjacent *h₂ and *h₃ becomes phonemized, 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. Alalah). How exactly the practice of writing found its way from there to Hattuša 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

---


\(^{15}\) 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 [= altsyrischen]” 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 process 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, e.g. Ú-U/L ‘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-ud = nom.sg. šūš 'god'). To complicate matters, sumerograms sometimes could be extended by an Akkadian phonetic complement, e.g. DINGIR.LIM, 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 šūš '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. For instance, GIŠ ‘wood’ can be used with words that denote objects that are made of wood (e.g. GIŠ.ninijal- ‘cradle’), É ‘building’ can be used with words that denote buildings (e.g. É ksišṭā ‘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 hārMUŠEN ‘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; the Hittite reading of the sumerogram MUNUS ‘woman’ is disputed; we do not know the Hittite words for ḪUR.SAG ‘mountain’, GUŠKIN ‘gold’, KÜ.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).

---

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.du[t]-iški/s.-

22 See the discussion under the lemma *kuγar-.
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 /parHtʰi/ ‘he chases’ is spelled pár-ah-zi as well as pár-ḥa-zi. In this case, the alternation between pár-ah-zi and pár-ḥa-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 bā, whereas BA is used as ba as well as pā. Similarly, TA is used as ta as well as dā; DA as da as well as tā; TI as ti as well as dī; DI as dī as well as tī, 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-i-iš = /páis/ ‘he gave’; da-it-ti = ta-it-ti = /táiti/ ‘you place’; gi-mu-už-zı = ki-mu-už-zı = /kínūtʰi/ ‘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. dū ‘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 pēt, pēṭ or pēl only.
pointing to a phonemic opposition in voice, have failed. 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 ($V$-$C_1V$) vs. geminate spelling ($VC_1$$C_1V$). Sturtevant (1932a) was the first to describe this phenomenon and showed that from an etymological point of view the single spelled stops correspond to the PIE ‘voiced’ and ‘voiced aspirated’ series *$D$ and *$D'$, 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 $V$-$C_1V$ and stops that are spelled $VC_1$$C_1V$. 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 intervocally 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 $VC$-$C_1V$ (voiceless(?)) and those spelled $V$-$C_1V$].

---

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”.
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. *-Dh2-). 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 *kīita ‘he lies’ < *kījita < *kěito shows the ‘shortening’ of *ij in
a closed syllable,27 which shows that -tt- closes the syllable and therefore must be
regarded as phonetically long [tː].

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-š-ša ‘I become’ /kisHa/ < *kigsHa < *gēis₂H₃-o vs. ki-ša ‘he becomes’ /kisa/ < *kīpa < *gēis₂-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  *[-k”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:

<table>
<thead>
<tr>
<th>Fortis</th>
<th>/p/</th>
<th>/t/</th>
<th>/k/</th>
<th>/k”w/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lenis</td>
<td>/b/</td>
<td>/d/</td>
<td>/g/</td>
<td>/g”w/</td>
</tr>
</tbody>
</table>

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’. For instance, the fact that impf. $akku-uds-ke/a-$ ‘to drink’ shows a fortis /k”w/ whereas the basic verb has /g”w/ (ekut- / aku-) is due to fortition of /g”w/ to /k”w/ in front of /-ske/a-/ and not due to devoicing.

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  *$D$ / *$D”$, 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.  $ Suz$, 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 fortition for describing an original lenis stop that has become a fortis one (in analogy to lenition).

29 Contra e.g. Melchert 1994a: 92, who calls this phenomenon a “regressive voicing assimilation”.
Anatolian development. On the basis of reduplicated forms like *igitkiš- / kīš- `to happen, to become' < *geis-, it has been assumed that in Hittite the initial stops merged in the fortis series /p, t, k and kʷ/. 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. On the contrary, the stem hatug- `terrible', which probably reflects *htug-, shows lenition of PIE *t to Hitt. /d/ in the initial cluster *ht- 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 h-. 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 /kʷ/-.

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 enclitic 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 fortifying enclitic particle =ina ‘and’). It is moreover contradicted by the words takku /takʷ/ and nekku /nekʷ/ that show a fortis /kʷ/ in word-final position. When compared with 2sg.imp.act. e-ku /tēgʷ/ ‘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 /gʷ/ and /kʷ/ and not to /g/ and /k/. Moreover, a-ku-e-ni ‘we drink’ contrasts with ar-nu-me-ni ‘we transport’ which shows that the former is /gʷ/énü/ < *h₂gʷ-h-

---

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 Palaiac and Clawian, “an areal feature across Anatolia”.

31 Cf. melchert 1994a: 19.

32 It is for instance possible that kikiš- 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 kikiš- in fact represents /gikis-.

33 Which implies that we must assume that in forms like ḫappēšar ‘limb’ < *h₂p-ešt, šarmet- ‘clever’ < *h₂-š-ı̂nt-, or appani ‘they seize’ < *h₂p-eń, 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 *h₂sp-, *h₂el- and *h₂ep-.
gewi, whereas the latter is /tuméni/ < *h₁r-nu-gewi, where -uy- 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 -mun as visible in e.g. ar-mu-mu-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-ya-a-tar 'inspection' and ya-a-tar 'water', where the former reflects *Hu-uṭr and the latter *uódr. This means that ú-ya-a-tar represents ḫuâdr34 and ya-a-tar stands for ḫuâdr/. A word-initial glottal stop also clarifies the symmetry between ša-ša-an-zi 'they sleep' /ssánti/ < *ssenti and a-ša-an-zi 'they are' /sánti/ < *h₁sēnti.

OS spellings like ne-e-a 'turns' < *néi₁₂-o and hé-e-a-u-e-eš 'rains' < *h₂éih₂-eu- show that in the oldest period the glottal stop was still present in intervocalic position: /néa/ and /Héaues/. Younger spellings like ne-e-ja (MH/MS) and hé-e-ja-u-e-š=a (OS), which must represent /néa/ and /Héaues/ respectively, show that intervocalic glottal stop was lost in the late OH period.

---

34 Cf. Durm 1976: 109 for the observation that in the Akkadian texts written in Bogazköy the sign Ū could be used as 'u, i.e. with initial 'aleph = [ʔ].
In the position *CRh1V, 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 /priprāʾil < *pri-prh1-ōi-ei/.\(^{36}\) Note that if *h₁ would have been lost in this position, we would expect a spelling **pa-ri-ip-ra-a-i = */priprāi/.

### 1.3.4 Affricate

It is generally assumed that the consonant -z-\(^{37}\) must be phonetically interpreted as an affricate [ts],\(^{38}\) which for instance follows from the fact that the outcome of nom.sg.c. *-ent-š is spelled -an-za. To which extent this affricate [ts] 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 assimilation of *-t- in front of *-i-. Nevertheless, the outcome of *-ti- is not identical to the outcome of *-Ts₁-, as we can tell from the fact that 2sg.pres.act. *h₁édsi ‘you eat’ yields a form spelled in Hittite as e-ez-ši, whereas the 3sg.pres.act.-ending of -je/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 /tšedSū/,\(^{39}\) whereas the latter forms represent /-etši/ with a monophonic sound that I have rendered with the symbol /tš/ 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 /tš/. In cases where synchronically an analysis of t + s or d + s is obvious, I just write /tsl/ or /dsl/.\(^{40}\) Note that I also interpret the outcome of *-tt- or *-dt- as /-tst-/ and /-dst-/.

---

\(^{36}\) See under the lemma *pa-ra-i-\(^{2}\) / pa-ri- ‘to blow’ further treatment.

\(^{37}\) Spelled with the signs ZA, ZE/I, ŽE, ZU, AZ, E/IZ, UZ, GAZ, ZUL and ZUM, which in Akkadian are used for the emphatic š: šã, šé̂l, šé̂l, šú, šû, štt, šet, št, šš, ššl and šum respectively.

\(^{38}\) Cf. Kouwenberg (2003: 83) who states that Akk. “emphatic” š in fact was glottalized /šl/, which was realized as an affricate [ś]. Kimball’s suggestion (1999: 107) that “it is possible that ‘Z’ represents a voiced pre- or postconsonantal /šl/ resulting from voicing assimilation (e.g. za-ma-an-kur “beard” = [zmān]kur) (?) < IE *smōkur “beard” [...]” is entirely ad hoc: cf. cases where Hitt. ša-mV reflects etymological *smV*.

\(^{39}\) With /šl/ as visible in [e-ez-ša]-ši, cf. § 1.4.4.2.

\(^{40}\) E.g. hur-za-ke/a/ = /Hortske/a/-, which is the imperfective in -ške/a- or *hu-gart/ /hurst- (cf. the one spelling *hur-za-ša-ke/a/-, or *-za-ša = l-antsl/, which is a nom.sg.c. in -š of the suffix -ent- (cf. the spelling -an-za-ša l-antsl/ = an-ž = -(j)ša).
*h₁d-th₁é and e-ez-za-aš-ta /rėdsta/ 'he ate' < *h₁éd-t(o). This also makes it unnecessary to assume a variant /d'/ besides /t'/.

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'/ and lenis /d'/ fails to convince me.\(^{41}\)

1.3.5 Fricatives

I assume the following phonemic fricatives:

<table>
<thead>
<tr>
<th></th>
<th>Fortis</th>
<th>/H/</th>
<th>/H'</th>
<th>/S/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lenis</td>
<td>/h/</td>
<td>/h'</td>
<td>/s/</td>
<td></td>
</tr>
</tbody>
</table>

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'/- 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/\(^{42}\).

1.3.6 Resonants

The following resonants are in my view phonemic:

<table>
<thead>
<tr>
<th></th>
<th>Fortis</th>
<th>/R/</th>
<th>/L/</th>
<th>/N/</th>
<th>/M/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lenis</td>
<td>/r/</td>
<td>/l/</td>
<td>/n/</td>
<td>/m/</td>
<td></td>
</tr>
</tbody>
</table>

\(^{41}\) The only secure examples of assimilation of *d- in Hittite show an outcome š-: namely ḫḫu = *di-‘god’ < *dī-‘god’ and šḫart- ‘day’ < *dēgot-.

\(^{42}\) /H'/ is the regular outcome of PIE *h₂t-. On the basis of the fact that *-h₂t- yielded the Lycian monophoneme q – [k²], I conclude that /H'/ 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 \(\text{grS}^\text{zi}\) / arš- ‘to flow’. Here we find a distribution between the strong stem that is spelled a-ar-as- and the weak stem that is spelled ar-as- or ar-š\(^9\). As I have argued under its lemma, we expect that the strong stem reflects *h\(_r\)ers-, which suggests that the spelling a-ar-as\(^8\) phonologically must be interpreted as /\(\text{r}\text{arš}\)-, containing the vowel /a/\(^45\). This means, however, that the weak stem arš-, which must reflect *h\(_r\)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 [\(\partial\)] or [e] 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 /\(\partial\)/: so *CrC > Hit. /CaRC/, spelled CarC.

On the other hand, we could also envisage that these ‘vocalic’ resonants in fact were underlyingly still identical to their consontal counterparts, /l/, /n/, /m/ and /u/, 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 Hit. /CrC/, phonetically realized as [CaC] or [CrC], spelled CarC.

Problematic, however, is that the Hittite texts offer arguments for both options. For instance, the verb appat(a)rije/a\(_{z}\)i ‘to confiscate’, which is a derivative in -je/a- of the noun appqar ‘setting’, 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\(_r\)r-, *h\(_r\)r- or *h\(_r\)r-, the regular outcomes of which in Hittite were /\(\text{r}\text{r}\)-, /\(\text{H}\text{r}\)- and /\(\text{R}\text{r}\)-, spelled \(\text{ar}\)-, \(\text{har}\)- and \(\text{ar}\)-, 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 ‘a-ar-as’ with the sign A = ’a’.
ez-zi (OH/MS?), as well as ap-pář-ři-ja-az-zi (MH/NS). The first and last attestation seem to point to phonetic [ʔp:atrié̊lāt-], whereas the second points to phonetic [ʔp:atjé̊lā-] or [ʔp:atjje̊l-]. Phonemically, this verb must be interpreted as *pári̊l-āl-, which subsequently shows that the noun appá̊ar must represent *pâdr̥l, without a phonemic vowel /a/.

In § 2.2.2.2.f, I argue that the *hi-verbs that show a synchronic *̄i-ablaut, e.g. ga-ra-a-pi / ka-ri-ja-an-zi = *krá́bí / kribánt’íl, must ultimately go back to the normal *o/Ø-ablaut, in this case *g⁶há̊rh-ei / *g⁶rh-bh-énti. Because the phonetically regular outcome of these verbs, Hitt. CRǎCi / **CaRCanzi < *CróC-ei / *CRC-énti, shows a synchronic Schwebe-ablaut CRǎC- / CaRC-, the weak stem form was altered by inserting the epenthetic vowel /l/ on the place of the strong stem vowel: C Rpc- in analogy to *CRǎC-. 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 C Rpc-.

In word-initial position we encounter forms like *nsós > an-za-aʃ ‘us’ vs. *l̥g⁶t- > 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-aʃ. Quite obviously, the form la-ga-an-τ- has been influenced by full-grade forms like *l̥g̥e̊i > la-a-ki. This indicates that here we really should assume a phonemic vowel /a/, and subsequently interpret la-ga-an-t as *lågánt-l. A similar concept explains ya-al-ħa-an-zi, ya-al-ah-ħa-an-zi ‘they hit’ < *vəh₂-énti. In analogy to the strong stem *vəh₂-ti > Hitt. və̊alHté̊l, ya-al-ah-zi ‘he hits’, the weak stem, which should have regularly yielded /uHánt’íl, was changed to /uHánt’íl.

The vowel /a/ is also necessary for the interpretation of ku-ya-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’RCC yields Hitt. CuγaRCC (whereas *CuRCV or *K’RCV yields CuRCV). This means that ku-ya-aš-ke/a- reflects /kʰe̊skê/a- < *kʰe̊nskê/a-, the regular outcome of *g⁶b³n-skê̊/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 / aršanzí 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 /a/ (e.g. la-ga-an-t / *lågánt- << *l̥g̥t-, ma-ak-nu...
/mاغ-ئ/ < *مگ-ئ, یا-ال-یان-ز/ /ای-هامت/ < *یبه-هنتی and یا-یاش-ک/ا-ل< *گ-ئنکه/ل-. The vowel /y/ is rather marginal, however.

1.3.8 Semi-vowels

It is usually assumed that Hittite possessed two semi-vowels or glides, namely /ɣ/ 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 /NyV/ and /NwV/. So in these environments it is not useful to distinguish between /i/ and /ɣ/ 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-z/la-ak-nu-ya-an-z/ ‘they fell’ < *لگ-ئ-ئ-ئ-ئ is phonologically to be interpreted as /لاغناعت/ or /لاغنوات/ or even as /لاغنوات/ /لاغنوات/. The last option is impossible, since Hittite has a synchronic sound law that /-u/ yields -um/, so we must choose from /لاغناعت/ or /لاغنوات/. It is clear that this latter option is impossible as well, since we then would have expected a phonetic realization [لاغنوات] or [لاغنوات], spelled **لا-گا-ئ-ئ-ئ-ئ (vocalization of -n- in between consonants). So we must conclude that /لاغناعت/ is the only correct phonological interpretation. It is likely, however, that the sequence /CuC/ was phonetically realized with a glide [ɣ], so [CuɣC], but we must keep in mind that this glide did not have a phonemic status.

The case of ap-pa-at-ri-ez-z/ is similar: should we analyze this as /پادریئ-ئ/ or /پادریئ-ئ/ or /پادریئ-ئ/? Although in principle the last option cannot be disproven (there are no indications that a sequence -ی-ئ would undergo a

---

46 One could argue that this rule has ceased to operate at the time that /لاغنوات/ has become the phonemic form, but this is incorrect: the development "یام/ > یام is synchronically still operative as can be seen from e.g. یامی "we see". This form is a MH creation that replaced OH یمن: if at that time the development یام/ > یام had ceased to operate, the secondary form یام + یمن should have yielded *یامی.
phonetic change), it is inevitable that here as well we should choose for the
analysis /lpadriét/í/. 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 -yar, which forms verbal nouns, always has the form -yar,
no matter if a consonant or a vowel precedes. Under its lemma, we will see that
-yar reflects *-ur, however. The idea is that on the basis of postvocalic positions,
e.g. *-jē-ur or *-skē-ur, the variant *-ur was generalized, also when following a
consonant, e.g. ħinkuṣar. The question now is, does this form synchronically
represent /Hínkwr/, or should we analyse it as /Hínku/? 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 yalh₂*-i: ‘to hit’. As we will see
under its lemma, this verb must have undergone some levelling. The PIE
paradigm *uēlh₁-ti, *ulh₁-entí should regularly have yielded *ualzi, *ullanzi, which is quite different from the attested forms: ya-ah-zì, ya-ah-ḥa-an-zì. In
order to explain these forms, we should assume the following scenario: (1)
prevocalic *u is phonemicized as /w/: *uēlh₁-ti > *yēlh₁-tì; (2) *y spreads over
the paradigm, replacing *ulh₁entí by *ylh₁entí; (3) at the moment that
interconsonantal laryngeals drop, *h₁ is restored in *yēlh₁-tì in analogy of
*ylh₁entí, where it was retained; (4) *yēlh₁-tì, *ylh₁entí yields Hitt. ya-ah-zì,
ya-ah-ḥa-an-zì. 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. ya-ah-ḥa-an-zì < *ylh₁entí is
to be phonologically interpreted as /wlHántɭ/ì, we should certainly assume a
separate phoneme /w/, because /ulHántɭ/ì would have been spelled **ul-ḥa-an-
zì.47 If however, ya-ah-ḥa-an-zì is to be phonologically interpreted as /ulHántɭ/ì,
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 ū-ra-a-ni ‘burns’. As we will see under its
lemma, this form reflects *urh₁-óri, and I therefore phonologically interpret ū-ra-
a-ni as /urʔān!/ From MH times onwards, this form is spelled ya-ra-a-ni,

47 At least in OS texts, cf. the regular development of OH ū-ra-a-ni ḫurʔān! > MH/NH ya-ra-a-ni = ḫurʔān! ‘burns’.
however. Does this form represent /wrʔâni/, with a real /w/, or should we assume /uɾʔâni/, 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 /uʔR/, 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 /i/ and /w/ on the one hand and the real vowels /i/ and /u/ on the other. 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 */VuC/ > /VuC/. For instance: */ʔau-l + l-ueni/ > */ʔauueni/ > */ʔaumeni/*.48

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, e.g. /parHtū/ ‘he chases’ which is spelled pâr-gh-zi as well as pâr-hg-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

---

48 A special case is the verb tar(k)in-² ‘to dance’. As I will show under its lemma, this verb reflects *terk*- of which the buccal part of *k* is lost in the cluster *rk*C (compare e.g. ḫarzi ‘he has’ < *hérk*-). So *térki*- > Hitt. tar-u-zi and, more importantly, impf. *trk’skē-< > OH ʔər-ru-tš-ke-< > NH tar-ur-iz-ke-<. Does the NH form tar-ur-iz-ke-< have to be interpreted as /trwskē-</ and therefore OH tar-ur-iz-ke-< as /trwskē-< and tar-ur-iz- as /hārw-<? Or can we assume that in NH tar-ur-iz-ke-< the NH suffix-variant /iskē-< has been secondarily introduced and that OH tar-ur-iz-ke-< can be interpreted as /trwskē-< and tar-ur-iz- as /hārw-<?

49 Which incidentally shows that */VuV/ yields */VuV/, and not */VuV/.

50 Except clusters that include labiovelars or the phoneme /H*: e.g. ku-râ-ar-zi ‘they cut’ = kʰrânt-, tar-ḫâ-uz-zi ‘he conquers’ = /hârHʰt̚u/.
be informative to look at spellings of Hittite words in other languages. For instance, in the Old Assyrian texts from Kültepe (Neša / Kaniš), we find the Hittite word *išparuzzi- ‘rafter, roof batten’ attested as *išpuruzzininum, which points to a pronunciation [ispru'ti-], just as we would expect on the basis of its etymology, *spr-uti-; the (hypothetical) Hittite word *laḫuzzi- ‘vessel for pouring’ is attested as luḫuzzininum, a vessel, pointing to [lu'ti] < *luḫ-uti-; the Hittite word ḫaluka- ‘message’ is attested as ḫuluqanum / ḫiluganum, pointing to [hluga-] < *h2l(u/o)uɡʰ-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 /ispru'ti-/ 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-qā-s-šu, ma-a-ar-ka-ah-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-pi-iš in which the plene -e- denotes a long ĝ, which is the phonetically regular outcome of an underlying accentuated /e/ in open syllable. So ne-e-pi-iš denotes phonetic [ně:pis] = phonological /něbisi/. Although a long vowel is usually the result of accentuation, a plene spelled vowel cannot automatically be regarded as accentuated. For instance, a word like la-a-ḫu-ya-a-i cannot have had two accents. In my view, it represents /lāʰʰi/, a secondary adaptation of original la-a-ḫu-i = /lāʰʰi/ into the productive tarn(a)-class.

---

51 All examples are taken from Dercksen ftnc.
52 Note that this word often is spelled ne-pi-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 = ɾʔaršt’ül; e-eš-zi = 'e-eš-zi = ɾʔést’ül; a-a-an-ši = 'a-a-an-ši = ɾʔânsšl’, 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 ḤU-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 ḤU and U in these texts are written close together as a ligature (耠), which would support Rosenkranz’ idea (1959: 420, 426) that the writing of U is used to more clearly distinguish the sign ḤU (耠) from the closely resembling sign RI (耠). Since such a disambiguation could have been achieved by writing ḤU-Ú- (耠(groups)) as well, which is virtually never attested, there must have been additional reasons to write ḤU-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-a-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-a-an 7 times. These spellings can safely be phonologically interpreted as /tâgan/, the phonetically regular outcome of an endingless loc.sg. *dʰg’â-ôm. Nevertheless, in NH texts, we find three aberrant spellings, namely da-ga-a-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, 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-a-an for da-ga’i-a’-an and ta-a-ga-an for ta-ga’i-a’-an), but this does not explain de-a-ga’-i-‘an. One could alternatively assume that these spellings reflect phonetically real forms, e.g. with anaptyxis in the initial cluster and accent retraction (so /tâgan/), but this is hardly credible and still does not explain de-i-ga’-e-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*-. The only unambiguous signs are E, I, TE, TI, ŃE (but HI can be read ŃE as well), ME, MI (which in principle can be read MĒ as well), ŠE, ŠI, ZĒ (but ZI can be read ZĒ 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 = /kēSr/ ‘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-er). 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/IR, which must be read as ḫar-ke-e-er, shows that ḫar-KE/I-E/IR must be read ḫar-ke-e-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”. 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 /e/ and /i/ in the earliest language that was lost through merger by the NH period”. She even goes

---

55 This goes for the signs PE/I, DE/I, GE/I, KE/I, HE/I, RE/I, LE/I, UE/I, ZE/I, E/IP, E/IT, E/IK, E/II (which can be read AH and UH as well), E/IR, E/IM, E/IZ, KE/IP, KE/IR, KE/IŠ, KE/IṬ, LE/IK, LE/IŠ, NE/IŘ, PE/IŘ, PE/IŠ, ŠE/IŘ, ŠE/IN, DE/IR, TE/IŘ and TE/IŠ, whereas the sign NI can be read NE as well and MI likewise MĒ (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”.

49
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 ducus 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-Š-zi, which she calls “[c]ompelling evidence for merger”. In my view, however, taking this attestation57 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 /ë/ 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 /Hárgën/, but rather /Hárgəl/ < *hĄerg-êgê, which means that its plene E is used to disambiguate the signs KE/I and E/IR; pi-i-ú-e-ni ‘we give’ cannot denote /pľuënɛ/, but must stand for /pleunɛ/ < *hĄp-i-yɛnɛ, which shows that the plene I is used to disambiguate the sign PĒ/I.

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-š-ki i-eš-zi, in which the preceding -e- of kuški 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-e*[m] 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-ne-e-mi and a-ne-[m]un, and therewith are spelled just as all the other forms in the paradigm of anije-ä5, 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-pi-iš 'heaven', where NE is unambiguous. As we will see below under the treatment of the outcome of PIE *e, *ē, *ei and *eh₂ (§ 1.4.9.1, § 1.4.9.2), in accentuated position these vowels all yield Hitt. /él/ 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 Citi-iC are quite rare, but do occur: ḥu-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, some seem to show a real accentuated long /i/.

1.3.9.4 The signs U and Ú
Hittite uses two phonetic signs that are traditionally transliterated with the vowel u, namely æ = U and æ = Ú. From the beginning of Hittitology, it has been noticed that in many words these two signs are kept distinct. For instance, lišli- ‘pond’, when spelled with a plene vowel, is consistently spelled lu-ū-li- and never **lu-u-li-. kūša- ‘daughter-in-law’ and its derivative kūšāa- ‘bride-price’ are always spelled ku-ū-s₉ and never **ku-u-s₉; hūmant- ‘all, every’ is consistently spelled ḥu-u-ma-an-t- and never **ḥu-ū-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, it has never gained a broad acceptance.

59 Certainly in li-i-ik < *h₉.šeng₉.
60 Thus zi-i-ik, which reflects *tiH₉-ge (cf. chapter 2.1).
61 The sign Ú (ṭē) only occurs akkadographically as the conjunction Ú ‘and’ and sumerographically as Ú ‘dream’ and in LIBIR.RA (= Ḫ.RA) ‘old’; the sign U₉ (ḫē) only occurs as such in the sumerogram U₉.SAKAR ‘crescent of the moon’ (its normal value in Hittite is ʉt, UD or UTU); U₉ (ḫē) is only used in GIL-LE-U₉; ‘wooden tablet’; U₉ (ẖē) is only used as part of the sumerogram USDUḪA (= U₉.LUḪ.LA) ‘sheep and goats’; U₁₀ (ẖē) is only used as such in the sumerograms DUMU.(NAM.)L.U₁₀.LU ‘human being’, IM.U₁₀.LU ‘southwind, south’, LŪ.(NAM.)U₁₀.LU ‘human being’ and NAM.LU.U₁₀.LU ‘humanity’ (its normal value in Hittite is URU).
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.\footnote{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 ū to indicate phonemically distinct vowels”.} 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.\footnote{As a comparable phenomenon, Rieken refers to the ‘breaking’ of "u to o in front of r, h and w in Gothic.}

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: \(u\-uC\-C^o\) (in ðûûû / ðûûû ‘to drive (here)’), \(uC\-C^o\) (in \(upp\-A/upp\- ‘to send (here)’), \(u\-uC\-C^o\) (in ðûûû ‘to draw open (curtains)’) and \(u\-CV\) (in \(uda\-) / ud- ‘to bring (here)’). At first sight, we seem to be dealing with three different spellings, namely \(u\-uC\-C^o\), \(uC\-C^o\) and \(u\-uC\-C^o\) (assuming that \(u\-C^o\) is equivalent to \(u\-uC\-C^o\)). It must be noted, however, that the only verb that is spelled \(u\-uC\-C^o\), namely ðûûû, occurs as ðûûû as well. Moreover, the spelling ðûûû occurs in OS texts only, whereas the spelling ðûûû is attested in MS and NS texts. Since the only verb that is consistently spelled \(uC\-C^o\), \(upp\-A/upp\-\), 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 ðûûû, and that we are allowed to assume that in OS texts this verb would have been spelled **\(u\-up\-p^c\)**.\footnote{For instance, Rieken assumes that in front of -oe- an old /u/ remains /u/ and therefore is always spelled with Ú (a-ûûû /a-ûûû, a-ûûû, ðûûû, etc.). This is contradicted by kwe-uû and a-ûûû, 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 nicht erkennen lâßt”.}

So in fact we are dealing with two different spellings, namely \(u\-uC\-C^o\) (OS) = \(uC\-C^o\) (MS and NS) = \(u\-C^o\) versus \(u\-uC\-C^o\). Since these spellings eventually must go back to the same etymon, namely *\(h\text{-}ou-\)*, I agree with Rieken that some phonetically conditioned split must have taken place. Apparently, *\(h\text{-}ou-\)* developed into two different forms, one spelled with the sign U and the other with Ú.
For a phonetic interpretation of the difference between U and Ú, we should look at the paradigm of au-\(^1\) / u- ‘to see’ in comparison to the d\(\ddot{q}\)/ti\(\ddot{a}\)r\(\ddot{z}\)i-class verbs, in this case pai-\(^1\) / pi- ‘to give’:

1sg.  u-\(\ddot{u}\)-\(\ddot{h}\)-\(\ddot{h}\)i  <  *H\(\ddot{o}\)-u-h\(\ddot{h}\)ei  
2sg.  a-ut-ti  <  *H\(\ddot{o}\)-u-th\(\ddot{h}\)ei  
3sg.  (a-u\(\ddot{s}\)-zi)  pa-a-i  <  *h\(\ddot{p}\)oi-i
1pl.  ù-me-e-ni  <  *Hu-u\(\ddot{e}\)-ni  
2pl.  u\(\ddot{s}\)-t\(\ddot{e}\)-ni\(^6\)  <  *Hu-st\(\ddot{e}\)-ni  
3pl.  ù-ya-an-zi  <  *Hu-ënti

We clearly see that the spelling with U corresponds to -e- in the paradigm of pai-\(^1\) / 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:

\[
\begin{align*}
\text{u-\(\ddot{u}\)-\(\ddot{h}\)-\(\ddot{h}\)i} &= /\ddot{t}\ddot{\ddot{e}}\dddot{H}i/ , \text{ cf.} & \text{p\(\ddot{e}\)-e-\(\ddot{h}\)-\(\ddot{h}\)i} &= /p\ddot{e}\dddot{H}i/ \\
\text{a-ut-ti} &= /\ddot{\ddot{a}}\dddot{\ddot{u}}\dddot{t}i/ & \text{pa-\(\ddot{u}\)-t\(\ddot{e}\)} &= /p\ddot{\ddot{a}}t\ddot{\ddot{u}}/ \\
(a-u\(\ddot{s}\)-zi) &= \text{pa-a-i} \\
\text{ù-me-e-ni} &= /\ddot{t}\ddot{\ddot{u}}\dddot{m\dot{e}}-\dddot{e}-ni/ < /\ddot{\ddot{t}}\dddot{\ddot{u}}\dddot{\ddot{u}}-\dddot{e}-ni/ & \text{pi-\(\ddot{u}\)-\(\ddot{e}\)-ni} &= /pi\ddot{\ddot{u}}\dddot{e}-ni/ \\
\text{u\(\ddot{s}\)-t\(\ddot{e}\)-ni} &= /\ddot{t}\dddot{u}\dddot{\ddot{t}}\dddot{\ddot{e}}-\dddot{e}-ni/ & \text{pi-\(\ddot{i}\)-\(\ddot{e}\)-ni} &= /pi\ddot{\ddot{i}}\dddot{e}-ni/ \\
\text{ù-ya-an-zi} &= /\ddot{t}\dddot{u}\dddot{\ddot{a}}nt\ddot{\ddot{t}}i/ & \text{pi-\(\ddot{a}\)-an-zi} &= /pi\ddot{\ddot{a}}nt\ddot{\ddot{t}}i/
\end{align*}
\]

This means that the u-preverbed verbs as mentioned above must be phonologically interpreted as follows: ù\(\ddot{m}\)n\(\ddot{a}\)-\(^1\) / ù\(\ddot{m}\)ni- ‘to drive (here)’, spelled u\(\ddot{u}\)-un\(\ddot{n}\)\(^*\), = /\ddot{t}\ddot{\ddot{o}}Na\(\ddot{u}\)-l/, t\(\ddot{\ddot{s}}\)\(\ddot{\ddot{t}}\)\(\ddot{\ddot{i}}\)e\(\ddot{e}\)-a\(^{2}\) ‘to draw open (curtains)’, spelled ù\(\ddot{u}\)-u\(\ddot{s}\)-\(\ddot{\ddot{s}}\)-\(\ddot{\ddot{i}}\)- and u\(\ddot{s}\)-\(\ddot{\ddot{s}}\)-\(\ddot{\ddot{i}}\)-, = /\ddot{t}\dddot{u}\dddot{\ddot{s}}\dddot{\ddot{i}}\dddot{\ddot{e}}\dddot{\ddot{a}}-l/, upp\(\ddot{a}\)-\(^1\) / upp\(\ddot{a}\)- ‘to send (here)’, spelled up\(\ddot{p}\)\(^*\), = /\ddot{t}\dddot{u}\dddot{p}a\(\ddot{a}\)-l, and ud\(\ddot{o}\)-\(^1\) / ud\(\ddot{o}\)- ‘to bring (here)’, spelled ù\(\ddot{d}\)\(^*\), = /\ddot{t}\dddot{\ddot{u}}d(\ddot{a})-l/.

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.

\(^{67}\) In accordance with the view expressed above, we may expect that the oldest spelling of this form must have been **ù\(\ddot{u}\)-u\(\ddot{s}\)-\(\ddot{\ddot{s}}\)-\(\ddot{\ddot{e}}\)-ni, cf. impf. ù\(\ddot{u}\)-u\(\ddot{s}\)-ke\(\ddot{e}\)- (OS).
13.9.4a  Word-initially before vowels

_âC_: Here we basically find only the spellings ُya- and ُu-ya-. The spellings ُu-â° and ُu-â² are extremely rare,68 whereas the spelling ُu-ya- occurs in the middle paradigm of au- / u- 'to see' only.69 As I stated under § 1.3.3 as well, I believe that the spelling ُya- reflects phonological /ua-/ (e.g. ُya-a-tar /uâдр/ 'water' < *uâдр);70 the spelling ُu-ya- = /l'ua-/ (e.g. ُu-ya-a-tar /l'uâдр/ 'inspection' < *Huâдр);71 the spelling ُu-ya- represents /l'oa-/ (e.g. ُu-ya-âh-âa-at /l'oaHat/ 'I have become visible', cf. au- / u- for treatment).

_êC_: Here we only find the spelling ُu-e-, which denotes /ue-/ (e.g. ُu-e-ek-zî /uêkt'il/ 'wishes' < *uêkîit).

_îC_: Here we find the spellings ُu-êg°, ُu-êg² and ُu-ûgî-, which can stand for both /ui-/ as well as /l'ui-. For instance, ُu-i-te-e-nî, ُu-e-te-nî 'to the water' = /l'ûdêni/ < *ûdêni << *ûdêni and ُu-ûgî-te-na-áš 'of the water' = /l'ûdênas/ < *ûdênos <<

---

68 To my knowledge, the spelling ُu-â° only occurs in ُu-ar-âl-âa-an-e-zî (KUB 10.66 vi 4), which duplicates ُu-âl-âa-an-e-zî (KBo 7.48, 12), and in ُu-á-r-âl-âa-an-e-zî 'you must send' (KUB 14.14 ii 36), which clearly is an error for normal ُu-á-r-âl-âa-an-e-zî (see at the lemma of ُuêê / uê- 'to send'). The spelling ُu-â° is only attested in KBo 24.11 rev.° (10) [..]xêê-e-sh ُu-á-r-â-l-âa-an-e-kî, in which the interpretation of ُu-á-r-â-l (or 10-â-r-â?) is unclear.

69 The attestation "ُu-ûâl-êa-êsî" (KUB 29.1 iv 9) in my view is better read as 10 ُu-ûâl-êa-êsî (see at ُûâl-êa-êsî). The spellings ُu-ûâl-êb° and ُu-ûâl-êb^2 are found in one text only, KBo 16.50 obv. 10, 15, 20, and are so exceptional when compared to the other spellings of ُûâl-° (±300 times with ُûâl- in my files) that we can safely disregard them.

70 Or ُûâl-, e.g. ُû-á-r-â-l-e-nî = ُû-âr-êl-êni 'bums' or ُû-á-r-âl-âa-an-e-zî = ُû-âr-êl-â-áštî 'they hit'.

71 Of words that are normally spelled with ُûâl-, we find only a few that forms which show ُûâl-< ُû-á-r-âl-âa-an-e-zî 'lightning(!)' (KUB 17.10 ii 3) instead of normal ُû-á-r-âl- (see at ُûâl-). ُû-á-r-âl- (KUB 31.4 obv. 3) instead of normal ُû-á-r-âl- (see at ُûâl-). ُû-á-r-âl-âa-an-tî-âr-êmî / ُû-á-r-âl-âa-an-tî-âr-êmî  'help' (KUB 32.129 iv 3) instead of normal ُû-á-r-âl- (see at ُûâl-). ُû-á-r-âl-âa-an-tî-âr-êmî  'firewood' (KUB 32.129 iv 3) instead of normal ُû-á-r-âl- (as attested in ibid. 4, see at ُûâl-). ُû-á-r-âl-âa-an-tî-âr-êmî and ُû-á-r-âl-âa-an-tî-âr-êmî 'offends' (KBo 3.28 ii 10) instead of normal ُû-á-r-âl- (see at ُûâl-). Since these are all unique forms that cannot compete with the manyfold attestations with ُûâl- of the words to which they belong, I disregard them. The spelling ُû-á-r-âl-âa-an-e-rî (KUB 3.2 i 66 passim), instead of correct ُû-á-r-âl-âa-an-e-rî 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 (ُûâl-< 'woe': ُû-á-r-i-tî (StBoT 25.3 iv 14, 40, StBoT 25.7 iv 9); ُû-á-r-i-tî (StBoT 25.4 iv 27, 35, StBoT 25.7 iv 5); ُû-á-r-i-tî (StBoT 3.6 i 29, StBoT 24 i 34, iiii 56, KUB 21.12+ iii 39, Bronzetafel iv 9, 16, 27, KUB 26.32 i 14, KUB 22.70 obv. 16); and ُû-á-r-î- (VSNNF 12.125 obv. 5, 10, 11, KUB 16.10, 7, KUB 23.1+ ii 32). Because this word is clearly onomatopoeic, it is irrelevant here.
*udéns, whereas the spellings û-iš-ke/â-, û-iš-ke/â- and û-e-iš-ke/â-, imperfectives of ye21 / uya21 ‘to come’, must stand for /tuiskélâ/ (a synchronic derivation of the stem /tuéélâ/).

\[ \text{LIC} \] : Here I only know of the spellings û-i³ and yìÇ- that always stand for /uiC-/: û-i-it-i³ and û-i-it-i³ ‘year’ stand for /uit-i < *uëet-i; û-i-t-i³ and yìÇ-t-i³ stand for /uid-i/ ‘water’ < *uedø-.

All in all, in absolute word-initial position before vowels (note that û-ya- = /tua-i/ and u-ya- = /toa-i/ in fact belong to word-internal position), there is no distinction to be found between /l/ and /l/.

1.3.9.4.b Word-initially before consonants

There are only a few examples here.\(^{72}\) The verb ur-o³, which reflects *urhóři, is in OS texts consistently spelled û-ra-a-ni, pointing to /urʔâni/.\(^{73}\) The verb uš(s)ámíe/a-\(^{27}\) is always spelled uš-(s)á(n)-i-. I see no reason not to interpret this verb as /uSnje/a-< *usn-je/i-.

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

1.3.9.4.c Word-externally between consonant and vowel

\[ \text{Cu-a} \] : The spelling Cu-a\(^{9}\) is quite common, especially in older texts (e.g. ar-nu-an-da-an = /trnuántan/). The spelling Cu-ya\(^{6}\) is the most common spelling, especially in younger texts (e.g. ar-nu-ya-an-zi = /trnuánt'û/). The spelling Cu-u-a\(^{8}\) is quite rare, but does not seem to differentiate from Cu-a\(^{6}\) and Cu-ya\(^{6}\) (e.g. ar-kú-u-ar = ar-kú-ar = ar-kú-ya-ar = /trk"uaw/). This spelling occurs quite often when the sign ḤU precedes, the reason for which we will see below,\(^{74}\) e.g. Ḥu-u-ap- = Ḥu-ya-ap-. The spelling Cu-ú-a\(^{8}\) only occurs in ka-ru-ú-a-ri-ya-ar, which is a secondary form (see at the lemma kareqariyar). The spelling Cu-û-ya is rather uncommon and is also predominantly found with a preceding sign ḤU (e.g. Ḥu-û-ya-qa-, Ḥu-û-ya-anza, is-û-û-ya-í, etc.). Other examples are: kap-pu-û-ya-an-zi (= kap-pu-û-ya-an-zi), kar-šu-û-ya-aš (= kar-šu-û-ya-aš), ka-ru-û-sh-û-ja-

\(^{72}\) All other seeming examples like uj-e² / uj- ‘to send’, ûk 'I', ûna-² / ûmí- ‘to send (here)’, âm ‘that’, umn ‘to decorate’, ûpp-e² ‘to come up (of the sun)’, upp- / upp- ‘to send (here)’, ûkk- ‘trace’, ûší-e² ‘to open (curtains)’ and ude² / ude- ‘to bring (here)’ reflect *[Hû]muB, and therefore are treated under the paragraph ‘Word-externally between consonants’ (§ 1.3.4.9.f).

\(^{73}\) From MH times onwards, this verb is spelled ye-ru-á-ômi = /uq'áânî/, but that is irrelevant here.

\(^{74}\) Namely that every /l/ following ḤU or /h/ automatically turns into /l/.

55
The spelling Cu-ū-ya- is rare; it is attested in a-ru-ū-ya-i-z-i (= a-ru-ya-i-z-zi and a-ru-u-ya-i-z-zi), ka-ru-ū-ya-ri-ya-ar (which is a secondary form, see at kareyariqar), ša-ak-ru-ū-ya-an-zi (= ša-ak-ru-ya- and ša-ak-ru-u-ya-), šu-ū-ya-i° ‘to spy’ (= šu-ya-i°), šu-ū-ya-ru-‘heavy’ (= šu-ya-ru and šu-u-ya-ru) and šu-ū-ya- ‘to push’ (= šu-ya- and šu-u-ya-).

I conclude that the spellings Cu-a°, Cu-ya-, Cu-u-a° and Cu-u-ya- are equivalent and denote phonological /Cua/. The spelling Cu-ū-a° as found in ka-ru-ū-a-ri-ya-ar is unique and is probably orthographically influenced by ka-ru-ū. The interpretation of the spelling Cu-ū-ya- 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-ū-ya-i-z-zi and a-ru-u-ya-i-z-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 #a, namely ú-ya- = /ǔu-a₁/, e.g. ú-ya-a-tar /ǔuār ‘inspection’ < *Huātₙ and u-ya- = /ǔo-a₁/, only attested in the middle paradigm of au° / u- ‘to see’, e.g. u-ya-ah-ḥa-at /ǔoHaₙatl ‘I have become visible’. Since these middle forms are recently created (see at au° / u-), the phonemic difference between /ǔu-a₁/ and /ǔo-a₁/ must be a recent innovation as well.

**C_e** : The spellings Cu-e°, Cu-u-e° and Cu-ū-e° are all used in equal environments, which shows that they should be regarded phonologically equal as well: e.g. ak-kū-e-ni = ak-ku-u-e-ni = /kuén/-i ‘we die’, [a]p-pu-ū-e-ni = e-eₙ-pu-u-e-ni = /puén/-i ‘we grab’, ḥa-āš-šu-i-e-ni = ḥa-āš-šu-e-ni = /HSuéni/ or /HuSūni/ ‘we open’, še-ek-kū-e-ni = še-ek-ku-u-e-ni = še-ek-kū-ü-e-ni = /sēkuén/-i ‘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-ī°, Cu-u-ī°, Cu-ū-ī°, Cu-yī- and Cu-u-yī- are used in equal surroundings, e.g. ḥa-ap-pu-i = ḥa-ap-pu-u-i = ḥa-ap-pu-ū-i /Hapui/, pārk-ku-ī = pār-ku-u-ī = pār-ku-ū-ī = /prk°is/, pa-āš-šu-ı = pa-āš-šu-ı = pa-āš-šu-ı = pa-āš-šu-ı = pa-āš-šu-ı = pa-āš-šu-yī = /pəSuı/, ḥu-i-ša-u° = ḥu-ı-ša-u° = ḥu-u-yī-ša-u° = ḥu-u-yī-ša-u° = /Hu°isau⁻/, which shows that in this position the signs U and Ú do not represent distinct phonemes. The spelling Cu-u-ī° occurs especially often when the sign ḥU precedes (see below). The form ka-ru-ū-i-li- ‘former’ is a synchronic derivative in -i-li- of the adverb ka-ru-ū ‘early, formerly’ and therefore probably
represents /krūl/. The words šūl ‘thread’ and mūl ‘spade(?)’ are treated under C_?.

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

1.3.9.4d Word-internally between vowels

a—a : We find the spellings *a-a-a°, *a-a-, *a-úya- and *a-a-ya- in equal positions: e.g. a-ra-u-aš = a-ra-úya-aš = a-ra-ya-aš = /tarauas; ḥar-na-a-u-aš = ḫar-na-ú-ya-aš = ḫar-na-a-ya-aš = /Hrmāus/. It must be admitted, however, that the spelling *a-úya-ya- is quite rare, and seems to have a special function in the paradigm of auri- ‘look-out’. Here we find gen.sg. a-úri-ja-aš besides a-ú-ya-ri-ja-aš for phonological ūaurias/ < *Hou-ri-os, which could either be phonoetically realized as [ʔauriːas] spelled a-ú-ri-ja-aš, or as [ʔawrjas] spelled a-ú-ya-ri-ja-aš. Note that the sequence *a-ú-a° is only attested in KBo 30.51 iv' (1) [...-jg]a-ú-a[m-]...], if this is the correct reading.

a—e : In this position we predominantly find the spelling *a-a-e°. The spelling *a-ú-e° is rare, but when attested, it is identical to *a-a-e°: a-aš-ša-ú-e-et = a-aš-ša-ú-e-er; ḥal-zi-ja-ú-en = ḥal-zi-ja-u-en; compare [z]-in-na-ú-e-ni to e.g. a-ri-ja-u-e-ni.²⁵

a—i : Although the spellings *a-ú-i° and *a-a-i° are occasionally interchangeable (e.g. ḥar-na-(a-)ú-i (often) = ḫar-na-a-[i] (1x); i-ta-a-la-ú-i (1x) = i-da-a-la-a-u-i (often)), some words are consistently spelled *a-ú-i°: e.g. nāšī ‘not yet’ is spelled na-a-ú-i (OS), na-a-i (OH/NS), na-a-igi (OH/NS, MH/NS), na-igi (NH) and na-a-igi (OH/NS), but never **na-a-u-i; šāqidiš- ‘yearling’ is spelled ša-a-ú-i° and ša-a-i°, but never **ša-a-a-u-i° or **ša-a-u-i°; šīšār- ‘horn’ is spelled ša-a-ú-i° and ša-a-i° but never **ša-a-a-u-i° or **ša-a-u-i°. It is remarkable that Ū almost consistently occurs when a long /ā/ is preceding, whereas U is used after a short la/. So Ca-a-ú-i° = Ca-ú-ī = /Caui°/, whereas Ca-a-ū-i° = /Caui/ (or /Caol/?). The exact reason for this distribution is unclear to me.

²⁵ In a-ú-e-er and a-ú-er (never **a-ú-e-er) ‘they saw’ and ma-ú-er (never **ma-ú-er) ‘they fell’, the spelling with -i- is influenced by the spelling of the diphthong /au/, which in these verbs is always spelled "a-a-C°". The word la-ki-ú-e-ša- ‘ant’ (never **la-ki-ur-e-ša-) is the Luwian variant of Hitt. la-ks-ki-ur-e-ša-.
e_a: Here we predominantly find the spellings "e-ya-, "e-u-a" and "e-u-ya", which are interchangeable: me-mi-iš-ke-ya-an = me-mi-iš-ke-u-an = me-mi-iš-ke-u-ya-an = /memiskéun/, e-ya-an = e-u-ya-an = /t?éuan/; ne-e-ya-an = ne-e-u-ya-an = /néuan/. The spelling "e-ú-ya-" only occurs in ka-re-ú-ya-ri-ya-ar, which is spelled ka-re-ya-ri-ya-ar as well, and in [k]u-re-ú-ya-mu-uš, which is spelled ku-re-e-ya-n° and ku-re-ya-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', ħé-e-u-e-es '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_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-es-zi vs. ḫal-zi-ú-en, [ḫu-et]-tī-ya-an-ni-ú-e-ni, mi-im-mi-ú-en, pi-i-ú-e-ni, pi-ú-e-ni, pē-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-ı° in ú-i-ú-iš-ke-är, the imperfective of yiğiç / yiği- 'to scream' and in yiğ-ú-ı-da-a-i (KBo 5.4 rev. 29) = ú-i-qiya-{ə} [a-i] (KBo 5.4 rev. 36). Other cases are the city name URU Ku-li-ú-iš-na (also spelled URU Ku-li-qiya-iš-na), dat.-loc.sg. �� ar-ki-ú-ı 'vestibule(?)' and ḫa-a-z-i-ú-ı 'ritual' (also spelled ḫa-a-z-z-i-ı). A spelling "i-ú-i° is found in [k]a-le-ti-u-i and [k]a-le-en-ti-u-i, dat.-loc.sg. of ḫaalent(i)u- 'palace' only.\footnote{The spelling ni-ı-ı{[k]} (KUB 31.91, 5), instr. of ni-ıa- must represent the same form as the spelling ne-e-u-u, and therefore should be read nê-ı-u-{[k]}.} It is quite possible that in these words the spellings "i-ú-ı° and "i-
u-i° represent phonetically different forms. Since the stem of ʰha-ent(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-i-u stands for /Halentioi/. It must be noted that ʰhaentiu- is not a native Hittite word, and that we have no evidence for other instances of a sequence /ioi/.

1.3.9.4e Word-externally between vowel and consonant

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

In the case of a_CV, we find many words that show a consistent spelling ʰa-ú-CV, e.g. a-ú-meni ‘we see’, a-ú-me-en ‘we saw’ (never **a-ú-me-), a-ú-ri- ‘lookout’ (never **a-ú-ri-), a-ú- lí-, a certain organ (never **a-ú- lí-), an-ú- lí- ‘of equal rank’ (never **an-ú- lí-), ša-ú-di-iš-t°, ša-á-ú-ti-iš-t° ‘weanling’ (never **ša-(a)-ú-Ti-). In some other words, we do find both U and Ú, however, e.g. pár-ta-ú-ña-aš = pár-ta-u-ña-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 ʰa-ú-n°, in MS texts predominantly ʰa-ú-n° and occasionally ʰa-u-n°. This seems to point to a change of OH ʰa-ú-n° to NH ʰa-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 ʰa-u-uC(-CV) is found in the following forms:

77 a-ša-ú-ni (KBo 6.2+ iii 49 (OS)), pár-ta-ú-ni-t-u-áš (KBo 17.1 i 6 (OS)), [pá-y-ta-ú-nu-ca] (KUB 36.49 i 8 (OS?)).
78 a-ša-ú-ni (KBo 6.3 iii 53 (OH/NS)), aša-ú-nu-az (KUB 30.10 obv. 15 (OH/MS)), pár-ta-ú-ni-t (KUB 32.122, 6, 7 (MS?)) vs. a-esi-ša-u-ni-t (KUB 33.62 ii 20 (OH/MS)) and ḫa-esi-ša-u-ni (KUB 15.34 iv 61 (MH/MS)).
79 a-ša-ú-ni (KUB 13.5 ii 22 (OH/NS)), aša-ú-nu-az (KUB 13.4 iv 59 (OH/NS)), KUB 24.3 i 12 (MH/NS)), pár-ši-ú-nu-az (KUB 8.155 ii 9 (NS)), pár-ši-ú-nu-az (KUB 27.163, 7 (MH/NS)), pár-ši-ú-nu-az (KUB 33.188 iii 14 (MH/NS)), pár-ta-ú-ni-á (KUB 4.2 i 4 (OH/NS)), KUB 15.31 i 35, ii 40 (MH/NS)), pár-ta-ú-ni-á (KUB 15.32 i 37 (MH/NS), KUB 15.48 ii 6, 27 (MH/NS)), pár-ta-ú-nu-ca (VBoT 125, 3 (NS)), aša-u-nu-ca (KUB 18.11 rev. 5 (NH)) vs. ḫa-ša-u-n[i] (175/w obv. 8 (NS)), ḫa-ša-ú-n[u-az] (KBo 6.34 ii 39 (MH/NS)) and pár-ta-ú-ni-t (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 /páun/ to NH /páon/ (cf. above).

i-ja-u-un ‘I did’ (KBo 4.10 obv. 50) can hardly be correct and must probably be emended to i-ja-mu-un.

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-/u- that are spelled a-ú- (like a-ú-me-ni and a-ú-me-en above).

---

\( \text{ḥar-na-a-ū-uš} \) (KUB 9.22 ii 40) is a mistake for \( \text{ḥar-na-iš} \) ‘sap’, and therefore irrelevant.\(^{81}\)

\( \text{ḥar-na-ū-un} \) (ABoT 17 ii 9 (MH/NS)) seems to denote /Hṛnāun/. Although this is not impossible in a NS text (especially since it is a copy of a MH text), we would rather have expected /Hṛnān/, spelled **ḥar-na-u-un.

acc.pl.\(^{\text{NINDA}}\) \( \text{ḥar-ša-ū-uš} \) (KBo 17.4 ii 17 (fr.) (OS), KUB 7.8+ ii 11 (NS)) ‘thick-bread’ is equivalent to \(^{\text{NINDA}}\) \( \text{ḥar-ša-uš} \) and \(^{\text{NINDA}}\) \( \text{ḥar-ša-a-uš} \) and must represent /HāṛSašuš/ < */HāṛSašuš/.

\( \text{iš-ḫu-na-ū-uš} \) (KBo 32.14 ii 49 (MH/MS)) ‘upper arm’ is equivalent to \( \text{iš-ḫu-na-a-uš} \) (KBo 32.14 rev. 44, edge 1 (MH/MS)), \( \text{iš-ḫu-na-uš} \) (text: -aš, KUB 9.34 ii 25 (MH/NS)) and must represent /išHušuš/ < */šu-nôšuš/.

\( \text{la-a-ū-un} \) (KUB 7.1 iii 20 passim) is a mistake for 3sg.imp.act. \( \text{la-a-ū}\)\(^{82}\) and therefore irrelevant here.

\( \text{pa-a-ū-un} \) (KBo 16.59 rev. 5 (MS), KBo 16.42 obv. 24 (MS), KUB 34.45 + KBo 16.63 obv. 13 (MS)) represents /pāun/, which in younger times phonetically changed to /pān/, spelled pa-a-u-un (cf. above).

\( \text{ta-lu-ga-ū-uš} \) (KBO 17.22 iii 6 (OS)) is equivalent to the spellings \( \text{da-lu-ga-uš} \) and \( \text{ta-lu-ga-uš} \) and represents /taluguš/ < */talugaius/.

So we can conclude that the diphthong /au/ is lowered to /aʊ/ before /u/ 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 \( ^{\circ} \text{i-ū-CV} \) or \( ^{\circ} \text{i-ū-uC} \):

\( \text{a-ni-ū-ār} \) and \( \text{a-ni-ū-ri} \) are occasional spellings for normal \( \text{a-ni-u-ur} \) and \( \text{a-ni-u-ri} \).

See at \( \text{antiū} \) below.

\( \text{aš-ḥa-i-ū-ul} \) (KUB 24.10 iii 18, KUB 24.11 iii 17) // \( \text{aš-ḥa-i-ū-ūr} \) (KBO 21.8 iii 6) // \( \text{a-āš-ḥa-īl} \) [... ] (KBO 12.126 rev. 14) is of unclear meaning. Since this word can hardly be of native origin,\(^{84}\) it is irrelevant here.

---

81 The text is quite corrupt: KUB 9.22 ii (39) \( \text{DIE} \) \( \text{kap-pl-ma-a-ša-an ku-iš} \) (40) \( \text{ḥar-na-a-uš ki-hu-an-z} \) should actually have been ... \( \text{ku-iš} \) \( \text{ḥar-na-iš} \) \( \text{lu-hu-an-ga} \) ‘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 /aʊ/ before /u/ should be interpreted as the rise of nasal vowels: /aʊ/ > /aʊ/.

84 A sequence "au" does not originally occur in Hittite words: \( \text{pa-a-i-ū} \) ‘he must give’ is a secondary formation instead of more original \( \text{pa-a-ū} < */h.p-ā-u} \), in which the stem pā- was restored. All other cases where we find "au", we are dealing with either names or words of foreign origin.
ḥē-i-ū-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.

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

ishīṭul (n.) 'binding, treaty' and its derivative ishiulahh- 'to bind by treaty' are consistently spelled with Ū: nom.-acc.sg./pl. is-ḥi-ū-ul, gen.sg. is-ḥi-ū-la-aš, nom.-acc.pl. is-ḥi-ū-li, 3pl.pres.act. is-ḥi-ū-la-ah-ḥa-an-zī, part. is-ḥi-ū-la-ah-ḥa-an-t-. These spellings point to īshīṭul < *shī-ē-ul.

iuk, iuka- (n.) 'yoke, pair' and its derivatives iuga- 'yearling', iugašša- 'yearling' and iğiga- 'two-year-old' are always spelled with Ū: nom.-acc.sg. i-ū-uk (KBo 25.72 r.col. 11 (OS)), i-ū-kān (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-ū-ga-an (KBo 13.78 obv. 2 (OH/NS), KUB 7.8 ii 8 (MH/NS)), dat.-loc.sg. i-ū-kī (KUB 13.5 ii 21 (OH/NS)); nom.sg.c. i-ū-ga-aš (OS), acc.sg. ī-ū-ga-an (text: ī-ū-ga-an, KBo 17.65 rev. 53 (MS)), gen.sg. i-ū-ga-aš, acc.plc. i-ū-ga-aš; gen. pl. i-ū-ga-aš-aš (OS), i-ū-ga-aš-aš-aš (OH/NS)); nom.sg.c. ta-a-i-ū-ga-aš (OS), ta-a-ū-ga-aš (OH/NS), gen.sg. ta-a-i-ū-ga-aš (OS), acc.plc. ta-a-i-ū-ga-aš. All these spellings point to īu-ga- (< *ug-)

acc.plc. kap-pi-ū-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)) < *kappajūš. So kappi-ū-uš must stand for /kapius/.

TUCka-ri-ū-ul-li 'hoof', also spelled ka-ri-ul-li is a derivative in -ulli- of kariše/a-2 'to cover', so represents kiriūl< < *kr-ē-ul+

acc.plc. ku-i-ū-uš (HKM 23 obv. 9 (MH/MS), KBo 18.57a + 57 obv. 2, rev. 42 (MH/MS)) of the interrog. / indef. pronoun kui- / kue- / kuṣa- is usually spelled ku-i-uš and stands for kε'uš.

acc.pl. ma-ši-ū-ul[ś] (KBo 9.109 rev. 4) of mašši- 'how many' represents /masius/. mūn- / mūnay- (adj.) 'soft, mild' and its derivatives mūnum 'gentleness' and mūnumu (t) 'soft bread' are always spelled with Ū;55 nom.sg.c. mi-i-uš = mi-i-ū-uš = mi-ū-uš = /miuš/ < *mih-1-u-s, acc.sg.c. mi-i-ū-un = /miuš/ < *mih-1- u-m, nom.-acc.sg.n. mi-i-ū = /miuš/ < *mih-1-u; nom.-acc.sg. mi-i-ū-mar = /miuš/ < *mii-ū-mar = mi-ū-mar = /miuš/ < /miušt/ < instr. mi-ū-um-mi-it =

55 Note that CHD L-N: 307 incorrectly cites nom.sg.c. "mi-i-uš" (KUB 39.41 obv. 17 (NS), KUB 33.38 iv 10 (OH/MS)): these forms actually are mi-ū-uš.
/múmni/ < */múmany/; nom.-acc.sg. mi-ú-mi-ú (MH/NS), mi-i-ú-mi-u=s-sā-an, mi-i-ú-mi-i-ú = /múmnu/, etc.

pār-ši-ú-ul-li ‘crumb’ is derived from paršē̂/a-’nī ‘to break’ and represents /prSuLi/ < *br’s-ı̂-ul+.


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

antū (n.) ‘ritual’ is predominantly spelled with Ū: 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 ii 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 Ū, 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 Ū in comparison with those with Ū in phonological or chronological terms, I assume that the spellings with Ū are mere mistakes and that the spellings with Ū are the correct ones. This would mean that a-ni-u-ur represents /n hiatus/ < *ĥni-ı̂-ur.

instr. a-aš-ši-u-ni-it (KUB 33.62 ii 20) from aššijašar ‘love’ is probably a scribal error for a-aš-ši-ja-u-ni-it as is attested on the same tablet: a-aš-ši-ja-u-ni-it (ibid. 20). This form therefore is irrelevant here.

nom.pl. mi-u-ri-še[-e?] (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.
Note that /iun/ remains unchanged and does not show a lowering comparable to 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-rî-). Note that /iun/ remains unchanged and does not show a lowering comparable to */aun/ > /aon/.

C

Apart from the one spelling e-û-uk-zi ‘he drinks’, which is equivalent to e-uk-zi and e-ku-zi and therefore must represent ḫêg‘ûl, a spelling “e-U/Ú-uC” only occurs in ḫê-u- / ḫêg‘ay- ‘rain’ and me(j)u- / mejay- ‘four’.

The nom.sg. of ḫê-u- is spelled ḫê-e-û-uṣ, ḫê-e-uṣ as well as ḫê-uṣ, which points to Hitt. /Hêuṣ/ < /Hêtus/ < */hêtih₁- u-s/. The acc.sg. is usually spelled ḫê-e-un (attested in OS texts already), but occurs as ḫê-û-un and ḫê-i-û-un in some OH/NS texts and as ḫê-e-û-un in an MH/NS text. This seems to point to a phonetic change within Hitite, namely OH /Hêʔun/ spelled ḫê-û-un, develops through /Héun/ into younger /Héon/, spelled ḫê-e-un. For this lowering, compare the lowering of /au/ to /o/ in front of /u/ in § 1.3.9.4.e. The nom.pl.-forms ḫê-e-û-uṣ (KUB 7.5 i 17 (MH/NS)) and ḫê-e-u[-u]š (KUB 19.50 iv 27 (NH)), the acc.pl.-form ḫê-u-uṣ (KBo 3.7 ii 22 (OH/NS)) and ḫê-e-uṣ (KUB 16.37 iv 6 (NH), KUB 28.4 obv. 19 (NS)) as well as dat.-loc.pl.(?) ḫê-e-u-uṣ (KBo 13.245 rev. 7 (NS)) in my view all are formally acc.pl.-forms that should be interpreted as ḫêyuṣ, an incorrect secondary formation instead of correct ḫêmuṣ as attested in e.g. ḫê-e-mu-uṣ (KUB 24.1 iv 15), ḫê-mu-uṣ (KUB 51.50 obv. 14) and ḫê-e-mu-û-uṣ (KBo 43.137 1.col. 7) = /Hêmus/ < */Hêuuss/ < */Hêʔuuss/.

In the paradigm of me(j)u- / mejay-, the only relevant form is acc.pl.c. mi-e-û-uṣ (KUB 31.127 i 52), which must be read as meyuṣ, an incorrect formation instead of expected **me̱muṣ, or even better **me̱ja̱yuṣ.

1.3.9.4.f Word-internally between consonants

If there is a phonological distinction between /ol/ 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/ > /Hêql/, 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:
apḫn ‘that (one)’ (acc.sg.c.) is consistently spelled a-pu-u-un (more than 150x in my text files), 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).
apḫš ‘those (ones)’ (acc.pl.c.) is almost always spelled a-pu-u-uš (more than 210x in my files), 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-āš-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 (KUB 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-āš-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 plane U. In my view, this indicates that ar-ša-a-āš-šu-ú-ri-i=š-ši-it must be erroneous.
ḫuni(n)k. ‘to batter, to crash’ is often spelled with plane 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-ik-ta-ri (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-u- in all of Hittite. 

kinḫpi, a portable container, is usually spelled without plane -u-, but once we find the spelling ki-mu-ú-pi (KUB 29.2 ii 7) and twice ki-mu-ú-pi (KUB 29.1 ii 41, KBo 21.22, 10). Since this word likely is of a foreign origin, these forms are non-probative.

---

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 \textit{\cite{Bronz} Lz- derivative, see above}.
91 Puhvel HED 4: 153 incorrectly cites the form of KBo 21.22, 10 as ‘ki-mu-ú-pi’.
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 ii7 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-š (more than 120x in my files). Once we find ku-ú-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-š, see above), I regard it as an error.

NINDA lallam(m)pur(i)ja-  NINDA lal(l)am(m)ur(i)ja-, a dish made of cereals, shows the following spellings: nom.sg.c. la-al-la-pu-u-ri-ja-š, la-al-la-am-pu-u-ri-ja-aš, la-al-la-am-ri-iš, la-al-la-am-mu-ri-iš, la-al-la-mu-ri-ja-iš, nom.-acc.sg.n. la-la-mu-ri, [la-la-am-mu-ri].93 The spelling variance (including the alteration between Cu- 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 lūrijatar ‘disgrace’ and lūrijahh- ‘to disgrace’ are predominantly spelled with plene U: nom.sg.c. lu-u-ri-š (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-ja-tar (NH); 2sg.imp.act. lu-u-ri-ja-aḫ (NH), impf. lu-u-ri-ja-aḫ-ḫeš-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.

mūgāe.-t ‘to invoke’ and its derivative mūkēštar / 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-[a]-ti, mu-u-ga-an-zí (Bo 6575 obv. 13), nom.-acc.pl. mu-u-keš-šar.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.

92 Besides a few times ku-u-š.
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-ti (iv 13) instead of normal e-ša-ri, ḫu-ša-an (i 15) instead of ḫu-ša-ša-an, be-ši-ti (ii 22) instead of normal be-šu-uš-ši.
mūriban- ‘cluster of fruit’ and its possible derivative NINDA mūri̯ala-, a bread, are predominantly spelled with plene U: instr. mu-u-ri-ni-it (MH/NS), acc.pl. mu-u-ri-uš (OS), mu-u-ri-ja-nu-uš (MH/NS); nom.sg. mu-u-ri-ja-la-aš (OH/NS), acc.sg. mu-u-ri-ja-la-an (NS), acc.pl. mu-u-ri-ja-lu-š=a (OS). There are two exceptions, however, namely nom.sg. mu-ú-ri-is (KUB 57.110 ii 8 (NS)), and acc.pl. mu-ú-ri-ja-lu-uš (Bo 2689 ii 11 (NS)). On the one hand, since the etymology of mūriban- and NINDA mūri̯ala- is unclear, and since mūriban- shows a remarkable alternation between an i-stem mūri- and an n-stem mūrían-, 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 aberrantly spelled lu-ú-ri-is vs. lu-ú-ri- elsewhere, and assume that in mūriban-, too, we are dealing with traces of ablaut.

pū̯- (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. It has been suggested that it is a borrowing, through Hurrian (compare Hurr. pulaḥli ‘lot caster’) from Akk. pūru ‘lot’ (cf. e.g. Rieken 1999: 78). As a foreign word, it is irrelevant here.

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

punušš- ‘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-uen (AT 454 ii 17, 21, iv 14 (NH)), 2pl.imp.act. [pu-l]^2-šu-uš-ta (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).

pūri̯aš-, ṣu̯ri̯aš-, Hurrian offering term, is spelled as follows: gen. pu-u-ri-ja-aš (MH/NS), dat.-loc.sg. pu-u-ri-ja (often, MH/NS), pu-ú-ri-ja (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.
probative.

†ūši (c.) ‘lump of salt’ is spelled pu-ū-tiš (multiple times) as well as pu-ū-tiš (KUB 32.123 ii 18 (NS)). Since this word likely is not native Hittite, it is irrelevant here.

tapūš (n.) ‘side’ is usually spelled with plene Ū: all.sg. ta-pu-ūša (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-ūša (KUB 1.8 iv 19 (NH)) and abl. ta-pu-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.

tulisja- ‘gathering’ is usually spelled without plene vowel: acc.sg. tu-li-ja-an (KBo 3.1 ii 34, 51), gen.sg. tu-li-ja-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-ja[-aš] (KUB 21.19 iv 25), dat.-loc.sg. tu-li-ja (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 7 4), dat.-loc.pl. tu-li-ja-aš (KBo 22.1, 16 (OS)). Occasionally we find a plene spelling, however, namely twice with U (tu-u-li-ja (KUB 6.46 iii 51), tu-u-li-ja-aš (KUB 33.110, 5)) and twice with Ū (tu-ū-li-ja (KUB 21.1 iv 39), tu-ū-li-[a] (KUB 21.5 iv 45)). This word occurs in CLuwian as well, and is there predominantly spelled tu-ū-li-ja- (besides tu-li-ja- once). This could mean that the two Hittite spellings tu-ū-li-ja- should be regarded as Luwianisms, and the spellings tu-u-li-ja- as the ‘normal’ spelling.

zarzur (n.) ‘concoction’ is attested thus: nom.-acc.sg. za-ar-zu-ūr (KUB 42.107 iii 13 (OH/NS)), za-ar-zu-u-ur (KUB 31.57 iv 18 (OH/NS)), za-ar-zu-ū-ūr (KUB 34.89 obv. 6 (OH?MS)), [za-ar]-zu-ūr (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 Ū, 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.
for our investigation. In all other words, we find a complementary distribution between U and Ú and I therefore conclude 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/.

**h_C**

Whenever the consonant h precedes a plene spelled vowel -u-, this vowel is always spelled with the sign U. This seems to indicate that all instances of */HuC/ have yielded Hitt. /HoC/. As we saw above (§ 1.3.9.1), however, the combination ḤU-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 († co) in order to distinguish the sign ḤU († co) from the closely resembling sign RI († co). It therefore is not always clear how to interpret the combination ḤU-U-. To make the problem more transparent, I have taken the liberty to cite the 'ligature' ḤU+U (in which the sign U only seems to have had an orthographic value and perhaps not so much a phonetic value) as ḤU in the following example. For instance, pa-ah-ḥur ‘fire’ must in my view be analysed phonologically as /páHw/’, because of the occasional spelling pa-ah-ḥu-ya-ar. Once, we find a spelling pa-ah-ḥu-ur, however. Is this spelling suddenly to be interpreted as /páHor/, or do we have to read the form as pa-ah-ḥú-ur = /páHw/?

Another problem is that in ablauting verbs, we find e.g. ḥu-e-ek-zi ‘he conjures’ vs. ḥu-u-kān-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’ul < *h2uégt’tu/ whereas the latter is /Hogánt’iul < *h2uğ’t’enti. This means that we seem to be dealing with an ablaut /Hueg- / Hog-/, which may not be very convenient. Similarly in ḥu-qa-ap-p° / ḥu-u-ap-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- / Hoap-/, the latter then

---

103 The only exception in the whole Hittite corpus, ḥu-š-š-k-zi (KBo 6.2 i 16), must be a mistake, as we have seen above.

104 Just as the ‘ligature’ I+A († co) is cited IA, the ligature ME+ES († co) is cited MEŠ, and SISKUR.SISKUR († co) is cited SISKUR.
perhaps expressed in the spelling ʰu-u-ya-ap-p. If so, then we should also interpret e.g ʰu-ya-an-t- as ‘wind’ as /Hoánt/, which then perhaps is expressed in the spelling ʰu-u-ya-an-t-. Since, however, there is no phonemic distinction between /o/ and /u/ after ʰ, one could also choose to write /Hu/ everywhere. Yet on the basis of the fact that the Hittites themselves never wrote ʰu-ːt- and apparently did not perceive these sequences as [Hu] but as [Ho], I will write /Ho/ in my phonemic analysis, also in the sequences /Hoal/, /Hoel/ and /Hoil/.

Some examples of ʰGoodC: ʰu-u-uk-ki-iš-ke/-a- ‘to conjure (imperf.)’ /Hokiské/-l < *ʰu₂u³ₜʰ-ské/-őːː; ʰu-u-uk-ki-iš-ke/-a- ‘to butcher (imperf.)’ /Hokiské/-l < *ʰu₂u³ₜʰ-ské/-őː; ʰu-u-uk-ki-iš-ke/-a- ‘to conjure (acc.pl.)’ /Horgmáus/ < *ʰu₂u³ₜʰ-móːː; ʰu-u-ul/-l⁷ ‘to smash’ /Holo/-l < *ʰu₂u-ul-nː; ʰu-u-ma-an-t- ‘all’ /Hómant/-; ʰu-u-up-[pa-an-du]- ‘they must harass’ /Hopántul/ < *ʰu₂u₂ph₁₂-ěntu; DUG²/ʰu-u-up-pár ‘bowl’ /Hópf/-; ʰu-u-ur-ta-a-in ‘curse (acc.sg.)’ /Hortain/- < *ʰu₂u₂urt-ő:-i-mː; ʰu-u-ur-za-ke/-a- ‘to curse (imperf.)’ /Hortské/-l < *ʰu₂u₂urt-ské/-őːː; ʰu-u-ųš-ke/-a- ‘to wait’ /Hoské/-l < *ʰu₂u₂ské/-őːː; ʰu-u-da- ‘readiness’ /Hóda/-l < *ʰu₂u₁doːː; ʰiš-ʰu-u-na-ə- ‘upper arm’ /isHonau/-l < ʰš₂u-nóːu/-.

C_h
When a ʰH follows, we always find U as well. In some cases we are dealing with *Ceu₃ₘ-: ʰšu-u-ųh-za- ‘roof (abl.)’ /šóHt/-l < *séu₃ₘ-h-tː; in some with *Cóu₃ₘ-: ʰu-uħ-ḥi ‘I saw’ /ľóHIt/ < *ʰu₂ou₂-ųñe-ːiː, μu-u-ųh-ḥi ‘I fell’ /móHIt/ < *móu-ųñe-ːiː; in others with *Cuo₃ₘ-: an-tu-u-ųh-ša-an ‘human being (acc.sg.)’ /ľndoHsan/ < *h₁n-دعاء₂-s-om.

Other cases of /CoH/ are: lu-u-ʰa- ‘?’ /lóha/-l; μu-u-uḥ-ra-iː-, a body part of animals /moHrai/-l; ʰšu-u-ųh-mi-liː- ‘firm(?)’ /šóHmılı/-l; u₂u₂pًا-an-tu-u-ʰa- ‘bladder’ /p(a)ntoха/-l; păr-aš-tu-u-ųh-ʰa-ː-, an earthenware cup(?) /prstoHa/-l; pu-u-ğu-gariː- ‘substitute’ /póhogari/-l; tu-u-ʰu-suː-ja-ː-e- ‘to await’ /toh²siae⁻/-l; MUNUSμi-in-tu-u-ʰiː- ‘girl’ /tʰi/tohi⁻/-l.

C_i
I only know of one case, namely uie⁻² / ui- ‘to send’, which is consistently spelled u-ie- / u-i-jaː = /ľóie- / lʔoi-/l. This verb is a univerbation of the preverb *ʰu₂ou and the verbal root *ʰieh₁- ‘to send’ (cf. peje⁻² / pej⁻ ‘to send (away)’, and shows that *ʰu₂ou > *ľu⁷ has been lowered to /ľo/- in front of -i-.

Note that the case of uie₂⁻ / uie- ‘to scream’ is quite different. This verb, which is consistently spelled u-i-jaː, is a secondarily thematicized form of the verb gai⁻¹ / gi- ‘to scream’. The spelling of 3sg.pres.act. ya-a-i ‘he screams’ shows that there was no initial glottal stop (otherwise we would have expected a spelling **u-e-ya-
a-i), so I would phonologically interpret the spelling ū-i-ja- as /uái-a-, phonetically realized as [wiá-].

_C_k_

_C_l_
The situation around _C_l_ is quite complicated, especially because the etymology of many words containing -Cul- is unclear. A sequence *Ceul is clear in the words i-mi-ú-ul ‘horse feed’ < *im-i-ú-ul and iš-ḥi-ú-ul ‘binding’ < *shy-i-ú-ul, which show that *Ceul > /Cu\. The words aš-šu-ú-ul ‘favour’, tak-šu-ú-ul ‘agreement’ and uštīl- / yaštīl- ‘sin’ (cf. ya-aš-du-ú-li) are usually regarded as showing the accentuated suffix *-ul-’, and would show that *Cul yields /Cu\. This would also fit the word ga-aq-zar-mu-ú-ul, a certain cloth, although its etymology is less clear. It has been claimed that pittīla- ‘loop, knot’ is a thematicization of the suffix *-ul-, but this word is consistently spelled pít-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-ú-u-pa- ‘finger’, mu-u-lat-ar, an evil quality, NINDA mu-u-la-ti-, a bread, and pār-šu-u-la-a-an-t- ‘crumbling’.\textsuperscript{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-ja-aš-ḥa- ‘marshland’, mi-i-lu-ú-li ‘skin(?)’ and mu-ú-li-li, a plant. Note that tu-u-li-ja- ‘gathering’ does not fit this picture; it shows /o/ instead 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 *tuHa-i-o-, in which *CuHa yields /Cu\. 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- < *-HH- 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\textsuperscript{2}. The outcome of *Coul may be /Caul/ if a-ú-li-, a tube-shaped organ in the neck, indeed reflects *hōul-i- (see its lemma).

\textsuperscript{105} Cf. Rieken 2005 for a similar view of these words.
Note that the /ol in GIŞḫu-u-la-li, GIŞḫu-u-lu-ga-an-na- and GIŞṣar-ḫu-u-li- is determined by the preceding ḫ.

C_m
On the basis of ya-ah-nu-ú-mi ‘I make turn’ /uḥnāüm/ < *-nē-um-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-ûnē and *Hóu-ûnn. Inf.I pāt-tu-u-ma-an-zi ‘to dig’ (KUB 55.45 ii 4) < *bʰh₂-wěn-ti shows that *CHuv > Hitt. /ComV/,106 which means that e.g. tu-me-e-ni ‘we take’ < *dh₂-wěnī stands for tomēni/, tar-mu-me-ni ‘we let go’ < *trk-n-h₁-th₁-wěnī stands for tnomēnī/, etc. This probably also goes for the appurtenance-suffix -umen- /-um-, which is spelled with U in nom.sg. ḫi-š-tu-u-ma-aš, dat.-loc.sg. ḫe-eš-tu-u-um-ni ‘person pertaining to the ḫištē, URU Kā-ta-pu-u-me-nē-eš ‘persons from Kātapa’, URU Lu-ú-i-u-ma-na-aš ‘person from Ľūa’, URU Sa-lam-pu-u-me-nē-eš ‘persons from Šalampa’, URU Za-al-pu-u-ma-aš ‘person from Zalpa’, ‘Su-up-pi-li-li-i-ma ‘man from the pure well’ and ta-me-u-ma- ‘being from somewhere else’. The etymology of nu-ma-an (negation of man) is not fully clear. The words ƙa-ru-ú-um-mi ‘sanctuary’, ƙu-u-ma-an-ti-ja-at-, a building, NINDƙu-u-ma-ti-, a bread, and ḫal-ƙal-tu-u-ma-rī ‘corner’ are likely of foreign origin. The U in ḫu-u-ma-na-ti- 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-s⁰ and younger pu-u-nu-uš-s⁰ ‘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/ < *ki-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 /pāun/ > NH pa-a-u-un /pāon/ (§ 1.3.9.4.e). It does not apply to all positions, however: the fact that unu-zi ‘to decorate’ < *ḫu-u-neu- is spelled ū-nu- = ḫunu-l throughout Hittite shows that in initial position this lowering did not take place. In the case of ku-ú-ma-aš (gen.sg.) ‘dog’ (KBo 7.48, 12 (MS?)) we are in my view dealing with a restored /kunas/ that replaced expected *$/konas/ < *ḳunos on the basis of the

106 Also in ƙar-hu-u-ma-aš /slromás/, gen.sg. of the verbal noun of ƙar-tae- ‘to exalt’, although in this case we are dealing with a secondary tarm(a)-class ending instead of expected ƙar-ƙar.

The lowering of /u/ to /o/ seems to have taken place in front of geminate -mn- as well, as is apparent in ūma-1 / ūmi- ‘to send (here)’ that is consistently spelled u-un-n= = /lOmN/ < /h2ou + *n(o)niH/. 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-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-ûni-iš-tu-ten ‘you must fill’ (KUB 13.3 ii 27 (OH/NS)) also points to /soN/ < *su-n-H-. The hapax spelling mu-u-un-na- “it ‘he hid’ (KUB 17.5 i 4 (OH/NS)) may show a reflex of an OH form that still shows /muNât/ (< *mu-n-H-?), instead of younger /moNât/ (although we do not have any spelling *mu-u-un-n= of this verb).

The verb šūni/šu- “to pour in’ is consistently spelled šu-ûni- throughout Hittite. Because its etymology is rather unclear, we cannot determine its preform. Since *Cûm > OH /Caun/ > NH /Caon/ and *Cûn > NH /Cûn/, the only reasonable possibility is *Cûm. This may go for a-ru-ûni ‘sea’ (dat.-loc.sg.) (KUB 36.41 i 13 (MS)) as well, which therefore perhaps should be reconstructed as *hyeuni.a.

The forms ku-u-un ‘this (one)’ (acc.sg.) = /kōn/, a-pu-u-un ‘that (one)’ (acc.sg.) = /labbôn/ and u-ûni ‘him (there)’ (acc.sg.) = /lōn/ are special cases. They are spelled with U from the oldest texts onwards, and therefore cannot be derived from older **kûn/, **/labbûn/ and **/ûn/ through a MH lowering in front of n. In my view, these forms show that the outcome of *Cûm was /Cûn/ in the oldest stages of Hittite already.108

Acc.pl. (MUŠEN) pâr-tu-ûni-wš (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 (LZU) — //partâyar // partâun- ‘wing, feather’ is striking, but since the prehistory of this latter word is not fully known, the interpretation of parâuniš remains unclear.111

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 /h2o/, and the verb nai-2 / n- ‘to turn’.

108 Incorrectly cited in CHD L-N: 330 as “mu-u-un-na-a-îf”.

109 Or this form, which is attested in a MS texts, represents /l(a)ûn/ < *h2oûn-n-, in which the lowering of /ûn/ to /ûn/, 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 *Cûm.

111 One could think of e.g. *prûtây- < *prûtâ-un- vs. *prûtâ-un- > parâun-.
The interpretation of țû(n)ḥ₂-”?’ is not entirely clear. It is spelled u-un-ḥ², which is attested in an OS text already: u-un-ḥa-an-zi (KUB 32.94 i 3 (OS)), as well as u-uḥ². The /lo/, which might be unexpected in front of -n- in OH times, is in my view due to the following -ḥ- in the allophonic stem țûh.-.112


C_p
On the basis of u-up-zi /Röpt’il ‘(the sun) comes up’ < *h₁eup-ti, we can conclude that *Ceup- > Hitt. /Cop/. The adjective šuppi-/šuppa-, which is spelled with U in the name *šu-u-up-pi-lu-li-u-ma (KUB 19.10 iv 2) hardly can reflect *sēup-i- or *sōup-i-, since in these forms we would have expected lenition to **šupi-. This means that šu-u-up-pi- /sopi-/ reflects *sup-i-, which shows that *Cup yields /Cop/ as well. The verb uppa-/uppi- ‘to send (here)’, which represents /τuπ/ (see § 1.3.9.4), reflects *h₂ou + *h₃p-oi-. Since this verb is a quite recent univerbalization of the preverb *h₂ou, which in isolation yielded /toul/, and the verb pai-/pi-, this example is non-probative for the outcome of *Coup.

The words kiṇūpi, a container, which is spelled ki-nu-u-pi as well as ki-nu-u-pi, lu-u-pa-an-ni- ‘royal cap’ (also luqanni-), dam-pu-pi- ‘barbaric’ and ša-ra-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-ū-ri- ‘lookout’ < *Hou-ri-. The sequence *Cur seems to yield Hitt. /Cor/ as is visible in e.g. an-tu-u-rj-i- ‘interior’ /tɔntɔria/- < *h₁n-d₃ur-jo- (?), ar-ša-ar-šu-u-r⁻ /stream/ /tsarsor/- < *h₁er-ur-, pār-šu-u-ur ‘cooked dish’ /p(a)rSor/ < *b₁(e)rs-ur, pu-u-ru-u ‘mud’ /porut/ < *b₁ur-u- (ʔ), tu-u-ri-ja- ‘to harness’ /tɔri/a-< *d₃urj-i-< *h₂jurg-i-, ụa-ak-šu-u-ur, a vessel /aKsorors/ < *uKs-ur(?), and ụ-i-šu-u-ri-ja- ‘to press together’ /tɔsiro/a-l < *uिश-ur-i/o- (?). This implies, however, that the one attestation ši-iš-šu-ú-ra- as ‘irrigation (gen.sg.)’ (KBo 6.26 iii 5 (OH/NS)) < *h₁ší-h₃s-ur- is a mistake, cf. correct ši-iš-šu-u-r² (KUB 31.100 rev. 7 (MH/MS)).113 With *Cour yielding /Caur/ and *Cur > /Cor/, the only way to explain lu-ū-ri- ‘disgrace’ /lûri/- is by

112 The original distribution must have been CâC’ vs. Ăh””, so **Či/C‘ /šûmåzì.
113 Thus also Rieken 2005.
reconstructing *leih₁-ur-ri.* The forms within the paradigm of this word that are spelled *lu-ur-ri-* may then reflect *lh₁,ur-* > *luh₁,ri-* > /lori/. Note that *eur* yielded /or/ in *a-mi-ur-* ‘ritual’ /tniôt/ < *h₃m-i₇-ur* and ši-i₇-shi-u-* ‘irrigation’ /siSiot/ < *h₃š-hš-i₇-ur* (see above), but here the preceding -i- may have been crucial.

Cₚₖ

First we should keep in mind that *Cous* > Hitt. /Cus/, e.g. a-uš-te-en ‘you must see’ < *Hou-sten.* A sequence *Ceu* yields Hitt. /Čuš/, as is visible from e.g. ku-ú-ša- ‘daughter-in-law, bride’ /kūša- < *gēus-o- and ku-ru-uš-ši-ja- ‘to be silent’ /kruSie/a/- < *grev-je/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/ < *bmg²-u-s-, we can conclude that *Čus* in principle yields Hitt. /Cus/.

Our findings that *Cous* > /Causl, *Ceus* > /Čūš/ and *Cus* > /Cusl, seem to imply that in Hittite the spelling /Cu-uš/ or /Cu-uš²/ cannot exist. This is not entirely the case: pu-u-uš² ‘to be eclipsed’ /pos/- may reflect *ph₂u-s-, in which the *h₂* may have caused lowering; a-aḫ-ru-uš-ḫi ‘incense vessel’ is likely of a foreign origin; šu-uš ‘full (nom.sg.c.)’ /šōš/ is a contraction of /šōus/ < /šōtus/ < *sōuH-u-s, see at C⁻?.

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 Ū in: al-pu-ú-uš (KUB 28.5 rev. 7 (NS)), a-ú-šu-ú-uš (KUB 25.178 i 2 (OH/NS), KUB 24.3 ii 11 (MH/NS)), a-ú-li-ú-uš (KUB 17.21 ii 18 (MH/NS)), NuNDašar-ša-ú-uš (KUB 17.4 ii 11 (fr.) (OS), KUB 7.8+ ii 11 (NS)), ḫe-ē-mu-ú-uš (KBO 43.137, 7 (NS)), kap-pi-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-uš (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 [ḥal]-uş-ya-u-uš (KBO 3.8 iii 4 (OH/NS)), ḫaš-la-ya-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)), pär-ga-ú-uš (KBO 3.8 ii 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 / Lu/ to

---

114 Unless we assume that the two forms that are spelled /lu-ri/- (cf. § 1.3.9.4.f as well as its lemma) are mistakes. Then, on the basis of *a-mi-ur-* < *h₃m-i₇-ur,* we should assume that /Ceu/ > /Čeu/.

115 Note that ḫušē-a- ‘to draw open (of curtains),’ spelled ḫu-uš-ši- and ḫu-i- = /ṭuSie/a/-, reflects an universion of the preverb *h₃šu* and the verb *h₃š-i₇-ô-. which took place at a stage when *h₃šu* had already become /ṭu/ 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 /°Cus/, which subsequently develops into NH /°Cqs/.

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 /tabós/. I regard these as the regular outcomes of *Cós (just as /Cón/ is the regular outcome of *Cóm, see above).

C_t
We must bear in mind that *Caut > Hitt. /Caut/, e.g. a-ut-ta ‘you (sg.) saw’ < *Hóu-thye. On the basis of ḫu-e-mu-ū-ut (KBo 3.28 ii 19) ‘he made run’ (or ḫu-e-eš-mu-ū-ut ‘he rescued’?) = /Hoināt/ < *-nēu-t, we must conclude that *Caut > Hitt. /Cūt/.

This is confirmed by nom.sg. ku-ū-uz-za ‘wall’ /kātslbs < *gāt-us-t.s. For *Caut I have found no conclusive evidence. The forms ḫu-u-da- ‘readiness’ /Hódā-1 and ḫu-u-da-a-ak ‘immediately’ /Hodāk/ probably reflect *h₂uh₁-do- in which the initial ḫ is the determining factor for the outcome /o/. The hapax spelling ku-u-ut-ru-ya-a-iz-zi ‘he provides testimony’ < *k₃tru- may show that the labial element of the labiovelar /k₃/ was perceived more as /o/ than as /u/. Nevertheless, I will write the labiovelars as /k₃/ and /g₃/ in phonemic transcription (so /k₃tru-1 here).

C_z
The only case is ku-ū-uz-za ‘wall’, for which see under C_t.

C_?
The stem of the adjective šē-u- / šēy̚u- ‘full’ is consistently spelled with U (nom.sg.c. šu-u-uš, acc.sg.c. šu-u-un, nom.-acc.sg.n. šu-u-ū, šu-ū, acc.pl.c. šu-yya-mu-uš) which points to /oʃ-. The remarkable spelling of nom.-acc.sg.n. šu-ū-ū in my view represents /sóu/, which must reflect /sóʔu/ < *sóʔú₁₃-u. In younger

---

116 Cf. note 83.

117 Note that uδ̣e₂- / uδ̣- ‘to bring (here)’, which is spelled uδ̣e₂ = /tuḍ/, reflects a univerbation of the preverb *h₁-su and the verb *δ̣ēh₂- which took place at a stage in which *h₁-su had already become /tuḍ/ in isolation.

118 Note that the handcopy of KUB 23.8 seems to show a form ye-ah-mu-u[t] in line 7. The photograph of this tablet (available through Hetkonk), in my view rather shows ye-ah-mu-u[t], however. Compare also line 8 where the photograph clearly shows i-ki-x-itu, which turns up in the handcopy as i-ki-x-itu.

The spellings with Ū in šu-ū-il, šu-ū-i-il ‘thread’ and mu-ū-i-il ‘spade(?)’ seems to represent /sūl/ and /mūl/ respectively. Since these words are derived from the roots *seuh₁- ‘to sow’ and *meuh₁- ‘to move’ (although the latter is not fully certain), they originally must have contained /l/: */sūl/ and */mūl/. These then must reflect *sè/ʔuH₁-el and *mè/ʔuH₁-el here.

Because we are dealing with two outcomes, /ol/ and /ul/, 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 šūl- /sò̞ul- reflects *sò̞uH₁- and that šūl- /sò̞ul- and mūl- /mūl- reflect *sèuH₁-el- and *mèuH₁-el- respectively.

**Overview of interconsonantal outcomes**

Note that when -h- is the preceding consonant, the outcome is always /ol/.

<table>
<thead>
<tr>
<th></th>
<th>*ou</th>
<th>*eu</th>
<th>*u</th>
<th>other</th>
</tr>
</thead>
<tbody>
<tr>
<td>C_h</td>
<td>/ol</td>
<td>/ol</td>
<td>/ol</td>
<td></td>
</tr>
<tr>
<td>C_i</td>
<td>/ol</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>C_k</td>
<td>/ol</td>
<td>/ū́</td>
<td>/āl</td>
<td></td>
</tr>
<tr>
<td>C_l</td>
<td>/āu/</td>
<td>/ū́</td>
<td>/āl/</td>
<td></td>
</tr>
<tr>
<td>C_m</td>
<td>--</td>
<td>/ū́</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>C_n</td>
<td>OH</td>
<td>/āu/</td>
<td>/ū́</td>
<td>/āl/</td>
</tr>
<tr>
<td></td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td>NH</td>
<td>/āo(^{\text{120}})</td>
<td>/ū́</td>
<td>/āo(^{\text{121}})</td>
<td>/āo(^{\text{121}})</td>
</tr>
</tbody>
</table>

\(^{119}\) Possibly /ol/ when in *C_n h-[

\(^{120}\) Or /āo/, cf. note 83.

\(^{121}\) Or /k/; cf. note 87.
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, they point to a phonological difference between ṣCu-u and ṣCu-ú. We must keep in mind that a third spelling of course is ṣCu without a plene vowel (e.g. nom.-acc.sg.n. a-aš-šu ‘good’). I therefore assume that ṣCu-u stands for ℓCu, ṣCu-ú stands for ℓČu and ṣCu stands for ℓCú. So, a-aš-šu = ℓášu < *Cu, a-aš-šu-u = ℓášol < *Cuš, šu-u = ℓóš (a contraction of ℓóš) and ka-ru-ú = ℓkrú < *Céu.\(^{126}\)

Word-finally after vowels

_\(a\_#\)_: The sequence ṣa-u only occurs in the words ṣa-a-u ‘?’, ši-š-a-ha-u (KBo 3.2 obv. 26) ‘sweat’, ṣa-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

---

\(^{125}\) On the basis of a-n-u-u-r < *hur-i-ur. If hur-i- < hur-i-ur indeed reflects *lehr-i-ur, then *Ceur > Hitt. Ču, with the exception that *Ce̱r > Hitt. ʃe̱l.

\(^{126}\) Or ṣa-rã, cf. note 83.

\(^{127}\) Or ṣa-rã, cf. note 87.

\(^{125}\) This consistency is also found in the spellings of names: e.g. *Ga-aš-šu-u or *Ka-aš-šu-u is never spelled *Ga-aš-šu-u, *Uz-šu-u is never spelled *Uz-šu-u.

\(^{126}\) The two remarkable spellings ge-em-šu-u (KUB 31.127 i 4) instead of normal ge-em-šu and šu-š-u (KUB 12.29, 3) instead of normal šu-š-u-šu do not contradict this: they are just occasional spellings that stress the ŋ-ness of the word-final vowel.
this form only once, the word **za-a-ú is attested thus multiple times, and never spelled **za-a-ú.


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

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

i # : The spelling °i-ú occurs only in ḫa-le-en-ti-ú ‘palace’, which is not coincidental if we compare the fact that the spelling °i-ú 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-ú, which must represent /miú/.

1.3.9.5 Conclusions regarding U and Û

From the treatment above it is clear that the signs U and Û, which are traditionally interpreted as -u- only, in fact can be used to represent three different phonemes, namely /u/, /û/ and /ol/. Note that I do not distinguish a fourth phoneme, /õ/, 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 /õ/. Secondly, it is likely that /o/ behaves symmetrically to /ẽ/, which does not show a phonemic distinction in length: when accentuated, /e/ is phonetically long

---

127 The words šūhāu and garāu are real hapaxes, Giš marāu occurs in dat.-loc.sg. mar-a-a-ú (1256v obv. 3) as well.

128 The reconstruction of ši-i-š-ḫa-u as *ši-sh-šu 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 /ol/.

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 [\(\beta\)] or [\(\epsilon\)] (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/\(i\)k(\(k\)-); *PsK > Hitt. -p/\(e\)/\(i\)š(\(k\)-); *-
\(K\)sC- > Hitt. -\(k\)/\(j\)/\(e\)/\(i\)šC-; *-
\(V\)h\(S\) > Hitt. -\(V\)/\(h\)/\(e\)/\(i\)š; *-
\(V\)ks > Hitt. -\(V\)/\(k\)/\(e\)/\(i\)š; *ClHsV > Hitt. Cale/\(i\)/\(š\)V; *CmHsV > Hitt. Cane/\(i\)/\(š\)V; *CrHsC > Hitt. Care/\(i\)/\(š\)C; *ClHsC > Hitt. Cale/\(i\)/\(š\)C; *CmHsC > Hitt. Cane/\(i\)/\(š\)C; *-
\(C\)nHsC > Hitt. Caššé/\(i\)/\(C\); *-
\(V\)rHsC > Hitt. Vre/\(i\)/\(š\)C; *-
\(V\)lHsC > Hitt. Vlie/\(i\)/\(š\)C; *-
\(V\)mHsC > Hitt. Vmme/\(i\)/\(š\)C (cf. § 1.4.4.3 and § 1.4.4.4). We also find this vowel in secondary initial clusters *\(y\)T- (in which \(T\) = any stop), e.g. ye/\(i\)/\(ž\)-(obl.-stem of \(\gamma\)\(ʔ\)\(ā\)\(t\)ar ‘water’) < *\(y\)\(d\)-\(ē\)n- << *\(u\)\(d\)-\(ē\)- or ye/\(i\)/\(kk\)-(weak stem of \(\gamma\)\(k\)k-\(ž\)i ‘to wish’) < *\(y\)/\(k\)- << *\(u\)/\(k\)-(see their respective lemmas). This vowel cannot be identical with \(i/\) or /e/ because these are consistently spelled -\(i\)- and -\(e\)- respectively. The vowel \(e/\) may therefore phonetically have been [i] or [\(\epsilon\)].

3. Before initial clusters of the shape *\(s\)T- (in which \(T\) = any stop and /\(H/) a prothetic vowel spelled -\(i\)- emerges: e.g. *\(s\)tu- > Hitt. \(i\)/\(š\)tu-, *\(s\)h\(y\)/\(o\)i- > Hitt. \(i\)/\(š\)h\(ā\)i-, 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 /\(e/\), because it is never spelled -\(e\)-. Phonetically we may think of [\(\epsilon\)]

Because these three vowels occur in specific environments that are complementarily distributed, we could in principle regard them all as allophones of a single phonemic epenthetic vowel, which we could write as /\(\epsilon/\).

Note that there potentially is one environment in which -\(a\-) = [\(\epsilon\)] and -\(e/\)- = [i] have to be phonologically distinguished, however, namely in /\(K\)/\(s\)/\(C\)/. The cluster *\(K\)sC regularly yields Hitt. [\(k\)sC], spelled -\(\gamma\)\(k\)/\(e\)/\(i\)/\(š\)C- (e.g. \(h\)/\(y\)/\(r\)/\(g\)-\(č\)/\(ō\)- > Hitt. \(\gamma\)/\(h\)/\(r\)-\(k\)/\(i\)/\(š\)-\(če\)/\(a\)-, \(\gamma\)/\(h\)/\(r\)-\(ke\)-\(e\)/\(š\)/\(če\)/\(a\)-, *\(t\)/\(ě\)/\(k\)/\(s\)/\(t\)-\(t\)/\(ā\)- > t\(ā\)-\(k\)/\(i\)/\(š\)/\(ž\)-\(i\)-, t\(ā\)-\(k\)/\(e\)-\(š\)/\(ž\)-\(i\)-, etc.), whereas a cluster *\(K\)n\(s\)/\(C\) would yield pre-Hitt. *[\(k\)/\(n\)/\(s\)/\(C\)], which with the regular loss of *\(n\) before *\(s\) would further develop in Hitt. [\(k\)/\(n\)/\(s\)/\(C\), spelled -\(k\)/\(a\)/\(s\)/\(C\). If we would interpret -\(a\-) = [\(\epsilon\)] and -\(e/\)- = [i] as allophones of a single phoneme /\(\epsilon/\), it would in this environment become impossible to explain on the basis of synchronic
reasoning only why the phonological form /kɔsC/ 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 *g²mškē/ó- > Hitt. [k²škē/a-], spelled ku-ya-as-ke/a- ‘to kill (impf.)’, which has an initial labiovelar. Because in the cluster *KsC labiovelars behave differently, yielding not **-ku/e/išC- but -kušC- (cf. *hig²škē/ó- > Hitt. ak-ku-uš-ke/a-), there is thus far no minimal pair attested where -a- = [ə] and -e/i- = [i] 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 /a/ and the vowel -e/i- = [i] as /i/, 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- = [i] as /i/ as well.

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

\[
\begin{array}{cccc}
/\bar{u}/ & /i/ & /u/ & /\bar{u}/ \\
/\bar{a}/ & /\bar{e}/ & /\bar{o}/ & \\
/\bar{a}/ & & & /a/ \\
\end{array}
\]

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

\[
\begin{array}{cccc}
/\bar{u}/ & /i/ & /u/ & /\bar{u}/ \\
/\bar{e}/ & /\bar{o}/ & & \\
/\bar{a}/ & & & /a/ \\
\end{array}
\]

\(^{129}\) A concrete case could e.g. be the nom.-acc.sg.-form sêkan ‘oil’ followed by the enclitic possessive pronoun -ašmet, -ašmit, -ašmite ‘your (pl.), their’, which should have been spelled **sêškašmet ‘your / their oil’, representing [sêkašmet] < *sêkašmed < *sêk(ə)bənšmed.
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:

<table>
<thead>
<tr>
<th>stops</th>
<th>/p/</th>
<th>/t/</th>
<th>/k/</th>
<th>/kʷ/</th>
<th>(fortis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>affricate</td>
<td>/ʈ/</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>glottal stop</td>
<td>/ʔ/</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fricatives</td>
<td>/H/</td>
<td>/Hʷ/</td>
<td>/S/</td>
<td></td>
<td>(fortis)</td>
</tr>
<tr>
<td></td>
<td>/h/</td>
<td>/hʷ/</td>
<td>/s/</td>
<td></td>
<td>(lenis)</td>
</tr>
<tr>
<td>resonants</td>
<td>/ɾ/</td>
<td>/ɾ/</td>
<td>/n/</td>
<td>/m/</td>
<td>(fortis)</td>
</tr>
<tr>
<td></td>
<td>/ɾ/</td>
<td>/ɾ/</td>
<td>/n/</td>
<td>/m/</td>
<td>(lenis)</td>
</tr>
<tr>
<td>vowels</td>
<td>/i/</td>
<td></td>
<td>/u/</td>
<td>/u/</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>/ə/</td>
<td></td>
<td>/ə/</td>
</tr>
</tbody>
</table>

82
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.\footnote{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.}

1. Intervocalic fortis consonants are lenited after an accentuated long vowel.\footnote{First formulated by Eichner 1973: 79.}

Note that this includes the outcomes of the monophthongizations of *ei, *oi, *eu and *ou\footnote{This shows that at the moment that lenition took place, the result of the monophthongization of *ei and *ou was */i/ and */u/, which was still different from original short */i/ and */u/, which did not cause lenition, only later on, probably as a result of the loss of a distinction in length between */i/ and */u/ in unaccentuated syllables (due to the weakening of unaccentuated */i/ to */i/ and */u/ to */u/), accentuated */i/ and */u/ merged into Hitt. */i/ and */u/.} as well as the outcome of */ô/, which yields Hitt. /â/ through PAnat. /â/.\footnote{This is the only reasonable way in which we can explain the frequent alternation in /î/-verbs between a lenis stem-final consonant in 3sg.pres.act. and a fortis one in 3pl.pres.act., e.g. /îsâqâ/ /îsâppanâ/, which reflects */stâqê/ */stâppê/, where */ô/ > PAnat. */ô/ > Hitt. /â/ caused lenition of the following */p/ to */h/.}

Examples: *hêihiou > Hitt. /hêhu/, e-êhu ‘come!’; *méihur > Hitt. /mêhur/, me-e-êhr ‘period, time’; *sókô > Hitt. /sågâ/-l, ša-a-ku-ya- ‘eye’; *hômsei >
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-eh-ḫī hēHi/ ‘I take’ < *ḏhōḫy showed regularly have been **/tēhi/, **te-e-ḫi, etc.).

(2) Intervocalic fortis consonants are lenited between two unaccentuated vowels. There are only a few examples from Hittite because in many occasions the fortis consonant has been analogically restored. Real examples include: *CVČ-hēhē > Hitt. /CVCHaha/, C-ḫa-ḫa (1sg.pres.midd.-ending); *sépiṭos > OH /sēpidas/, še-ep-p̥-da-aš, a kind of grain (gen.sg.) >> OH /sēpitas/, še-ep-p̥-i-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 *yekk-₂).

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/₂ = /ʔkškš/’a-l, the -ške/₂-a-imperfective of eku-²/ aku- = /ʔregʷ- / ṭgʷ- / ‘to drink’; la-ak-ki-iš-ke/₂ = /lākškš/’a-l, the -ške/₂-a-imperfective of lāk-²/ lāk- = /lāg- / lāg- ‘to knock down’; etc. Sometimes, fortition can be interpreted as assimilation, e.g. *Vgh₂V > Hitt. /VkJV/. See below at the treatment of the separate phonemes for more examples.

---

134 This example shows that the assimilation of *VmV to /VSVV/ antedates the process of lenition.
135 Examples like ērrī ‘he washes’ < *hērē and šēkki ‘he knows’ < *sēkê show that at the moment of lenition *-r- and *-k- phonologically still counted as clusters (lenition only affects intervocalic consonants!). So the assimilation of *Vrh₂JVto /VrhV/ and the disappearance of *h in *ChJ only took place after the moment of lenition.
136 First suggested by Eichner 1973: 100⁰.
137 Compare the Lycean ending -'oge < PAnat. *-'Haha/.
138 This example shows that the rise of the epenthetic vowel i/ in a cluster *1KSc postdates the fortition of *i/ to /k/ before -sk.
1.4.3 Stops

*p


*b

Since already in PIE *b was a rare phoneme, I know of only one example in Hittite, namely *g’róbhy-ëi > Hitt. /krábl/, ka-ra-a-pî ‘he devours’, which shows that PIE *b yields Hitt. /bl/.

*bʰ

The normal outcome of *bʰ is Hitt. /bl/: *nēb’es > Hitt. lnébisl, ne-e-pi-iš ‘heaven’; *dʰébʰ-u > Hitt. hēbu, te-e-pu ‘little’, *h₁érbʰ-to > Hitt. /Hárba/, ḫar-ap-ta ‘he changes alliance’. In initial position, all labial stops have merged in /pl/: *bʰérh₁-ti > Hitt. /párHtʰ/₁, pár-aḫ-zî, pár-ḫa-zî ‘he chases’. Fortition of *bʰ to /pl/ seems to have taken place in *h₁rbʰ-skē/ó- > Hitt. /Hrpiské-l/, ḫar-ap-pî[-iš-ke/-a-], impf. of ḫarp-ʰ/* ‘to change alliance’ and in *kmbʰ-/i- > Hitt. /kapi-l, kap-pi- ‘small’.

*t

The normal outcome of *t is Hitt. /l’/: *terh₁-u- > Hitt. /tarH₁/-, tar-ḫu-, ta-rú-ulh- ‘to conquer’; *tuék-om > Hitt. /tuékən/, tu-ek-ka-an ‘body’; *h₁é-t-o > Hitt. /Háta/, ḫa-at-ta ‘he pierces’; *melit- > Hitt. /milit-l, mi-li-it-ʲ ‘honey’; *h₁p-ënt-om > Hitt. /pántan/, ap-pa-an-ta-an ‘seizing’. In front of *i, *t is assimilated to /tʰ/139; *tiH-ge > Hitt. tʰíĝl, zi-i-k ‘you’; *tí-n-h₁-ënti > Hitt. tʰiNánt’ùl, zi-in-na-an-zî ‘they finish’; h₁t-ë/ó- > Hitt. /Htʰéül/, ḫa-az-zî-ë, ḫa-az-zî-já- ‘to pierce’140; *h₁é-ts > OHitt. /tëst’ùl, e-eš-za // Hitt. /tëst’ùl, e-eš-zî;141 see at § 1.4.8.1.c for a

---

139 The assimilation of /tʰ/ in front of *t must be post-PAnatolian, since it does not occur in the other Anatolian languages (e.g. Luw. -mi, Pal. -ŋ < *-n).

140 Possibly through a stage */Htʰéül/* in which the suffix -j/*- was secondarily restored.

141 With secondary addition of -z in analogy to the other present verbal endings in -i (-m₁, -y, -ye₂, -he₂).
more detailed treatment. Assibilation also takes place in word-initial position in front of *i: *tlh₂-óí > Hitt. /tʰHái/, za-al-ḥa-a-i, a vessel, lit. ‘carrier’. Lenition of *r may be visible in some forms of the paradigm of šeppitt-, a grain, e.g. gen.sg. še-ep-pi-da-aš /sépidas/, if this reflects *sépitos. Also in *h₂ug- > Hitt. /Hdug-/l, ḥa-tu-ug-, we seem to be dealing with a lenition of *h in the initial cluster *h₂*l

*d*

1.4.3.5 The normal outcome of *d* is Hitt. /d/: *uódr > /aúdr/, ya-a-tar ‘water’; *h₂dent- > Hitt. /Hdánt-l, ḥa-ta-an-t- ‘dried up’. In front of *i, *d gets assimilated to /sl/\(^\text{142}\): *dï̀ús > Hitt. /śísul/, ši-i-ú-uš ‘god’; *dïou-t- > Hitt. /śıuat-l, ši-i-ya-at-i° ‘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 assimilated to /l/; *dlug₇-nu- > Hitt. /l’ługnu-/l, za-lu-uk-nu- ‘to postpone’, *dlug₇-êh₁št₁ > Hitt. /l’ugčS-/l, za-lu-keš- ‘to take long’. After the assimilation has taken place, all word-initial dental stops have merged in /l/: *dóru > Hitt. /lárul, ta-a-ru ‘wood’; *dóh₂-ei > Hitt. /lál, da-a-i ‘he takes’.

*dʰ*

1.4.3.6 The regular outcome of *dʰ* is Hitt. /dː/; *moldʰ-ei > Hitt. /mǎldil, ma-a-al-ti ‘he recites’. In initial position, the dental consonants merge in /l/: *dʰéh₁-ti > Hitt. /lëč’l, te-e-ez-zí ‘he speaks’; *dʰêgʰ’om > Hitt. /lêgan/, te-e-kán ‘earth’; etc. If panku- / pankay- ‘entire’ reflects *dʰbⁿgʰ(-e)u- (see its lemma), it shows loss of word-initial *dʰ* before another stop. This may indicate that its preservation in e.g. ták-na-a-aš ḡnáš/ ‘earth (gen.sg.)’ (see its lemma) is analogical after the full-grade *dʰêgʰ-m > te-e-kán. Fortition of *dʰ* to /l/ is visible in *b⁷l’óda hô₂-ei >> Hitt. /lpatáil, padr-ai ‘he digs’, where it is due to the following *h₂.

The behaviour of *dʰ* 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 *dʰ*, just as *d*, gets assimilated to /s/ in front of *i. Unfortunately, all examples where we seem to be dealing with *dʰi* are non-probable: titt-a-’ / titti- ‘to install’ goes back to virtual *dʰi-êh₁-ti- / *dʰi-êh₁-ì- but could very well be a recent formation that was created after the assimilation ceased to operate; ıṣpatiš̱-a-äh to ‘escape’ seems to reflect *sprdʰ-ië-i’, but is a NH formation; the 2sg.imp.act.-ending -t (e.g. /ti/}

\(^{142}\) The assimilation of *d > /s/ in front of *i must be post-PAnatolian, since it does not occur in the other Anatolian languages (e.g. Luw. ṭuwa ‘Sun-god’ < *dësö-, Pal. tuwa- ‘god’ < diw-).
'go!', *armu 'deport!', *ašnu 'take care!', *ḫuešnut 'rescue!', etc.) reflects *-dʰi, but may have lost its word-final *-i before the assimilation took place. This means that there is no solid evidence to prove or disprove that *dʰ, too, would have been assimilated before *i.\(^{143}\)

\*k

1.4.3.7 The normal outcome of *k is Hitt. /kl/: *kōs > Hitt. /kās/, ka-a-aš 'this (one)', *kēito > Hitt. /ki-ta/ 'he lies'; *hyrtko- > Hitt. /Hrtkâ-/ 'bear'; *sōk-r > Hitt. /sâk-tâ/, šâ-ak-âr 'dung'.\(^{144}\) Lenition of *k to /g/ may be visible in za-ma-kur 'beard' if this reflects ʰtmâgûl < *smôkûr (but perhaps this form is a defective spelling for za-ma-ân-kur).

In the cluster *RkC, *k is regularly dropped, as is visible in ḫar-zi /Hárt'îl/ 'he holds' < *h₂érk'tìi and išt-ar-zì ištâr'tìl/ 'it ails' < *stèrktì.

\*g

1.4.3.8 The normal outcome of *g is Hitt. /gl/: *hy-g-i- > Hitt. /Hrgi-/l, ḫar-ki- 'white'. *slâg'-o > Hitt. /slîgâl, ša-li-i-gâ 'he touches'. In initial positions the palatovelars merged into /kl/: *ghn,šênti > Hitt. /knîSânt'îl, ka-ni-eš-ša-an-zì 'they recognize'; *gênu- > Hitt. /knîl, ge-e-nu 'knee'. Fortition of *g is visible in *mêghyom > Hitt. /mêkan/ 'great (acc.sg.c.)', where it is due to the following *h₂.

\*gh

1.4.3.9 The normal outcome of *gh is Hitt. /gl/: *dh-y-g'-om > Hitt. /Hgônâl, te-e-kân 'earth'; *stêḷg'ti > Hitt. /stîḷt'îl, išt-tâl-zì 'he flattens'. In initial position the palatovelars merge into /kl/: *ghêsr > Hitt. /kêSrâl, ke-eš-sar 'hand'; *gh'mîro- > Hitt. /kmîrâl, gi-im-ra- 'field'.

\*k

1.4.3.10 The normal outcome of *k is Hitt. /kl/: *kûr-ți > Hitt. /kûrSt'îl, kar-a-zì 'he cuts'; *skôr-ei > Hitt. /skîrâtîl, is-ka-a-rî 'he cuts'; *tuêko- > Hitt. /tuêkâ-tîl, tu-e-ek-ka- 'body'; *tuk-ô-rit(i) > Hitt. /tukûrîl, du-ag-â-râ 'he is visible'; *mrk-îtê-/ > Hitt. /mrkîê-âl, mar-kî-îa- 'to disapprove of'. Lenition of *k to /g/ is possibly visible in a-ki /štâgîl/ 'he dies' < *Hôk'êti if this forms reflects *k. In the cluster *RkC, *k

\(^{143}\) Contra Kimball 1999: 292 who explicitly states that "*dh was not assimilated before *y".

\(^{144}\) We would expect lenition of *k to /g/ here (*sôk r > *sâgîl like *ôr > Hitt. /ôtâl, *ô-a-kar), but apparently /k/ was restored in analogy to the oblique cases /skâl < *sk-î.
*g

1.4.3.11 The normal outcome of *g is Hitt. /gl/: *h₂tuge- > Hitt. /Hduga-/; *ha-tu-ga- ‘terrible’; *iugom > Hitt. /ğuğan/; i-ú-ḫán ‘yoke’; *h₂ığ-ti > Hitt. /Hargt-ul/; *har-ak-zi ‘he gets lost’.

*g

1.4.3.12 The normal outcome of *g is Hitt. /gl/: lög₇-ei > Hitt. /Iğül/, la-ak-ki ‘he knocks down’; *lg₇-ri > Hitt. /İğari/; la-ga-a-ri ‘he is felled’. In initial position all normal velars merge into /k/-: *gr₁b₁-ei > Hitt. /krab₁/, ka-ra-a-pi ‘he devours’. Fortition of *g to /k/ is visible in la-ak-ki-iš-ke/a/- /Iğiské/₁–₁, impf. of Iğı₇ / lak- ‘to knock down’ < *Iğ₇-ské/₁–₁.

*k

1.4.3.13 The normal outcome of *k is Hitt. /kʷ/; *kʷis > Hitt. /kʷ₁sl/, ku-iš ‘who’; *kʷe-rti > Hitt. /kʷ₁t₁/; ku-e-er-zi ‘he cuts’; *kʷ₁-t₁-ru-en > Hitt. /kʷ₁tr₁n/, ku-ut-ru-e-n° ‘witness’; *nekʷe > Hitt. /neḳʷ₁/, ne-ek-ku ‘not’; *prkʷ₁-i > Hitt. /prk₁v₁/, par-ku-i ‘clean’; *dekʷ₁-iš–₀ > Hitt. /dekʷ₁Siél₁/, te-ek-ku-uš-ši-ja ‘to show’. If išpant ‘night’ indeed reflects *kʷspént- (cf. its lemma), it would show loss of initial *k before obstruents.⁴¹⁶ Lenition of *k to /gʷ/ is visible in ša-a-ku-ya- /sågʷ₁ ‘eye’ < *sókʷ₁-₀. In the cluster *RkʷC the buccal part of */kʷ₁/ is regularly lost: *térkʷ₁ti > */t́r₉²ᵗ₁/ > Hitt. /tárut₁/, tar-ú-zi ‘he dances’; *trkʷ₁ské/₀ > */tr₉²ské/₁ > Hitt. /turke₁/, ta-ru-uš-ke/a- ‘to dance (impf.)’ (similarly in *RkC and *RkC, see above).

*g

1.4.3.14 The normal outcome of *g is Hitt. /gʷ/: *negʷ-m-ent > Hitt. /negʷ₁mant/, ne-ku-ma-an⁻¹- ‘naked’; *d₇ngʷ⁻⁺⁻-i > Hitt. /td₇ngʷ₁/, da-an-ku- ‘dark’; *trgʷ⁻⁻⁻-ent > Hitt. /trgʷ₁-žl, tar-ku-yu-an⁻⁻⁻- ‘looking angrily’. In initial position the labiovelars merge into /kʷ₁/; *gʷelh₁-₉-uon > Hitt. /kʷ₁eluan₁/, ku-e-iyor-n° ‘washbasin’.

---

⁴¹⁵ Contra Melchert 1994a: 61, who claims that “[t]he PIE voiceless labiovelar *kʷ*/ is [...] weakened to PA[nat.] */gʷ*/ in medial position”.

⁴¹⁶ The preservation of *k° in kum₉ɛ₉r < *k°nu-ër- ‘witness’ may be due to restoration in analogy to the expected full-grade form *k°c₉ur, which is not attested in Hittite anymore, however.
The normal outcome of *gʷh is Hitt. /gʷ/: *h₁gʷh₁t > Hitt. /h₂gʷt/, e-ku-zi, e-uk-zi 'he drinks'; *négʷhi > Hitt. /négʷti/, ne-ku-zi 'it becomes evening'; *hs₁gʷhᵻ, éh.shabit > Hitt. /hs₁gʷêt/, ku-en-zi 'he kills'. In initial position, the labiovelars merge into /kʷ/-: *gʷhent > Hitt. /gʷent/, ku-en-zi 'he kills'. Fortition of *gʰ to /kʷ/ is visible in ak-ku-uš-kewa- /kʷské-/, impf. of eku-² / aku- 'to drink' < *h₁gʷhᵻ-ské-ô-.

1.4.4 Fricative

1.4.4.1 Word-initially before vowel, *s is retained as such: *sV- > Hitt. /#sV/-: *sésthi > Hitt. /séstʰ̣ɪ/, še-es-zi 'he sleeps'; *sókh₁-is > Hitt. /sókʰ₁-ɪ/, ša-ak-ki 'he knows'; *sup-ô-ri > Hitt. /supʰ̣ar-ɪ/, šu-up-pa-ri 'he sleeps'; *sih₂ > Hitt. /siθ̣-ɪ/, ši- 'one'.

Word-initially before consonants, the outcome depends on the nature of the consonant. Before stops and *h₂, we find that *sC > Hitt. /sC/-, spelled iš-C: *sh₂-ô-ir > Hitt. /šāh₁-ɪ/, iš-ša-ai 'he bind'; *skörei > Hitt. /škär-ɪ/, is-ka-ari 'he cuts'; *spf₁-ô-ir > Hitt. /špf₁-ɪ/, iš-pa-a-i 'he gets full'; *stelgʰ > Hitt. /stelgʰ-ɪ/, iš-tal-ak-zi 'he flattens'.¹⁴⁷ Before the other consonants (i.e. resonants, *h₁, *h₂ and *s), we find that *sC > Hitt. /sC/-: *sró > Hitt. /srůl, ša-ra-ô- 'upwards'; *slēgʰ-ô > Hitt. /slēgʰ-ɪ/, ša-li-i-ga 'he touches'; *smënti > Hitt. /smënti-ɪ/, ša-me-en-zi 'to pass by'; *snḥ₂-ënti > Hitt. /snḥ₂-ënti-ɪ/, ša-an-ḥa-an-zi; *sh₂-ô-ir > Hitt. /šāl, ša-ô- 'he impresses'; *shn₂-ô-ô- > Hitt. /šn₂-ô-ô-, ša-an-ku-ô- 'nail'; *ssënti > Hitt. /ssënti-ɪ/, ša-ša-an-zi 'they sleep'.

The outcome /ś/- as visible in za-mat-an-kur /smá(n)gur/ 'beard' < *smókur and za-ak-kar, za-aš-ga-ro /škar/ 'excrement' < *skör is not phonetical. See the lemmas zama(n)kur and šakkar, zakkar / sakn- for an explanation.

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

*VˢV > Hitt. /#sV/-: *nébʰesos > Hitt. /nébisasl, ne-e-pî-ša-ô- 'heaven (gen.sg.)', *h₁ès-ôr > Hitt. /h₁éserl, e-še-er 'they were'.

*VˢP (in which P = any labial consonant): the only example, *uos-bʰ-ô > Hitt. /uaSba-ɪ, ya-aš-pa-, ya-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 i/ before i/; 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 yešš-159, yaššē/ā2- ‘to wear’.


*VšsI > Hitt. /VssI/; *h2ēs-si > Hitt. /rēssîl, e-eš-ši ‘you are’.


*VšhV: no examples.


*VsmlV > Hitt. /VsmlV/ e.g. *uniō/ō- > Hitt. /uSnīélâ-l, uš-ni-ja-, uš-ša-ni-ja- ‘to put up for sale’.


---

148 The geminate -š- in the CLuwian cognate /B(ša)ra-/ ‘hand’ may show that fortition of *š to /S/ before *r is PAnatolian already.

149 Note that all instances of /y/j/ in Hittite must be of secondary origin, e.g. /gēzje/ /gēzje-aw- ‘to buy’ is a secondary stem on the basis of original /yēzi/ /yēzi- ‘to buy’.


*VḥšV, Here we must take the accentuation into account, namely *V̄ḥšV yields Hitt. /NśV/ whereas *VḥšV > Hitt. /NšV/: *ʰ₁éh₁šo > Hitt. /ʾt̪ėsal/, e-ša ‘he sits down’ vs. *ʰ₂h₂šéh₂ > Hitt. /Haš₁š/, ḥa-a-aš-ša- ‘hearth’ (see at ḥāššā for an extensive treatment of this word); *ʰ₁h₁š-éh₂ > Hitt. /Hšša-/l, ḥi-iš-ša- ‘carriage pole’.

*VḥšV > Hitt. /VHšV/: *pēh₂s-o > Hitt. /páHša/, pa-ah-ša ‘he protects’; *pleh₃so > Hitt. /plaHša-/l, pa-la-ah-ša-, a garment.

*VḥšV. Here we must take the accentuation into account as well, namely *V̄ḥšV yields Hitt. /NśV/ whereas *VḥšV > Hitt. /NšV/: *pōh₃së > Hitt. /pāšil/, pa-a-śi ‘he sips’ vs. *poh₃s-nëm-të > Hitt. /pāšuআ’t’, pa-a-aš-su-an-zi ‘to sip’ (with analogical ̄); *ʰ₂h₂š-ēh₂ > Hitt. /Hšša-/l, ḥi-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.

*VsV > Hitt. /VRV/: *ʰ₁orso > Hitt. /tRa-/l, a-ar-ra- ‘arse’.

*VšV > Hitt. /VšV/: *polso- (or *plšo-?) > Hitt. /plša-/l (or /plša-/?), pal-ša- ‘road’.

*VmsV > Hitt. /NSV/: *ʰ₂ems-u- > Hitt. /HaSu-/l, ḥa-aš-su- ‘king’. When lenited, the outcome is /NšV/, however: *ʰ₂ómse > Hitt. /H̄šši/, ḥa-a-ši ‘he procreates, she gives birth’. 152

*VnsV > Hitt. /NSV/: /de/ons-u- (or /de/oms-u-) > Hitt. /t̄su-/l, da-aš-su- ‘powerful’.

---

150 Although the spelling -šši does not reveal anything about whether the *š is single or geminate and although no spellings can be found that expressly indicate singleness (never *šši) or geminateness (never *ešši), the fact that the *š fortifies to /š/ in *VŠV and *VTSV in my view makes it highly plausible that this happened in *VPSV as well.

151 Melchert 1994a: 77 states that *ʰ₁šši > Hitt. /šš/ on the basis of his reconstruction of the genitival suffix *ešš as *eššo-. See at *ešš for the falseness of this etymology, however.

152 Because lenition is a PAntat. feature, the assimilation of *VmsV to /NSV/ must be PAntatolian as well.
92

* VRHSV > Hitt. /NrsV/ if the reconstruction of *ḥārši (as inferred from 3sg.pret.act. ḫa-a-ar-aš-ta) ‘he tills (the soil)’ as *ḥ₂-ōṛḫ₃-s-ei is correct.

* VHSV: no examples.

* VMHSV > Hitt. /NnsV/: *ḫ₂-oṁḥ₂-s-ei > Hitt. /tānsil, a-a-an-ši ‘he wipes’.

* VnHSV > Hitt. /Nm’tV/: *ğenḫ₁-su- > Hitt. /kēnt’u-/, ge-en-zu- ‘lap’.

* VRHC > Hitt. /NrisCl/: *uērh₁-sēkê/ō’ > Hitt. /ueriskē-l, ū-e-ri-iš-ke/a- ‘to call (impf.)’. ¹¹³

* VIHS > Hitt. /VLsCl/: *kēlh₁st > Hitt. /kāList, kal-li-š-ta ‘he called’.

* VMHS > Hitt. /VMiCl/: *đemh₂š₂-ô’ > Hitt. /taMisH₄-l, dam-me-iš-ḥa-‘damage’. ¹¹⁴

* VNHS: no examples.

* CrsV > Hitt. /CrSV/: *krs-êntu > Hitt. /krSántul, kar-ša-an-du, kar-aš-ša-an-du ‘they must cut’.

* ClsV > Hitt. /CISV/: *k’lsênti > Hitt. /k”lsánt’i/l, gul-ša-an-zî, gul-aš-ša-an-zî ‘they carve’.

* CmsV > Hitt. /Cn’tV/: *h₂msôsiô- > Hitt. /Hnt”ś-sə-l, ḥa-an-za-a-ša-‘descendant’.

* CNsV > Hitt. /Cn’tV/: *nsôs > Hitt. /nt”śs, an-za-a-š ‘us’.

* CrHSV: no examples.

* CIHSV > Hitt. /CISV/: *k’h₁sênti > Hitt. /kliSánt’i/l, ka-li-iš-ša-an-zî ‘they call’.

* CMHSV > Hitt. /CnSV/: *h₂mhs₂-ênti > Hitt. /HnSánt’i/l, ḥa-ni-eš-ša-an-zî ‘they wipe’.

* CNHSV > Hitt. /CnSV/: *ğnh₁-señti > Hitt. /kniSánt’i/l, ka-ni-eš-ša-an-zî ‘they recognize’.

* CrHC > Hitt. /CrSCl/: *pri-prh₁-sēkê/ó’ > Hitt. /pripriskē-l, pa-ri-pri-iš-ke/a- ‘to blow (impf.)’, *h₁rh₁-sēkê/ô’ > Hitt. /priskē-l, a-ri-iš-ke/-a, a-re-eš-ke/a- ‘to consult an oracle (impf.)’.

¹¹³ Perhaps we must assume on the basis of *VIHS > /VLsCl/ and *VMHS > /VMiCl/ that the regular outcome of *vrhs was /VRI/ and that in Ĥ-e-ri-iš-ke/-e the single -r- was introduced from the indicative ger(i-š-i-). ¹¹⁴ If ḫar-ani-s, ḫar-ani-e₁ /Hēnsil ‘wipe’ < *h₂-oṁḥₛ și, ḫar-ani-s, ḫar-ani-e₁ /Hēnsi ‘wiping’ < *h₂-oṁḥ₂-s-e₁ are really phonetically regular, the different outcome may be due to the preceding leniting *ō. Note that these forms may also show that the -m in damme/iš-a at one point has been restored in analogy to the verb tamqēs² /lame/iš-a.
In clusters containing *s and stops we often see the rise of the anaptyctic vowel /ɨ/ (sometimes only within the Hittite period): *ḍḥₚskè/ò- > OH ḥtskè/ò- > Hitt. ḥtsikèl/ò- ‘to place (imperf.)’; *ḥ₁d-skè/ò- > MH ḥdskèl/ò-, az-za-ke/-a- (MH/MS) > MH/NH ḥdskèl/ò- (MH/MS) ‘to eat (imperf.)’; *ḥ₂t-skè/ò- > OH ḥtsikèl/ò-, ḥa-az-zi-ik-ke/-a- ‘to pierce, to prick (imperf.)’; *ḥ₁p-skè/ò- > Hitt. ḥpiskèl/ò-, ap-pi-iṣ-ke/-a- ‘to seize (imperf.)’; *tēs-ti > Hitt. ṭākist’ül, tāk-ki-iṣ-zi ‘he devises’; *ṭ₁g₃ₚ-skè/ò- > Hitt. ṭlakiskèl/ò-, la-ak-ki-iṣ-ke/-a- ‘to fell (imperf.)’; *ṭ₁g₃₀u-‘nent- > Hitt. ḥdsku-‘zent- ‘to curdle (imperf.)’; *ṭ₁hₚ‘sè ‘to curdle (imperf.); and compare the outcomes of *CRHsC (above), *-Vḥs and *-Vks (below).

### 1.4.4.4

The outcome of word-final *s is /sl/. *-V’s > Hitt. -Vs: *-as > Hitt. -as/-iṣ, -aṣ, gen.sg.-ending; *sēs > Hitt. lsēs/-iṣ, -e-esi ‘sleep!’; *kōs > Hitt. kāśl, ka-a-āṣ ‘this (one)’.

*V’s > Hitt. /Vks: *h₁ōk-s > Hitt. ṭlākis/əl, -aṣ-ki-iṣ ‘he died’.

*VPs > Hitt. NPs: *stōp-s > Hitt. īstāp/-s, īṣ-tap-pa-āṣ ‘he plugged up’;

*ṭ₁rōḥbḥ-s > Hitt. ḥrāêt-bḥ-s > Hitt. ḥrā̃ṣ ‘he devoured’.

*VT’s > Hitt. -Vt’s: *ṭ₁hₚ‘u‘t-s > Hitt. ḥtā̃s, ḥuk-ū-zu ‘wall’; *dēwot-s > Hitt. ḥdot-s, ḥwot-s, ḥu₂-‘tu ‘entrails’.

*Vḥ/s > Hitt. -Vḥs: *ṭ₁‘h‘s > Hitt. ḥēs/-iṣ, te-e-ēṣ ‘you spoke’.

---

1. **Commentary:**

155 Although on the basis of *ChHS* > Hitt. /ChSW/ we may rather have to assume that regularly *ChHS* yields /ChSW/ and that in *damāš/-e* the -m- has been restored in analogy to the verb *damāš/-e* /tamāš/-e.

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 ḥur-za-t/-e/-a/ /Hortsikèl/ ‘to curse (imperf.)’ < *ḥur-skè/ò- ‘to curse (imperf.)’ *-svarran-sa-t/-e/-a/-e/ /spsniskèl/ ‘to libate (imperf.)’ < *spsnā-skè/ò- ‘to libate (imperf.)’ < *māl-skè/ò- ‘to libate (imperf.)’ *-mālskèl/ ‘to libate (imperf.)’ < *mālskèl/ ‘to libate (imperf.)’ *-mālskèl/ ‘to libate (imperf.)’ *-mālskèl/ ‘to libate (imperf.)’. This must be due to the fact that a resonant is preceding the dental consonant.

158 Note that OH ḥt-ar-g-ū-‘t/-e/-a/-e/ /Hinkiskèl/-l yields MH ḥt-ar-ki-iṣ-‘t/-e/-a/-e/ /Hinkiskèl/.
*Vh₂s > OH /-VHs/ > NH /VHis/; *-őh₂-s > OH /-aHs/, °Ca-ah-ḫa-aš (OH/NS) > NH /-aHsl/, °Ca-ah-ḫi-iš (NS), 3sg.pret.act.-forms of verbs in -aḫ₂-.

*Vh₁s > Hitt. /Vsl/: *dôh₁-s > Hitt. /aš/, da-a-aš ‘he took’.

*-Vrs > Hitt. /-Vrs/: *h₁ôrs > Hitt. /ïarsl/, a-ar-aš ‘he arrived’; *kers > Hitt. /kársl/, kar-a-aš ‘cut’.

*-Vls: no examples.

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

*-Vns > Hitt. /-Vns/: *-uen-s > Hitt. /-uasl/, -ya-aš, gen.sg. of the verbal noun in -yár.

1.4.5 Laryngeals

Because the PIE laryngeals, *h₁, *h₂ and *h₃, 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 [fhc.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):

<table>
<thead>
<tr>
<th>PIE</th>
<th>PAnat.</th>
<th>PIE</th>
<th>PAnat.</th>
</tr>
</thead>
<tbody>
<tr>
<td>*h₂e-</td>
<td>*Ha-</td>
<td>*h₂o-</td>
<td></td>
</tr>
<tr>
<td>*h₁e-</td>
<td>*Ho-</td>
<td>*h₁o-</td>
<td>*ʔo-</td>
</tr>
<tr>
<td>*h₁e-</td>
<td>*ʔe-</td>
<td>*h₁o-</td>
<td></td>
</tr>
</tbody>
</table>

159 The ʔ in ��ar-e-ra ʔat /Hstérs/ ‘star’ < *hstēr + s must be due to the secondary attachment of the commune nom.sg.-ending s to the stem /Hstér/.
The outcome of the PAnatolian sequences in Hittite is as follows:


PAnat. */RV-/ > Hitt. /RV-/ (except PAnat. */Rīrv-/ see below); */Hīlengri- > PAnat. */Hīlengri- > Hitt. /Hēkti/, li-ik-zī ‘he swears’; */Hēnhmn- > PAnat. */Hēnhmn- > Hitt. /Hēmn/, ḫa-a-ma-an- ‘name’; */Hūorg- > PAnat. */Hūarg- > Hitt. /Hūarg- /
/uarg-/- in *ya-ya-ar-ki-ma-, object in which the door-ax is fixed and turns;

*hu<u>oro-so- > PANat.*/uorso- > Hitt./uarsa-/, *ya-ar-ša- `fog, mist'.

PANat. */<tr>TrV/- > Hitt. */<tr>TrV-/*hrénti > PANat. */<tr>Tránti/ > Hitt. */<tr>Trántul/, a-ra-an-zi `they arrive’; *hu<2>rente > PANat. */<tr>Trantol/ > Hitt. */<tr>Trantal/, a-ra-an-ta `they stand’; *hróei > PANat. */<tr>Tróei/ > Hitt. */<tr>Tóui/, a-ra-a-i `he rises’.

PANat. */HT/- > Hitt. */HT/-: *hstéř > PANat. */Hstér/ > Hitt. */Hstér/, ḫa-aš-te-er- `star’; *h<2>dén <2>- > PANat. */Hdánt/- > Hitt. */Hdántul/, ḫa-da-an-ta `parched’; *ha<2>téí /- > PANat. */Htié<2>- > Hitt. */Htiélá <2>-, ḫa-az-zi-e, ḫa-az-zi-ja- `to pierce, to prick’; *h<2>téugti > PANat. */H dúgtul/ > Hitt. */H dúgtulul/, ḫa-tu-uk-zi `he is terrible’.

PIE *<h>h₁,₂ T- > PANat. */T/- > Hitt. */T/-: *h₁p-óí-ei > PANat. */póí/- > Hitt. */p}<2>uí/, pa-a-i `he gives’; *<h>h₁sié <2>- > PANat. */siéuí/ > Hitt. */siéuí/ <2>, ši-<2>-e-e-zí `he shoots’; *h<2>st<1>-st<1>ení > PANat. */tístení/ > Hitt. */tístení/, zi-iš-te-e-ni `you (pl.) cross over’.

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/”, cf. Kloekhorst fthc.c.; the order of laryngeals is again not numerical):

<table>
<thead>
<tr>
<th>PIE</th>
<th>PANat.</th>
<th>early OH</th>
<th>late OH</th>
</tr>
</thead>
<tbody>
<tr>
<td>*V₁h₂V</td>
<td>*/VHV/</td>
<td>*/VHV/</td>
<td>*/VHV/</td>
</tr>
<tr>
<td>*V₁h₁V</td>
<td>*/V₁YV/</td>
<td>*/V₁YV/</td>
<td>*/V₁V/</td>
</tr>
<tr>
<td>*V₁h₂V</td>
<td>*/V₁YV/</td>
<td>*/V₂YV/</td>
<td>*/V₂V/</td>
</tr>
</tbody>
</table>

Examples:

*V₁h₂V: *pé<h>₂<2>ar > PANat. */p}<2>H<2>uí/, pa-ah-ḫur ‘fire’; *ti<2>eh-<2>- <2>- > PANat. */t}<2>a<2>H<2>uí/- > Hitt. */t}<2>a<2>H<2>uí/, za-ah-ḫa-i- `battle’; *h<2>nd<2>é<2>u<2> > PANat. */H<2>nd<2>é<2>u<2>/ > Hitt. */H<2>nd<2>é<2>u<2>/, an-una-ah-ḫa-aš `human being’; *h<2>u<2>h<2>o<2> > PANat. */HuHo/- > Hitt. */HuHo/, ḫu-uh-ḫa- `grandfather’; *mé<2>h<2>uí > PANat.

160 Note that in *u<2>-y<2>-<2>ar-2 <2>/tuántul/ `they see’ < *Hr<2>én<2>ni and *u<2>-y<2>-<2>ar-2 <2>/hú<2>d<2>ni `inspection’ < *Hr<2>ór<2> the */<2>T/- must be restored on the basis of e.g. *u<2>-m<2>-e-e-ni */Hm<2>én<2>ni `we see’ and *u<2>-t<2>-e-e-ni */Ht<2>éstén<2>ni `you see’. The form *u<2>-y<2>-<2>ar-<2>-<2>e-e <2>- `to copulate (impl.)’ = */ prá<2>n<2>ské<2>e- <2>- goes back to *h<2>₁,₂uns<2>én<2> in which the initial laryngeal is regularly retained before vocalic -e-.
*tmēh₃r > Hitt. /mēh₃r/, me-e-hur ‘period, time’ (with lenition); *nōh₂ei > PANat. */nōh₂/ > Hitt. /nāhi/ na-a-hi ‘he fears’ (with lenition); etc.


\[
\begin{array}{c|c|c}
\text{PIE} & \text{PANat.} & \text{Hitt.} \\
\hline
*V₁₃T & /NT/ & /NT/ \\
\hline
*V₁₃T & /NT/ & /NT/ \\
\hline
*V₁₃T & /NT/ & /NT/ \\
\end{array}
\]

(T = any stop, but not *s)

Note that PANat. */ṼʔDV/ (in which D = any lenis stop) yields Hitt. /ṼDV/, whereas */ṼʔDV/ yields Hitt. /ṼDV/, showing fortition of */D/ due to assimilation with /l/.


\[
\begin{array}{c|c|c}
\text{PIE} & \text{PANat.} & \text{Hitt.} \\
\hline
*V₁₃S & */VHs/ & */VHs/ \\
\end{array}
\]

¹⁶¹ This form shows that the lost of intervocalic /l/ is a late OH phenomenon.
Examples:

*Vh₁s: *pēh₅so > PAnat. */páHsø/ > Hitt. /páHsa/, pa-ah-ša ‘he protects’;
*ₕ₄₉₆h₅₆₇sos > PAnat. */ₕ₄₆₇Hsøs/ > Hitt. /ₕ₄₆₇Hsa/, an-ₕ₄₆₇-₅₆₇-₆₇-a₅ ‘human being (gen.sg.)’;
*ₕ₅₇₆h₅₇₆so > PAnat. */ₕ₅₇₆Hsø-/ > Hitt. /ₕ₅₇₆Hsa-/pa-la-ah-₅₇₆-as, a garment.

*V₀h₁s: *dēh₃ > PAnat. */dēHs/ > Hitt. /dēs/, te-e-eš ‘you said’; *dēh₄s > PAnat. */dēHs/ > Hitt. /dēs/, te-e-₃-‘you say’; *ₕ₄₅₅₇s > PAnat. */ₕ₄₅₅₇Hs/ > Hitt. /ₕ₄₅₅₇Hs/, e₅-‘he sits down’; *ₕ₄₅₅₇s > PAnat. */ₕ₄₅₅₇Hs/ > Hitt. /ₕ₄₅₅₇Hs/, e₅-a-ša ‘he sips’; *ₕ₅₇₉s > PAnat. */ₕ₅₇₉Hs/ > Hitt. /ₕ₅₇₉Hs/, pa-a-a₅-₅₉, to sip (with analogical -₇-); *ₕ₅₆₉₅₇₆ > PAnat. */ₕ₅₆₉₅₇₆Hs/ > Hitt. /ₕ₅₆₉₅₇₆Hs/, ₉₈-₅₆₉₅₇₆-₅₆₉-as ‘hearth’.

<table>
<thead>
<tr>
<th>PIE</th>
<th>PAnat.</th>
<th>Hitt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>*V₀h₁R</td>
<td>*/VHR/</td>
<td>*/VHR/</td>
</tr>
<tr>
<td>*V₀h₁R</td>
<td>*/VRC/</td>
<td></td>
</tr>
<tr>
<td>*V₀h₁R</td>
<td>*/VVRV/</td>
<td></td>
</tr>
<tr>
<td>*V₀h₁R</td>
<td>*/VRV/</td>
<td></td>
</tr>
<tr>
<td>*V₀h₁R</td>
<td>*/VRRV/</td>
<td></td>
</tr>
</tbody>
</table>

Examples:  

*V₀h₁R: *meh₄₉₅₉ₒ₉(?) > PAnat. */maHro-/ > Hitt. /maHrai-/ma-ah-ra-i-, a body part of animals; *tieh₃ₒ₃(?) > PAnat. */tiaHro-/ > Hitt. /tiaHrai-/za-ah-ra-i- ‘knocker(?)’; *m₂₅₉₃ₒ₉(?) > PAnat. */m₂₅₉₃Hlo-/ > Hitt. /m₂₅₉₃Hla-/ma-a-ah-la- ‘branch of a grapevine’.

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 */ₕ₃H₃l/ > Hitt. /ₕ₃H₃l/ is incorrect, see at /ₕ₃H₃l/. In word-final position, note the difference between *ₕ₃H₃l > Hitt. /ₕ₃H₃l/, š₉₅₃₅₆(?) ‘feudal service’ and *ₕ₅₆₈₉₅₆ /ₕ₅₆₈₉₅₆ ‘to this side’. The latter development may be PIE already, which is commonly referred to as ‘Stang’s Law’.

98
Note that \( *V^2h_2V \) (in which \( D \) = any lenis stop) yields Hitt. /TV/, i.e. the \( *D \) is fortited to /\( T \)\( V \) due to assimilation to the following \( *h_2 \)\(^{163}\).

Examples: \( *\text{-}th\_g > \text{PA} \), \( *\text{-}t\_a/ > \text{Hitt.} /\text{-}t\_a/ \), \( 2s.\text{act.}-\text{ending of the} \_h\_i\-\text{conjugation} \); \( *\text{-}dh\_,\_\_\text{ent}i > \text{PA} \), \( *\text{-}d\_\_\text{ant}i > \text{Hitt.} /\text{-}t\_\_\text{ant}i/ \), \( \_d\_\_\text{a}-\text{zi} \) ‘they take’; \( *\text{-}d\_\_\text{h}\_\_\text{-}\_\_\text{e}-\text{i} > \text{PA} \), \( *\text{-}d\_\_\text{h}\_\_\text{-}\_\_\text{e\_} > \text{Hitt.} /\text{-}\_\text{e}\_\_\text{-} > \text{PA} \), \( *\text{-}d\_\_\text{h}\_\_\text{}\text{-}\_\_\text{e}\_ > \text{Hitt.} /\text{-}\_\_\text{-} > \text{Hitt.} /\text{-}\_\_\text{-} > \text{PA} \), \( *\text{-}d\_\_\text{h}\_\_\text{-}\_\_\text{e\_} > \text{Hitt.} /\text{-}\_\_\text{-} > \text{PA} \), \( *\text{-}d\_\_\text{h}\_\_\text{-}\_\_\text{e\_} > \text{Hitt.} /\text{-}\_\_\text{-} > \text{PA} \), \( *\text{-}d\_\_\text{h}\_\_\text{-}\_\_\text{e\_} > \text{Hitt.} /\text{-}\_\_\text{-} > \text{PA} \).
\[\begin{array}{lcl}
1.4.5.g & \text{PIE} & \text{PAnat.} & \text{Hitt.} \\
*sh_2\text{V} & > & */sHV/ & > /sHV/ \\
*sh_3\text{V} & > & */s\text{V}/ & > /SV/ \\
*sh_1\text{V} & \\
\end{array}\]

Examples:
*sh_2\text{V} & *sh_2\text{óie}\text{i} > \text{PAnat.} & */sHõi/ > \text{Hitt.} /isHål/, iš-ḫa-a-i 'he binds'; *h_1\text{ēsh}_2\text{y} > \text{PAnat.} & */lēsHtri/ > \text{Hitt.} /lēsHrl/, e-eš-ḫar 'blood'; *h_1\text{ēsh}_2\text{y}_2 > \text{PAnat.} & */lēsHsH/ > \text{Hitt.} /lēsHsH-/, iš-ḫa-a- 'master'.

*sh_1\text{V} & *h_1\text{ltish}_1\text{én}t\text{i} > \text{PAnat.} & */Hltis\text{ánt}i/ > \text{Hitt.} /Hlt'iSánt'î/, ḥal-zi-iš-ša-an-zi 'they call (imperf.)'; si-shy-i-én-t\text{-}\text{t} > \text{PAnat.} & */sis\text{ánt}i/ > \text{Hitt.} /sisSánt-/, śi-iš-śi-ja-an-t- 'sealed'.

\[\begin{array}{lcl}
1.4.5.h & \text{PIE} & \text{Hitt.} \\
*\#Rh_2\text{V} & \\
*\#Rh_3\text{V} & \\
*\#Rh_1\text{V} & \#RV/ \\
\end{array}\]

Examples: *lh_1\text{én}t\text{i} > \text{Hitt.} /lánt'î/, la-an-zi 'they loosen'; *lh_1\text{uti} > \text{Hitt.} /lüt'i-/,
lu-uṣ-zî- 'public duty'; *mh_1\text{óie}\text{i} > \text{Hitt.} /máil/, ma-a-i 'he grows'.

\[\begin{array}{lcl}
1.4.5.i & \text{PIE} & \text{PAnat.} & \text{Hitt.} \\
*CRh_2\text{V} & */CRHV/ & > /CRHV/ \\
*CRh_3\text{V} & \\
*CRh_1\text{V} & > */CR\text{V}/ & > /CR\text{V}/ \\
\end{array}\]
Examples:


1.4.5.1

<table>
<thead>
<tr>
<th>PIE</th>
<th>Hitt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Vṛh₁V</td>
<td>/VṛṛV/</td>
</tr>
</tbody>
</table>

Examples: *h₁gregar > Hitt. /tlɐRi/, a-ar-ri ‘he washes himself’; *tinh₁e¬nti > Hitt. /tʰiNantu/, zi-in-na-an-zi ‘they finish’; *molh₂-e-i > Hitt. /maLaɭi/, ma-al-la-i ‘he mills’; *h₂orh₁e¬i > Hitt. /HaRaɭi/, ḥar-ra-i ‘he grinds’.

1.4.5.1 Interconsonantly, all three laryngeals are lost, but there are only a few good examples: *plth₁sh₂-o- > Hitt. /pltšHa-/, pal-za-aḥ-ḥa- ‘pedestal’; *dʰh₁sk₂- > early OH /tsk₂-/ za-aš-ke/a- > late OH /tsk₂-/ zi-ik-ke/a-, ‘to place (imperf.)’; *h₁uennh₁- > Hitt. /uennu-, ū-en-zi ‘he copulates’; *uorh₂-e¬nti > Hitt. /aRCC-, ya-ar-kān-ti ‘fat’; *dʰh₁sh₂-o¬ > Hitt. /tsHai-, za-aš-ha-i- ‘dream’; *gēnh₂-su > Hitt. /kēntu-, ge-en-zu- ‘lap’.

---

166 This example is crucial. If *priprh₁¬o¬i- would have yielded Hitt. /priprʔału-, without retention of *h₁ as /tl/, it would have been spelled */priprʔar-oo-ri-.

167 I regard the seeming retention of interconsonantal laryngeals in e.g. pär-ah-zi = /plHtʰu/ < *bʰtʰe¬nti and yer-aḥ-ah-zi = /uulHtʰu/ < *ulh₂e¬nti as secondary: the laryngeal must have been restored on the basis of 3pl.pres. *bʰtʰe¬nti and *ulh₂e¬nti where it was regularly retained.

168 This latter example shows that the loss of *h₁ predicts 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. /NSV/, but *VmHsV > Hitt. /NnsV/. See for details at the treatment of *s, §1.4.4.3.

1.4.5.1 Word-finally, the laryngeals are all lost. Note that in *Cuh₂# the *u is lowered to /ə/ and in *Cih₂# the *i to /el/.

Examples: *lēh₁ > Hitt. /lél/, le-e ‘not’ (prohib.); *lōh₁ > Hitt. /lāl/, la-a ‘let go’; *duoiom *h₁esth₁ih₁ > Hitt. /tām Hastı/, da-a-an-ha-aš-ti ‘double-bone’; *mih₁ēh₁š₁h₁ > Hitt. /mīēš/, mi-i-e-es ‘be gentle!’; *sōkh₁ > Hitt. /sāš₁, ša-a-ak ‘know!’; *mégh₂ > Hitt. /mēk/, me-e-ek ‘many, numerous (nom.-acc.sg.n.)’; *-eh₂ > Hitt. -a, nom.-acc.pl.n-ending; *sök₂eh₂ > Hitt. /sāg₂al, ša-a-ku-yu ‘eyes (nom.-acc.pl.)’; *h₁oh₂,sh₂ > Hitt. /ṭāS₀l, a-aš-šu-u ‘goods (nom.-acc.pl.)’; *kīh₂ > Hitt. /kel, ke-e ‘these (nom.-acc.pl.)’; *dōh₂ > Hitt. /tāl, da-a ‘take!’.

1.4.6 Liquids

*I

1.4.6.1 PIE *I in principle is retained in Hittite as /I/ except in the environments *VIHV > Hitt. /VLV/ and *VIHsC > Hitt. /VLisC/ where assimilation of the laryngeal to the preceding *I results in a fortis /L/.

Examples: *lōh₁,ei > Hitt. /lāl/, la-a-i ‘he releases’; *lōgh₁ei > Hitt. /lāg₁, la-a-ki ‘he makes fall down’; *lēuk-to > Hitt. /lūkta/, lu-uk-ta ‘it dawns’; *plh₂i > Hitt. /plHi/-, pal-ḫi- ‘wide, broad’; *h₁j(o/u)ug₁-o > Hitt. /Hluga/- or /Hlūga-/, ba-lu-ka- ‘message’; *sēuh₁-el > Hitt. /sū₂l/, šu-u-il ‘thread’; *molh₂,ei > Hitt. /maLa₂l/, ma-al-la-i ‘he mills’; *kelh₂st(o) > Hitt. /kāLista/, kal-li-išt-ta ‘he called’.

Fortition

1.4.6.1.a From MH times onwards, we occasionally find fortition of intervocalic /I/ to /L/, e.g. uš-tu-la-āš (OS) > ya-āš-tül-la-āš (MH/MS) ‘sin (gen.sg.)’; ya-āš-du-ŭ-li (MH/MS) > ya-āš-tül-li (NS) ‘sin (dat.-loc.sg.)’; iš-ḫi-ū-la-ah-h² (NS) > iš-ḫi-ul- la-ah-h² (NH) ‘to bind by treaty’. Whether we are dealing with a phonetically regular process is unclear, cf. Melchert 1994a: 165.

---

169 Seemng retention of *h₂ and *h₃ as /H/ in word-final position in words like me₃-ni-ja-ah ‘distribute!’ < virtual *mnēh₂; and ya₃-a₃-ah ‘strike!’ < virtual *vēh₂ is of course due to restoration in analogy to the rest of the paradigm.
*r

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


Assimilation: *h₂orh₂ei > Hitt. /HrēRūl, a-ar-ri ‘he washes himself’; *h₂orh₂ei > Hitt. /HaRa’il, ḫar-ra-li ‘he grinds’; *h₁orso- > Hitt. /RaRa-l, a-ar-ra- ‘arse’.

Loss

14.6.2.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 neutrals in /r/n.-

Examples: *h₁ēh₂š-or > Hitt. /ṭēšal, e-ša ‘he sits down’ vs. *tuk-ôr +i > Hitt. /tukārīl, du-ug-ga-a-ri ‘is visible’; *uoh₂gēh₂ši-ôr > Hitt. /uageSaL, ya-ag-ge-eš-ša, a kind of bread (nom.-acc.pl.), and *h₁-ô tôr > Hitt. /Htādal, ḫaat-ta-a-da ‘wisdom (nom.-acc.pl.)’ vs. *udôr > Hitt. /uīdāril, ῦ-i-da-a-ar ‘waters (nom.-acc.pl.)’.

Fortition


---

170 Cf. Eichner 1973: 9878, 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 -er (retention of *-r after unaccentuated *u is visible in e.g. *pēhwar > Hitt. /pēhwar ‘fire’; Eichner’s example *pēfar > Hitt. /pi-e-ru rather shows dissimilation due to the first -r). Note that Eichner explains the final -r in yâtar ‘water’ as analogous after nom.-acc.pl. yâḏr, but this is unnecessary: Hitt. yâtar represents /uâdēl/ < *uâdēr in which *-r never stood after a vowel.
ra- (MS) vs. kat-te-er-ra- (NS) ‘lower, inferior’; ge-nu-uš-ša-ri-ja-an-t- vs. ge-nu-šar-ri-ja-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-ah-ša-ra-az (MH/MS) vs. na-ah-šar-ra-az (NS) ‘fear (abl.)’; pa-ra-a-an-ta (OS) vs. pār-ra-an-ta (MH/MS) ‘across (to)’; ta-pa-ri-ja- vs. ta-pār-ri-ja- (NH) ‘to rule’; etc.

If we compare words like pē-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, pār, 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
1.4.6.2c In OH ú-ra-a-ni /urṛänĩ/, MH/NH ya-ra-a-ni /uṛṛänĩ/ ‘burns’ < *urṛ₁-óṛ+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/: *měg₁₂ > Hitt. /mek₁, me-e-ek ‘many’ (nom.-acc.sg.n.); *měrti > Hitt. /měrt’i₁, me-er-zi ‘he disappears’; *móld’ei > Hitt. /máld₁i₁, ma-a-al-đi ‘he recites’; etc.

Word-initially before stops, we would expect that *mC- yields Hitt. /mC/-, phonetically realized as [mC-]. The only example is *mdr’o- > Hitt. /ndr’₁-/, 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/- = [ṃT-] has been altered to /mhT/-: *mh₁₂́ěh₁₂sh₁ > Hitt. /mḥěš₁₂/; ma-ak-ke-e-eššo ‘to become abundant’ (belonging to mekk(i)- ‘many, much’). Note that if mai₁/ mi₁- ‘to grow’ indeed reflects *mh₁₂-o₁i₁/ *mh₁₂-i₁, it would show that *mh₁₂V > Hitt. /mV₁-.


104
For the word-internal position, it is best to treat the different phonetic surroundings separately.

*CmV* > Hitt. /CmVl/: *hyméh,šh-o* > Hitt. /HmēšHa-l/, ḥa-me-eš-ḥa- ‘spring’; *smén-ti* > Hitt. /smḳnt‘l/, ṣa-me-en-zi ‘he passes by’\(^{171}\); *tmēntti* > Hitt. /tmēikt‘l/, ta-me-ek-zi ‘he attaches’.

*CmT* (in which \( T = \) any stop) > Hitt. /CaTl/ with fortition of the stop: *km-to* > Hitt. /kat-al/, kat-ta ‘downwards’; *km-thōh-i* > Hitt. /kapi-l/, kap-pli- ‘small, little’.

*CmsV* > Hitt. /CmsWl/: *hms ōsio-* > Hitt. /HnťâSa-l/, ḥa-an-zâ-a-aš-ṣâ- ‘offspring’.

*Cms#* > OH ʰCusl, ʰCu(−ù)-us > NH ʰCosl, ʰCu(−u)-uš (acc.pl.c.-ending).

*CmHsV* > Hitt. /CmSV/: *h₂mh šentti* > Hitt. /HniSânt‘l/, ḥa-ne-ša-an-zi ‘they wipe’; *tmhšenti* > Hitt. /tmânt‘l/, da-me-ša-an-zi ‘they press’ (with restored /m/ on the basis of strong stem /tmâS-l/).


*CmnV* > Hitt. /CmnWl/: smnojē- > Hitt. /sMnē-l/, ša-am(−ma)-na-a-ə° ‘to create’; *smnēntti* > Hitt. /sMînânt‘l/, ša-am-na-an-zi ‘they pass by’;\(^{172}\) *h₂,rmnîo-ř* > Hitt. / ptrMnîo-l/, ar-ma-ni-ja- ‘to become ill’; *h₂nh,mmâîo-ř* > Hitt. /lsmnîâ-ř/, lam(-ma)-ni-ja- ‘to name’.


*VmV* > OH ʰVmVl/: *imîe-ř* > OH /iMîé-ř/, i-mî-e, i-mi-ja- (see § 1.4.7.1.c below for the conditioned fortition of OH /VmVl/ > NH /VmV/).

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

*VmsV* > Hitt. /VmsWl/: *h₂,éms-u-ř* > Hitt. /HâSu-ř/, ḥa-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: *h₂,ôms-œ* > *HôSê-ř* > Hitt. /Hâsu-ř/, ḥa-a-ši ‘she gives birth’.

*Vms#* > Hitt. /Vms#/: *Coms* > OH /³Cusl, ³Cu(−ù)-uš > NH /³Cosl, ³Cu(−u)-uš (acc.pl.c.-ending).

*VmhWl* > Hitt. /VmhWl/: *h₂,ômh œi* > Hitt. /pâns-ř/, a-a-an-ši ‘he wipes’.

---

\(^{171}\) Also attested as še-me-en-zi and ši-me-en-zi = /símēnt‘l/.

\(^{172}\) Note that this form is not attested with the spelling *šam-me-na-en-zi*. This could either be ascribed to chance, or it could indicate that in this form the lenis /ř/ of the singular, *smēnt* > /smên-l/, has been introduced. The form is also attested as še-an-va-ar-zi = /šinnânt‘l/, cf. note 171.
*VmHsC > Hitt. /VMisCl/: *demhššh₂ - > Hitt. /taMisH₃l/, dam-me-eš-ḫa-a-
‘damaging’.

*VmHs# > Hitt. /Vnisl/: *h₂ómḥšš > Hitt. /Hánis₁l/, ḥa-a-ni-šš, ḥa-a-ni-eš ‘wipe!’
(with restored š-).

*VmnV > Hitt. /VMV/, unless when part of a paradigm173: *h₂imno- > Hitt.
/HiMa-l/, hi-im-ma- ‘imitation’; *g₂immę́nt- > Hitt. /kiMäft-l/, gi-im-ma-an-t’
‘winter’.

*Vmn# > Hitt. /VMml/: *h₁érmm > Hitt. /érmm/, e-er-ma-an ‘illness’; *h₁néh,mn >
Hitt. /lámm/, la-a-ma-an ‘name’.

*VmrV > Hitt. /VMrV/: *g₂imro- > Hitt. /kiMra-l/, gi-im(-ma)-ra- ‘field’.

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

14.7.1.6 Word-finally after vowel: *Vm > Hitt. /Vn#: *pérom > Hitt. /pérn/, pé-e-ra-an;

*h₂érɣ-i-m > Hitt. /Hárginl/, ḥar-ki-in ‘white’ (acc.sg.c.); *kóm > Hitt. /kónl/, ku-u-
un ‘this (one)’ (acc.sg.c.); etc.

Word-finally after consonant: *ºCm > OH /ºCun/175 > NH /ºCon/176; *h₁épm >

Fortition

14.7.1.7 From MH times onwards, we encounter fortition of intervocalic /m/ to /M/: a-mi-
ja-an-t- (MS) > am-mi-ja-an-t- (NS) ‘small’; i-mi-ja- (OH/MS) > im-mi-ja-
(MH/MS, NS) ‘to mingle’; i-mi-ü-l=a-aš (MS) > im-mi-ü-ul (NS) ‘grain mix’;
kar-dì-mì-ja- (OS) > kar-tim-mì-ja- (MS, NS) ‘to be angry’; la-a-ma-an (MS) >
la-a-am-ma-a(n)=m-mi-it (NS) ‘name’; mu-mì-ja- (MS) > mu-um-mì-ja- (NS) ‘to fall’;
-nu-me-e-ni (OS, MS) > -nu-um-me-ni (NS) lpl.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-n² (OS, MS) > šum-ma-an-za-n² (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

174 This form shows that fortition of *m in front of -r postdates the lenition of intervocalic fortis
consonants due to a preceding *o (including *-oCr/, cf. *-ôr > Hitt. -qár).
175 Or /ºCq/, cf. note 83.
176 Or /ºCq/, 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-ja-, pê-e-tum-me-e-ni and šum-ma-an-za-n6, I do not see how this practice can explain im-mi-ú-ul, mu-um-mi-ja- 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-m6 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/: *nēb6'es > Hitt. /nēbis/, ne-e-pi-iš ‘heaven’; néuo- > Hitt. /néua/-, ne-e-ya- ‘new’; *nōh2ei > Hitt. /nāhul/, na-a-hi ‘he fears’; *nuk'e > Hitt. /nuk/*, mu-uk-ku ‘and now’; etc.

Word-initially before consonants, *nC- regularly yields Hitt. /nC/-, phonetically realized as [aNc-]: *nsōs > Hitt. /ntās/, an-za-a-as ‘us’. If amijant- ‘small’ really reflects *n- + mijant-, it would show /aṃiānt/- < */aṃiānt-/, if e.g. ku-e-mi < */k'ēmni/ for loss of -n- in *VnmV(

In cases where *nC- is the zero-grade of a root *neC-, the regular outcome /nC/- = [aNc-] has been secondarily altered to /nάC/- in analogy to the full-grade: *nhēnt- > Hitt. /nāHánt-/, na-ah-ḥa-an-t6 ‘fearing’ (on the basis of *nōh2ei > na-a-ḥi).

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

*Cn'V > Hitt. /Cn'V/: *h-něnti > Hitt. /Hnānt'i/, ḥa-na-an-zi ‘they draw water’; smnōjә > Hitt. /Smnōjә-l, ša-am(-ma)-na-e6 ‘to create’, *h-ğnjou- > Hitt. /Hğnjou-l, ḥar-qa-na-u- ‘palm, sole’; etc.

*Cn'T (in which T = any stop) > Hitt. /Cn'T/: *h-pdo > Hitt. /ʔndal/, an-da ‘inwards’; *d6'b6n̥g6-u- > Hitt. /pŋu/-, pa-an-ku- ‘entire, complete’ (if not from *d6'b6n̥g6-u-).

*Cns'l > Hitt. /Cn's'l/: *nsōs > Hitt. /ntās/, an-za-a-as ‘us’.

*CnHs'V > Hitt. /CnHs'V/: *ğnhsēnti > Hitt. /kniSēnti/, ka-ni-eš-ša-an-zi ‘they recognize’.

*CnHs'C > Hitt. /CnHs'C/: *hnhškē-o- > Hitt. /Hškēl/, ḥa-aš-ši-ke/a- ‘to sue (imperf.)

*Cnm'V: this sequence may be visible in ša-ah-ḥa-[m]e-et (KBo 6.2 + KBo 19.1 ii 24) // ša-ah-ḥa-mi-it (KBo 6.3 ii 38) ‘my šahhan’ < *sēh-n=met. If correct,
these forms must be phonologically interpreted as /saH = /s/ parallel to a-mi-jā-an-t- = /qmiant-/ < */qmiant-/ < */n-mijant-.

*CmnC > Hitt. /CmncI; *h+rnegënti > Hitt. /Hrmngánt'ul, ḫar-ni-in-kān-zi ‘they make disappear’.

*CniV > Hitt. /CnviI; *h,rniē/i- > Hitt. /lniē/l, a-ni-e°, a-ni-ja- ‘to work’.

*ClnC > Hitt. /ClnCI; *h,lng,jēnti > Hitt. /lngnt'ul, li-in-kān-zi ‘they swear’ (if this preform is correct).

*CmnC > Hitt. /CmncI; *h,rmngbēnti > Hitt. /Hrmngānt'ul, ḫa-me-in-kān-zi ‘they betroth’; *mnkēnti > Hitt. /mnkánt'ul, ta-me-en-kān-zi ‘they attach’.

1.4.7.2.b *VnV > Hitt. /VnVI; *h,č-r-on-os > Hitt. /Hčranas', ḫa-a-ra-na-aš ‘eagle (gen.sg)’; *h,čonei > Hitt. /Hčnul, ḫa-a-ni ‘he draws water’; *čenu- > Hitt. /čnul-ge-e-nu- ‘knee’; *h,česh-wnös > Hitt. /čisHanās', iš-ḥa-na-a-āš ‘blood (gen.sg)’.

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


*VnKV (in which K = any velar stop) > Hitt. /VnKV: *könkei > Hitt. /kānkl, ka-a-an-ki ‘he hangs’; *h,léngb-čēr > Hitt. /kānkerl, li-in-ke-er ‘they swore’

*VnKC (in which K = any velar): If the preceding vowel is /ā/, then */gkNC/ > Hitt. /gkNC/; *könkhgei > Hitt. /kānkHe, ga-a-an-ā-h-hé ‘I hang’. If the preceding vowel is not /ā/, then */VnKC/ > Hitt. /VKC/: *h,léngbhti > Hitt. /lhtč’ul, li-ik-zi ‘he swears’; *srnéinski > Hitt. /srñikm, šar-ni-ik-mi ‘I compensate’.


*Vns > Hitt. /VNS/177: de/ons-u- (or *de/ons-u-) > Hitt. /tuSu-, da-aš-šu- ‘powerful’; *kuéns-ti > Hitt. /kuáStč’ul, ku-ya-aš-zi ‘he kisses’; *h,čērōns > Hitt. /Hčāras, ḫa-a-ra-āš ‘eagle’; *kuōns > Hitt. /kuās, ku-ya-aš ‘dog’;

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

*VnhsV > Hitt. /Nm̥Vl; *gēnḫ-su- > Hitt. /kent’u-/, ge-en-zu- ‘lap’.

*VmV > Hitt. /NNVl: *kun-no- > Hitt. /koNa-, ku-u-un-na- ‘right, favourable’.

*VmV > Hitt. /NNVl: see Kimball (1999: 324) for examples like ma-a-am-ma-an < *mār-man, ad-da-am-ma-an < *attan=man ‘my father’, tu-ek-kam-ma-an < *tuekkan=man ‘my body’, etc.

*VmV > Hitt. /NuVl; *gʷēn-uen > Hitt. /kʷeuen/, ku-e-u-en ‘we killed’; mān + =ya > Hitt. ma-a-ya, ku-e-u-ya.

1.4.7.2.c *VPnV (in which P = any labial stop) > Hitt. /VPnVl: *ẖepnos > Hitt. /Hapnas/, ḫa-ap-pa-na-aš ‘baking kiln (gen.sg.)’; *ḏēḇ-n(e)ju- > Hitt. /tebnu-, te-emnu- ‘to diminish’.

*VtnV > Hitt. /NNVl: -ōtno > Hitt. l-āNašl, *Ca-a-an-na (inf.II-ending); *-otnos > Hitt. l-āNašl, *Ca-a-an-na-aš (gen.sg. of abstracts in -gār / -ānr-).

*VdnV > Hitt. /NdVl; *ẖaidnos > Hitt. /Huidasl, ḫu-it-na-aš ‘game, wild animals’ (gen.sg.); *(h)jud-nei- > Hitt. /(?)/udné-1, ut-ne-e- ‘land’.


*VHNV > Hitt. /NNVl: *ẖe̱ẖ,ṉo̱ẖ,e- > Hitt. /HaNa-l, ḫa-an-na- ‘to sue’.

178 The 2sg.pres.act.-form kē-e-i ‘you kill’ reflects pre-Hitt. */kun-si/, which must show restoration of the stem *kun- in expected */kunši/ < *gʷinši. So the fact that */VmV/ here yields /Nsv/ with single -j- is due to the fact that the disappearance of *n in this restored form postdates the development */VNSV/- > Hitt. /-ASV/-.

179 The verb *g̱me-ṉi- to make (something/-one) pass by’ reflects pre-Hitt. *sme-ṉe-ke- which must be a secondary formation replacing expected */sme-ṉo̱ju/. So the fact that */VmV/ here yields /Nsv/ with single -j- is due to the fact that the disappearance of *n in this form postdates the development */VNSV/- > Hitt. /-ASV/-.

180 Technically, most of these examples reflect */VnmV/- however. The 1sg.pres.act.-form ḵe-ru-i ‘I kill’ < pre-Hitt. *ḵuēnu-i seems to show a development */VnmV/- > Hitt. /Nsv/ with single -n-. I assume that this *ḵuēnu-i was a restored form that replaced expected */kuēnu/ < *gʷēnu, and that the development pre-Hitt. */VnmV/- > Hitt. /Nsv/ is due to the fact that the disappearance of the *n in this form took place after the development */VnmV/- > Hitt. /Nsv/ has come to an end. This also explains forms like tu-wi-zar-ma-en < *tuzzin=man ‘my army’ and ḫu-âḇ-ha-ma-en < *ẖuḇhan=man ‘my grandfather’.

181 See CDH L-N: 144 for attestations of these forms. Occasionally, the -n- is restored, yielding m̱e-år-ya. The preservation of -n- in */ẖawanten/- > Hitt. /pawant/-, u-mer-år zi ‘they adorn’ is due to restoration of the causative suffix -nr-.
*VsnV > Hitt. /VSnV/: e.g. *usnî/jé/- > Hitt. /uSnîelâ/-, uš-ni-ja-<, uš-ša-ni-ja- ‘to put up for sale’.

*VmnV > Hitt. /VMV/: *hîjmno > Hitt. /HiMa-/, ḫî-im-ma- ‘imitation’.

*VrnV > Hitt. /VrnV/: *hîernou > Hitt. /Harnau-/, ḫar-na-u- ‘birthing seat’.

*VînV > Hitt. /VînV/: *ûelmu > Hitt. /ûelûa-/, û-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/.

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-ya-ni- (OS) > a-ra-ya-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’, šiuma- ‘god’ and zêna- ‘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 lêmân /lâmml/ ‘name’ < *hînehmn, lammur /lâmMr/ ‘moment’ < *nomr and armalîje/a-nâr(r)/ ûrmûelâ-l ‘to be ill’ < *hîrmn-i/jé/- (besides armanîje/a-nâr(r)/) 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. /iugam/, i-û-ga-an ‘yoke’ vs. *iêg-o- > Hitt. /êga/-,182 e-ûa ‘ice’; *iêu-on,183 > Hitt. /êuan-,184 e-ya-n, a kind of grain.185 If Hitt. i-û-uk ‘yoke’ represents /ûâgl/ <

---

182 Or /êga/-?
183 Note that this etymology may be incorrect.
184 Or /êuan/-?
monophthongization of *e. Word-initially before consonant *i is retained as such: *imié-ó- > Hitt. /imiéá-/l, i-mi-e-*, i-mi-ja- ‘to mingle’.

1.4.8.1.a Interconsonantally, *i is in principle retained (but see below at ‘assibilatıon’):
*hi-itén > Hitt. /itên/, i-it-te-en ‘go!’; *hi-imma- ‘imitation’; *hi-ér-gis > Hitt. /Hárgis/, ḫar-ki-ḫš ‘white’; *g̣im-á-én-t > Hitt. /kiMánt-t, gi-im-ma-an-t- ‘winter’; *ḳi-is > Hitt. /ḳis/, ku-ḫš ‘who’.

In the sequence *CiV, *i in principle is retained as well (but see below at ‘assibilatıon’): *hi-ḫ̣i-ṣ̌i-ṣ̌ > Hitt. /ḫ̣iṣ̌á-/l, a-ḫi-e-°, a-ḫi-ja- ‘to work’, *hi-g̣i-ṣ̌i-ṣ̌ > Hitt. /ḫ̣giṣ̌á-/l, ĥar-ki-e-°, ĥar-ki-ja- ‘to get lost’, *ḫ̣ṛi-ṣ̌i-ṣ̌ > Hitt. /kṛṣ̌iṣ̌á-/l, kar-aš-ši-i-° ‘to cut’; etc.

Note that *VsiV yields Hitt. /VSiV/, however, as is visible in e.g. *iugosio- > Hitt. /jugaša-/l, í-ú-ga-aš-ša- ‘yearling’; *ḥmsísio- > Hitt. /Hnšṭaša-/l, ḫ-a-an-zā-a-aš-ša- ‘offspring’; *uši-ṣ̌i-ṣ̌ > /usiṣ̌á-/l > OH /uššeḷá-/l, ya-aš-š-e-a-° ‘to put on clothes’.

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

Intervocalically, *i is dropped without a trace, e.g *CēC-ei-š > pre-Hitt. *CēCaiš > Hitt. /CēCas/ (gen.sg.-ending of i-stem adjectives). When the *i is surrounded by un-identical vowels (e.g. *-aiie-°, *-aii-, *-aiu-), the loss of *i causes compensatory lengthening of the preceding vowel. *CēC-ei-i > pre-Hitt. /CēCaii > Hitt. /CēCāi/, *Ca-a-i (dat.-loc.sg.-ending of i-stem adjectives); *CēC-ei-š > pre-Hitt. *CēCaiš > Hitt. /CēCas/, *Ca-a-š (nom.pl.c.-ending of i-stem adjectives); *CēC-ei-š > pre-Hitt. *CēCaiš > Hitt. *CēCas, *Cā-

---

115 Note that e.g. jran-zi ‘they go’ < *ḥi-jent and jran-re ‘sheep’ < *ḥi-jent (?) show that *i is not lost in the word-initial sequence *ḥi-š-e.

116 This form shows that the assimilation of *ṛj/qi > /VSiV/ postdates the lenition of intervocalic fortis consonants due to a preceding long accented vowel.

117 With *ṛ in analogy to the full-grade stem *ỵep, cf. the lemma ỵesḳ, ỵesḳe/a-°

118 Attested from MH times onwards as ỵesḳe/a-°, with restored suffix -e/a-.

119 See at the lemma of nom.pl.c.-ending -eš for my view that contraction of *-eš to *-e must have happened earlier than the loss *e between other vowels as described here.

120 This explains the fact that in the oblique cases of i-stem adjectives the -eš of the suffix, which must go back to posttonic *e in open syllable (*CēC-ei-š), is often spelted plene (e.g. ḥar-ke-š, ḥar-ke-ṛeš, ḥar-ke-ṛeš, ḥar-ke-ṛeš, ḥar-ke-ṛeš < *CēC-ei-š).
a-uš (acc.pl.-ending of the i-stem adjectives); *Co-iē-mi > pre-Hitt. /Caiēmi/ > Hitt. /Cāemi/, /Ca-a-e-mi (lsg.pres.act.-ending of the ḫatae-class).\textsuperscript{191}

An intervocalic cluster \*VHV yields OH /NiV/ with lengthening of the preceding vowel (if possible).\textsuperscript{192} The newly created intervocalic /i/ is again lost in NH times: *h₂uh,jēnti > OH /Hoianti/, ḫu-ja-an-zi > NH /Hoantil/, ḫu-ya-anzil ‘they run’; *teh₂jēti > OH /tāiētul/, ta-a-e-ez-zi, da-i-e-ez-zi ‘he steals’.\textsuperscript{193}

In words with the sequence \*V\*HV, we first find monophthongization of the diphthong to /el/ (see above) at the treatment of the diphthongs *ei and *oi): *mēih₂ur > OH /mēhurl/, me-e-hur ‘period, time’; *nēih₂j-o > OH /nētal/, ne-e-a ‘he turns’; *h₂gēih₂um > OH /Hētunl/, hé-e-un ‘rain (acc.sg.)’; *h₂gēih₂-eu-ēs > OH /Hētâuesl/, hé-e-a-u-e-es ‘rains (nom.pl.)’. Note that in the latter three examples intervocalic /i/ is lost only in the late OH period, as we can see from spellings like OS ḫê-e-ja-u-e-es=a = /Hēàuesl/ phonetically realized as [Hēàues] and MH/MS ne-e-ja-ri = /néari/ phonetically realized as [né'ari]

\subsection{1.4.8.1.b}

Forms like i-it ‘go!’ < *h₂idʰi and te-e-et ‘speak’ < *dʰēh₂dʰi 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.\textsuperscript{194}

If nom.-acc.pl.n. ke-e ‘these’ indeed reflects *kih₂, as will be suggested under the lemma kār- / ki- / kū-, then it shows that in word-final *Cih₂# *i is lowered to /el/ due to the following /h₂/ just as *Cuh₂ yields Hitt. /Col/, cf. nom.-acc.pl.n. a-aš-šu-u ūtáSol < *s-š-u-h₂. This implies that zi-i-i ‘you’ < *tiH+y reflects *tiH₃.

\subsection{1.4.8.1.c}

As is well-known, *i causes preceding dental consonants to assimilate. In principle, *i is lost in this development: *tiēh₂-oëi > Hitt. ħtâhi/ ‘he hits’; *tiōh₂-ei > Hitt. ħtâhi/ ‘he hits’; *tiēh₂-o > OH ḫētal/, ze-e-a ‘cooks’; *h₂eŋti > Hitt.

\textsuperscript{191} Also intervocalic *- from secondary sources is lost with lengthening of the preceding vowel: e.g OH /pāat₁/; pe*-iz-zi ‘he goes’ > NH /pāat₁/, pe-iz-zi (see at pāi* / pāi/ for an extensive treatment).

\textsuperscript{192} Note that in the case of Hitt. /el/ and /el/ I do not reckon with phonemic length, and that therefore these vowels do not get lengthened.

\textsuperscript{193} In this latter verb intervocalic /i/ is nevertheless often found in NH forms because of restoration of the suffix -je-i: NH uz-ar-e-em-zii = /lēčit₁/ and NH uz-ar-em-zii = /lēšit₁/. Compare, however, phonetically regular 2pl.pres.act. tær-e-et-t-e-m (NH) = /lēšet₁/.

\textsuperscript{194} This implies that the loss of word-final *i took places in several stages, probably determined by the preceding consonant.
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- / ḥalzišš- ‘to call (impf.)’ > ḥalzešš-: ḥal-zi-iš-š° (OS, MS) > ḥal-ze-eš-š° (NS).
ḫišša- ‘carriage pole’ > ḥešša-: ḥi-iš-š° (OH/NS) > ḥe-eš-š° (NS, 1x).

1.4.7.1.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- / ḥalzišš- ‘to call (impf.)’ > ḥalzešš-: ḥal-zi-iš-š° (OS, MS) > ḥal-ze-eš-š° (NS).
ḫišša- ‘carriage pole’ > ḥešša-: ḥi-iš-š° (OH/NS) > ḥe-eš-š° (NS, 1x).

195. Replaced by e-eš-zî with restored -i in OS texts already.
suffixes -zi(gaj) (as in tar<u>êzi(gaj) ‘upper’) and Lyc. -zzi(r) (as in hâzzzi(r) ‘upper’) is correct, it would
show that assimilation of *t to the sequence *ŋW is already a Proto-Anatolian development (which
implies that we should assume a PANat. phoneme ḳW as well). Contra Melchert, I do not assume that
in this sequence *t was retained: the supposed equation between HLuw. hâzi-m-in-na and Hitt.
hâzzzi(r)- cannot be substantiated (cf. sânu hâzi<su> hâazzzi(r)-) and the retention of -r in the Hitt.
suffix -zi(gaj) (note the absence of a reflex of * in Lyc. -zzi(r)) may be due to analogical
developments (I intend to present an account of these developments elsewhere).
197. Similarly in tâ<q>u=â ‘to steal’ (cf. note 193) and in yašš<q>u=â ‘to put on clothes’
(cf. note 188).
198. The verb zamu<q> ‘to coo (trans.)’ < *tīh<q>-neu- shows that *h at one point had enough vocalic
quality to prevent *i from becoming vocalic too.
199. This would mean that the forms e-eš-zî ‘he is’ < *hôêtî (instead of expected *e-eš-tî), ke-eš-zî
‘he sleeps’ < *êtî (instead of expected *e-êś-tî), etc. all show (a trivial) generalization of the
assimilated ending -zî.
hištā, hišī ‘mausoleum(?)’ > heštā, hešī: hi-iš-t° (OS, MS, NS) > ĥe-eš-t° (MS, NS).
ini ‘this’ > eni: i-nī (MS, NS) > e-nī (MS, NS)
inīškan ‘thus’ > eniškan: i-nī- (MS) > e-nī- (NS).
īška- / īška- ‘to do, to make (impf.)’ > eška- / ēška-: i-iš-š° (OS) > īš-š° (MS) > (ē)-ēš-š° (NS).
īšhā- ‘master’ > ešh- : iš-h° (OS, MS, NS) > (ē)-eš-h° (NS).
išhān ‘blood (obl.)’ > ešhan-: iš-ha-n° (OS, MS) > e-eš-ha-n° (MS, NS),
iš(ša)na- ‘dough’ > eššana-: iš-(ša)-n° (OS, MS, NS) > (ē)-ēš-ša-n° (NS).
ūnu- ‘to open (up)’ > kemu-: ki-i-nu- (MS) > ke-e-nu- (NS).
ūlhu-a-1 / īlhu-a- ‘to pour’ > leluha-a-: li-il-h° (MS) > le-et-h° (MS, NS).
li(n)k-z‘to swear’ > lenk-: li-in-k° (OS, MS) > le-en-k° (NS).
mimma-1 / mimm- ‘to refuse’ > memm-: mi-im-m° (OS, MS) > mi-im-m° (NS).
misriqant ‘perfect’ > mišriqant-: mi-iš-ri- (MS) > me-eš-ri- (NS), me-iš-ri- (NS).
śna- ‘figurine, doll’ > šena-: ši-i-n° (OS, MS) > še-(ē)-nu- (NS).
šī-z‘to proliferate’ > šēs-: ši-iš- (OS, MS) > še-eš-, ši-eš-, še-ēš- (NS).
šēsša- / šēšs- ‘to impress’ > šēšš-: ši-iš-š° (MS, NS) > še-eš-š° (NS).
šīšha-1 / šīšh- ‘to decide’ > šēsh-: ši-iš-h° (MS) > še-eš-h° (NS).
šīšsur- ‘irritation’ > šēshur-: ši-iš-š° (MS) > še-eš-š° (NS).
tīt-h‘to thunder’ > tēth-: ti-it-h° (OS, MS) > te-e-et-h° (OH/MS) > te-et-h° (NS).
ūlrušša-1 / ūlrušš- ‘to help’ > ārešš-: ūa-ar-ri-iš-š° (NS) > ūa-ar-re-eš-š° (NS).
ūnu-z‘to finish’ > zemn-: 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 iqar. Moreover, this rule cannot account for the lowering visible in e.g. ini, hišī, kūnu-z‘ and šī-z‘.

201 Although here we might be dealing with the secondary introduction of the full-grade stem ēšh- from the nom.-acc.sg. ēšh.
202 Melchert’s reformulation (1994a: 133) of this rule as /iCCa-/ > /eCCa-/ i.e. “a kind of “a-umlaut” in closed syllables” (apparently to explain ąkā- and iqr) 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 hištā). Moreover, many of the examples of e–i that she cites in fact are cases where I assume the epenthetic vowel ā.
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/ (-hc- and -hc/-). It cannot be coincidental that exactly these consonants also cause a preceding /l/ to get lowered to /l/ (cf. § 1.3.9.4.4). 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: *uôdr > Hitt. /ûâdr/, ya-a-tar 'water'; *uêkkî > Hitt. /ûêkî/, û-e-ek-zi 'he wishes'; *uêl(e)s > Hitt. luâsîl, û-e-es 'we'; etc.

Word-initially before consonants *u is retained as well: *urh,ôr(i) > OH /ur?ânîl, û-ra-a-ni > MH/NH /uqr?ânîl, ya-ra-a-ni 'it burns';204 *usnié/ô > Hitt. /uSnîé/l, ûś-(ša)-ni-e°, ûś-(ša)-ni-jà- 'to put up for sale'.

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

In the sequence *CuV *u in principle yields /l/ (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 /CuV/). Note that in *Tuo (in which T = any dental stop or *n) *u is lost: *duoiom > Hitt. /ûânl, ta-a-an 'for the second time'; *hjeduôl-u- > Hitt. /ûdâlu-l, i-da-a-lu- 'evil'; *nu-os > Hitt. /nasl, na-âš 'and he'.205 Remarkable is

---

202 The absence of lowering in kîškm 'thus' (but compare the one spelling kê-eš-kar-an (KBo 4 iii 17)) and kîmun 'now' in my view is caused by the connection with bê 'this (nom.-acc.sg.m.)' (although kê-mun in principle can be read ke-mun as well). Note that words like gîmmât and gimme are spelled with IH-IM- that can in principle be read gi-im- as well as ge-em-. Cases like înmaraº and inmar- are real counter-examples, however; they never show lowering.

203 Although there are no examples of /uml/. Note that the * which emerges in initial clusters of the shape *st- did not partake in this lowering and therefore must have been phonologically different from /l/ < *l and pretonic *e.

204 This example shows that the ‘vocalization’ of the initial sequence *uRC- is an inner-Hittite phenomenon: PIE *uRC- > OH /uRC/-l > MH/NH /uâRCl-. This also fits the words uêkîššar- (OH/NS) > ýêkîššar- (NS) ‘skilled’ and ýêkayâe ‘bad omen’? (earliest attested in a MS texts) if this indeed reflects *ûlK-. This would mean that uâr-K- ‘track, trail’ cannot go back to *ûrK-, but must represent /ûrKî-l < *hj3urKî-

205 E.g. ûnuìaù /tuánu/ ‘to this side’ < *dêhêm shows that this development only occurs with a preceding *o, and not with *“ã”. The loss of *u in *Tuo therefore must be dated to the period before the merger of *ö and PA. *ö ã.
the outcome of *CHuV, which yields Hitt. /ComV/206, *dhuyêni > Hitt. /toméni/, tu-me-e-ni ‘we take’; *ḅḥ̃ḍ̃ḥ̃-ēn-ti > Hitt. /ptomán’ti/, pât-tu-u-ma-an-zi ‘to dig’; *su-n-H-ufr > Hitt. /suNomâr/, šu-un-mu-mar ‘filling’.

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

Intervocally, *u is retained as /u/ (see at § 1.3.9.4.d for the establishment that intervocally there is no phonologic difference between /u/ and /o/): *

A special development is the fact that *u adjacent to /l/ yields Hitt. /n/207. *CVu-gos > *CVu-uns > Hitt. /C valves/, *Ca-mu-uns (acc.pl.c.-ending of u-stems); *CC-mu-uni > Hitt. /CCnumën/, ʰnu-me-e-ni (1sg.pres.act.-ending of causatives in -nu-); *CC-mu-unnti > Hitt. /CCnumant’un/, ʰnu-ma-an-zi (inf.l.-ending of causatives in -nu-); *hʒu-uni > Hitt. /lïáunni/, a-ú-ma-ma208 ‘we see’.

1.4.8.2.b In word-final position, *u is retained as such: *ḍ̃ḅ̃ḥ̃u > Hitt. /tëbûl, te-e-pu ‘little (nom.-acc.sg.n.)’; etc. Note that nom.-acc.pl.n. a-ás-šu-a /lïâSol/, which contrasts with nom.-acc.sg.n. a-ás-šu /lïâSol/, shows that wordfinal *-Cu h2 yields Hitt. /-Col/

1.4.9 Vowels

206 Through /CouV/! See below for *Cáu’/ > Hitt. /CumV/.
207 Prof. Kortlandt (p.c.) points out to me that a development of *u to /n/ is phonetically incomprehensible: nasalization does not occur spontaneously. He therefore suggests that /n/ in these cases must be interpreted as /ŋ/ (i.e. a consonantal /ŋ/), and that the nasalization must be due to contact with other nasal vowels or nasal consonants. E.g. *Camâš (acc.pl.c.-ending of u-stems) is interpreted by Kortlandt as /Camâq/ < *Camâq/ (see also § 1.3.9.4.f under /ç/ for Kortlandts view that acc.pl.c.-ending *-uš represents /-q/- *-ms); *numâni as *nuqânt ‘in which *e has become nasalized due to *n, and therefore causes *u to yield the nasal-vowel /ŋ/; etc. Similarly in *CHuV > /ComV/ as treated above: tu-me-e-ni is interpreted by Kortlandt as /bhunânt/; etc. Although the assumption of nasal vowels would indeed fit other developments as well (especially the development of OH /u-u/ to /ô-n/, 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. anÎjâmarq ‘to work’ = /bhnânti/ (instead of **anÎjâmarq = “?bhnânti”) and why šumâršēwrap ‘to be pregnant’, which reflects *s(e)uâH-gfr, shows /m/- whereas no nasal consonant is present in its preform. Moreover, nasalization as the result of dissimilation has also occurred in tu-rnë-ni ‘burns’ < *ufrí < *ufrí, where there is no other nasal element that could have caused it.

208 The form a-ás-šu-ni is MH and replaces OH a-ás-šu-ni < *Hu-nlén.
There are a number of positions in which PIE *e gets coloured.

When adjacent to *h₂, *e gets coloured to PAnat. /a/, which yields Hitt. /a/ in both accented and unaccented position: *h₂énti > Hitt. /Hánt/, ʰa-an-za ‘in front’; *h₂épti > Hitt. /Hápt/, ʰa-ap-zi ‘he attaches’; *pēh₂ur > Hitt. /páHʷr/, pa-ah-ḫu, pa-ah-ḫu-ua-er ‘fire’; *pēh₂sto > Hitt. /páHšal, pa-ah-śa ‘he protects’; *léh₂pt(ə) > Hitt. /lápta/, la-a-ap-ta ‘he gloved’; *h₁esh₂enós > Hitt. /řisHanás/, is-ʰa-na-a-ัส ‘blood (gen.sg.)’; *peh₂uénos > Hitt. /paHʷénas, pa-ah-ḫu-e-na-اس ‘fire (gen.sg.)’;

When adjacent to *h₁, *e gets coloured to PAnat. /o/ and ultimately merges with the outcome of PIE *o, yielding ʰa/ when accented and ʰa/ when unaccented: *h₁éntsi > Hitt. /Hárasi, ʰa-a-ra-as ‘eagle’; *h₁épr > Hitt. /Hápr, ʰa-a-ap-paɾ ‘business’; *h₁néh₁mn > Hitt. /Hámnl, la-a-ma-an ‘name’.

In the position *enT (in which T = any dental consonant), *e yields Hitt. /a/: *h₁sénti > Hitt. /řsánt/, a-ṣa-an-zi ‘they are’; *g₂h₁nents > Hitt. /k₂nánts/, ku-na-an-za ‘killed’; *h₂uh₁ents > Hitt. /Hoánts/, ḥu-ya-an-za ‘wind’; *srbh₁uén > Hitt. /srbiaws/, ša-ri-pu-ya-ัส ‘of drinking’.

In the position *eRCC (in which R = any resonant and C = any consonant), *e becomes Hitt. /a/: *b₁érstsi > Hitt. /pársi, pār-a-əz ‘he flees’; *kērsi > Hitt. /kārsi, kar-a-si ‘he cuts’; *stēl₂tii > Hitt. /štālgštii, iš-tal-ak-zi ‘he levels’; *h₁érstsi > Hitt. /řtārsi, a-ar-a-si ‘he flows’; *b₁érh₂tii > Hitt. /pářHtii, pār-a-hzzι, pār-ḥa-zi ‘he pursues’; *tērh₂-u-ti > pre-Hitt. /tērHʷti, tār-ḥu-zi, tar-ʔa-zi ‘he conquers’. Note however that *g₂hen₂su- yields Hitt. /kēntu-, ge-en-zu- ‘lap, abdomen’, which shows that a sequence *Rh₂CV develops into *eRCC before *eRCC > /aRCC.⁴²⁰

In the position *έKsC, *e yields Hitt. /a/: *tēkstsi > */táksnti, ták-ki-ʔs-zι ‘he unifies’; *nēg₂h₁-s-ti > Hitt. /nāg²stii, na-na-ku-uš-zi ‘it becomes dark’.

In the position *enK (in which K = any velar), *e yields Hitt. /a/: *h₁lēng₂tii > */lēngtii > Hitt. /līgttii, li-ik-zi ‘he swears’.

---

²⁰ Note that when accented this vowel does not lenite a following consonant, whereas PIE *ö > PAnat. ŏ does. This explains the difference between *-ót> PAnat. /-ótl/ > Hitt. /-ādl/; *-a-tar (abstract-suffix) and *h₁épr > PAnat. /Hépr/ > Hitt. /Hápr, /b₂-ah-p-պaɾ ‘business’.

²¹ Note that in *kēh₁st(ə) the colouring of *e > /a/ did take place, however: *kēh₁st(ə) > Hitt. /kāListal, kā-ʃt-ʔi-q ‘he called’. This implies a scenario *kēh₁st(ə) > */kēLstal > */kāListal > /kāListal.

In some positions we seem to be dealing with i-umlaut, causing *e to become Hitt. /û/: *mélit- > Hitt. /mlíit-/mi-li-it-ê ‘honey’; *tinéh,ti > Hitt. tînîtâl, zî-in-nî-îz-î ‘he finishes’: *dûrnéh,ti > Hitt. /tuânîtâl, du-ya-ar-nî-îz-î ‘he breaks’. The exact condition is not fully clear to me.

In wordfinal position when accented, *ê yields Hitt. /îl/: *Hu-skê > Hitt. /ûtskil, uš-ki i ‘look!’; *hêyîskê > Hitt. /ûtskil, ak-ku-uš-ki-i ‘drink!’; *hêdsê > Hitt. /ûdskilâ, az-zî-îk-î-î ‘eat!’; Note that e.g. îhu-it-ti ‘draw!’ < *hûueTH-iê shows that *ôCiê yields Hitt. /Cîl/, probably through *ôCiil.

1.4.9.1.a Note that it has been claimed that a sequence *eRH yields Hitt. /raRH/, but I do not agree with this assumption. Alleged examples in favour of this development like *uélhâti > Hitt. /ûalîHtâl, /ûalâîHtâl ‘hits’ and *bêrHrH2,ûti > Hitt. /ûárHtî ‘pursues’ rather show the development *eRCC > /aRCC/, whereas šâlli- / šâllai- ‘big’ (usually reconstructed *selhû-i-) and tarra-‘to be able’ (usually reconstructed *terhû-o-) may be interpreted otherwise (see their respective lemmas). On the basis of erû- / arû- / arû- ‘boundary’ < *hûrerHû / *hûr-êhû / *hûr-rû- and šerHû- (an object to rinse feet with) < *sêrHû-o- (?), I assume that *e in a sequence *eRHV does not get coloured in Hittite.

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

When accented, êô merges with *ê, *êhû and *êi and develops into Hitt. /êl/. 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 *ê, *ê, *êhû and *êi have merged under the accent, and the original distinction in length has been given up. It should be noted that *ê does not lenite a following consonant, whereas *ê, *êhû and *êi do. This means that the merger of *ê with the outcomes of *ê, *êhû and *êi is a rather recent phenomenon, which postdates the lenition of intervocalic consonants due to a preceding long accented vowel.

---

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

212 Melchert 1994a: 83.

When unaccentuated, *e weakens to /a/ in posttonic open syllables213 and to /û/214 elsewhere (in pretonic open and closed syllables and in posttonic closed syllables).215 In word-final position, unaccentuated *e is dropped.216

Examples: *hēshy-enōs > Hitt. /pishanās/, iš-ḫa-na-a-aš ‘blood (gen.sg.)’; *nēbēš > Hitt. /nēbis/ ne-e-pi-iš, ne-pi-iš ‘sky’;217 *pesēmnis > Hitt. /pisēnum/, piš-e-e-nu-uš ‘men (acc.pl.)’; *Cē-CuTENI > Hitt. CeCuTani (1pl.pres.act.-forms); *Cē-CuTENI > Hitt. CeCuTani (2pl.pres.act.-forms); *=kʷə > Hitt. l=kʷ/ /, V=k-ku ‘and’; *tokʷə > Hitt. /takʷ/ ‘if, when’218

*gē

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


There is one case in which *gē yields something different, however: PIE *diēus yields Hitt. /sūs/, ši-ū-ū-uš ‘god’. It is not fully clear to me exactly what caused the raising of *gē to /û/ here. The fact that the sequences *dī- > Hitt. ls-1 precedes *gē hardly can be decisive, cf. *tiēh₂-no- > /h₂én-aI/, zē-e-na- ‘autumn’. Perhaps the raising is comparable to the one visible in *uēT- > Hitt. /uiT-l/.

On the basis of the thought that Hitt. “šumanza ‘cord, binding,’” reflect *shu-mēn+s (Gr. ὑμαν “sinew”), it was generally assumed that *gēn+s yielded Hitt. l-ants/, -anza, whereas -ān+s > l-as/, -as (as in *hērōn+s > Hitt. ḫāraš). Since


214 This /û/ can itself in younger Hitte become subject to the lowering to /e/ as described in § 1.4.8.1.d. cf. *kēbēš > OH nēbēš, ne-e-pi-iš (OS) > NH nēbesl, ne-pē-es (NS).

215 Cf. Melchert 1994a: 139. See at the lemma of nepī- ‘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, *-pə > Hitt. -s.

217 See at the lemma of nepī for explanation of the oblique cases nepīV.

218 Note that in the last two examples I do not follow Garrett (p. 184) who suggest that we are dealing with a development *-kʷə > *-kʷ > Hitt. ls=kʷu, spelled V=k-ku.
“šumanza” now must be interpreted as belonging to šumanzan- ‘bulrush’, which cannot have anything to do with Gr. ρηξ, the development *-ēn+s > -anza cannot be upheld anymore. Instead, on the basis of *k̑ tuēn+s > Hitt. k̑ tuwašl, ku-ut-ru-ya-aš ‘witness’, we should rather conclude that *-ēn+s fell together with *-ēn+s and yielded Hitt. l-asl.

1.4.9.2.a When unaccentuated, *ě yielded Hitt. /el/, and therewith differs from the outcome of unaccentuated short *e: *h₁ēšēr > Hitt. /lēšer/, e-šē-er ‘they were’. This indicates that the distinction between *ě and *ē was present up to a quite recent stage: only after the weakening of unaccentuated *ě to /a/ and /l/,219 unaccentuated *ě developed into /el/.

1.4.9.2.b Note that in my view none of the alleged instances where the sequences *h₂ě, *h₁ě, *ēh₂ or *ēh₃ are thought to have yielded Hitt. -ē- or -ēh- (Eichner’s Non-Colouration Law) can withstand scrutiny (see at h₄ai(n)k- /noro/, NA-ḫekur, ḫenkan, L↑bippara-, ḫištā, ḫištā, kane/išš₂- sàn, mēḫur / mēḫun-, pîha-, šēḫur / šēḫun- and ye₂h₃-²/ yah- for alternative interpretations).220

*ō

1.4.9.3 In the case of *ō 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, *ō yields OH /ā/ in initial and word-final syllables (but not in internal syllables, see below). Note that because *ō 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 /ā/ 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 /ā/ has been phonetically shortened in these syllables in the post-OH period, and fell together

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 *gEH₁₁US > Skt. gēhus (not *gEH₂US), Gr. ðööç, *gEH₁₁UM > Skt. gēm (not *gEH₂US), Gr. ḫov ‘cow’, *nēh₂:US > Skt. nēhus, Gr. μikh, *nēh₂:UM > Gr. vāyu ‘ship’, *sēh₂:US > Lat. aēl, Gr. ḫīk, Latv. sēls ‘salt’ (cf. Kortlandt 1985: 118-9) and possibly *nēh₂:US > Lat. nēh ‘ship’, *hēk̑ > Lat. ḫēr ‘sharp’ (cf. Schrijver 1991: 130-4).
with /á/. 221 So *ōCCV > OH /āCCV/ > NH /āCCV/ and *ōCV and *ōC# yield OH/NH /āCV/ and /āCh/.


Examples for word-final syllables: *ḏghmōs > Hitt. /tgnāšl, tā-ṇa-a-āš ‘earth (gen.sg.)’; *h₁es₂henōs > Hitt. /t̜isHanāšl, iš-ḫa-na-a-āš ‘blood (gen.sg.)’.

1.4.9.3.a In internal syllables (non-initial and non-final), *ō yielded Hitt. /āl/, however: *trēnō-h₂r₂-ḫē2i > OHitt. /br₃n̜ā₁Hēl, tar-na-ah-ḫē ‘I release’; *mi-mōh₁-e₂i > Hitt. /miMāl, mi-im-ma-i ‘he refuses’. 222 This explains the difference between *dōh₁r₂-h₂e₂i > OH /tāHēl, da-a-ah-ḫē ‘I take’ and *h₁p₁o₁-dōh₁-r₂-ḫē₂i > OH /pet₃Hēl, pē-e-ta-a-āh-ḫē ‘I bring’, etc.

1.4.9.3.b A special development of *ō is visible in the following positions: *Cōm₂H > Hitt. /Cōn/, Cu-u-un and *Cōms H > Hitt. /Cōs/, Cu-u-uš.

   Examples: *kōm > Hitt. /kōn/, ku-u-un ‘this one’ (acc.sg.c.); *h₁o₁-bōm > Hitt. /labō₂/, a-pu-u-un ‘that one’ (acc.sg.c.); *kōms > Hitt. /kōs/, ku-u-uš ‘these ones’ (acc.pl.c.); *h₁o₁-b₁ōms > Hitt. /labō₂/, a-pu-u-uš ‘those ones’ (acc.pl.c.).

1.4.9.3.c When unaccentuated, *o usually yields Hitt. /āl/: *pēdom > Hitt. /pē₂da₂n, pē-d₃a₁n ‘place’, *pērom > Hitt. /pē₁ran, pē-e-ra-an, pē-ra-an ‘before’,

   *h₁e₂h₂-s₂-o > Hitt. /Ré₂s/, e-ṣa ‘he sits down’.

   A special development of *o is visible in the acc.pl.c.-ending *ōComs > OH /C₃us/ > NH /C₃os/, cf. § 1.3.9.4.f.

**ō**

1.4.9.4. The outcome of *ō seems to have merged with the outcome of *ā. When accentuated, *ō yields Hitt. /āl/: *udōr > Hitt. /u₂dā₁r/, u₁₁-d₃a₁-a-r, u₁-e₂-d₃a₁-a-r.

---

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 /āCV/ and /āCh/ are spelled without plene ‘a’. 222 Apparent counter-examples like tukkārı̀, kıtārı̀, etc. must reflect *CC-ır, to which the ‘presentic’ -ı was attached only after the development of *ō > ā in final syllables. So *tuk-ır, *g₃-sl-ıṙ > pre-Hitt. *tuk-ı, *kıt-ı > Hitt. tukkārı̀, kıtārı̀.

1.4.10 Diphthongs

*ei

1.4.10.1 When accented, *êi merges with the outcome of *ê, *êh₁ and *ê and yields Hitt. /êl/ (but note that *êi lenites a following intervocalic consonant, whereas *ê does not): *êh₁iiii > Hitt. /êlêhu/, e-êhu ‘come!’; *êh₁i-iïï > Hitt. /Héusl/, hêe-ù-uš ‘rain’; *néih₁-o > OH /néʔal/, ne-e-a > MH /néal/, ne-e-ja ‘he turns’; *h₁ou + *h₁iïïi > Hitt. /tuétii/, ú-e-ez-zi ‘he comes’; *méih₁ur > Hitt. /mêurl/, me-e-êr ‘period’.

When unaccentuated, *ei yields Hitt. /êl/: *yôrs-ei > OH /hârSel/, ya-ar-aš-še ‘he harvests’; *dôh₁-h₂ei > OH /hâHê/, da-åh-êcé. Note that as we can see from the examples, the outcome of *Ceï is identical to the outcome of *h₂ei (through pre-Hitt. */Haï/).

In the sequence *Keï- (in which K = any velar) the diphthong *ei was first raised to *-iï-, which yielded Hitt. /i/ in closed syllable and /I/ in open syllable: *Kêïto > Hitt. /kîtal/, ki-ît-ta ‘he lies’ (note that /l/ = [t:] counts as a geminate that closes the syllable); *géïs-h₂o > Hitt. /kîsHal/, ki-iš-âa ‘I become’; *géïs-o > Hitt. /kîsâl/, ki-i-ša ‘he becomes’ (see at ki-ïïï and kîs-o / kîs- for an elaborate treatment of this development). A similar raising may be visible in ša-li-i-ga ‘he touches’ if this represents /slîg̱a/ < *slâţ-g̱-o.

*êï

1.4.10.2 The only secure example of *êï that I know of is *ud-nêï > Hitt. /uâdêl/, ut-ne-e ‘land’.

*oi

1.4.10.3 The diphthong *oi shows two outcomes. When preceding a dental consonant, *oi yields /äu/. It should be noted that when accented, *ôi does not yield /âu/ in this environment, as one could expect on the basis of *ô > /â/, but rather /âu/, with a

---

223 Or /-âls/ if we assume that the expected spelling *kîs-u-â-aš = /kuáls/ is by chance unattested.
short -a-. Before all other consonants and in absolute auslaut, *əo monophthongizes to /e/. Note that in the sequence *əiV, we find the normal outcome of *ə, namely pre-Hitt. */əV/ > Hitt. /əV/.

These developments explain the following paradigm:

<table>
<thead>
<tr>
<th>PIE</th>
<th>OH</th>
</tr>
</thead>
<tbody>
<tr>
<td>*dʰh₁-əi-h₂ei</td>
<td>/héHe/</td>
</tr>
<tr>
<td>*dʰh₁-əi-th₂ei</td>
<td>*/táite/</td>
</tr>
<tr>
<td>*dʰh₁-əi- ei</td>
<td>*/táit/</td>
</tr>
</tbody>
</table>

Other examples: *gréî is > Hitt. /kráits/, ka-ra-i-iz ‘flood’; *dʰh₁-əi-s > Hitt. /tíais/, da-iš ‘he placed’; *kōinos > Hitt. /káinas/, ka-i-na-aš, ga-e-na-aš ‘in-law’; *koi > Hitt. /kél, ke-e ‘these’ (nom.pl.c.).

1.4.10.4 *dī This diphthong to my knowledge only occurs in the diphthong-stems and yields əi: *tθh₂-əi > Hitt. /θ'lHáši/, za-al-ha-a-i, a vessel; *h₂urtōis > Hitt. /Hurtáši/, ḫurt-da-a-iš, ḫurt-ta-iš ‘curse’; *h₂urtōim > Hitt. /Hurtāin/, ḫurt-da-a-in, ḫur-ta-in ‘curse (acc.sg.)’.

1.4.10.5 *eu (i.e. *CuC) 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. /néu-aš, ne-e-ya- ‘new’, *dʰe²u²-<eu-os > Hitt. /tébuaš, te-pa-u-ya-aš ‘little, few’ (gen.sg.).

1.4.10.6 The only possible instance of *ēu that I know of is *g’h₁-ēu > Hitt. /krêtú/, ka-ru-ú ‘early’ if this reconstruction is correct.²²⁵

1.4.10.7 *ou yields Hitt. lau/ (with short a) before dental consonants (including *r): *h₂óuth₂ei > Hitt. /láutil, a-ut-ti ‘you (sg.) see’; *h₂óusen > Hitt. /láusten/, a-ús-te-en ‘you (pl.) must see’; *h₂óuri- > Hitt. /láuri-/, a-ú-ri-

²²⁴ Except in 2sg.imp.act. of the d₃-tjwe-i-class (e.g. de-ri ‘take!’ instead of expected *te < *dʰh₁- ochi, where *ði was restored on the basis of the stem *C̄h- as found in the rest of the paradigm.

²²⁵ See its lemma for the possibility that this word reflects *g’h₁-ə-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.

*ū

1.4.10.8 To my knowledge, the diphthong *ū only occurs in diphthong-stems like *h₂ér-nōu > Hitt. /Härnau/, ḫar-na-a-ū ‘birthing chair’, *h₂erğ-nōu > Hitt. /Hargnau/, ḫar-ga-na-ū ‘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:

<table>
<thead>
<tr>
<th></th>
<th>hysterodynamic</th>
<th>proterodynamic</th>
<th>static</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.sg.</td>
<td>*CéC-C(-s)</td>
<td>*CéC-C(-s)</td>
<td>*CéC-C(-s)</td>
</tr>
<tr>
<td>acc.sg.</td>
<td>*CC-éC-m</td>
<td>*CéC-C(-m)</td>
<td>*CéC-C(-m)</td>
</tr>
<tr>
<td>gen.sg.</td>
<td>*CC-C-ðós</td>
<td>*CC-éC-s</td>
<td>*CéC-C-s</td>
</tr>
</tbody>
</table>

The root nouns could show either static or mobile accentuation.\footnote{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.}
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, h-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):

<table>
<thead>
<tr>
<th>sg.</th>
<th>pl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.c.</td>
<td>-aš &lt; *-o-s</td>
</tr>
<tr>
<td>acc.c.</td>
<td>-an &lt; *-o-m</td>
</tr>
<tr>
<td>nom.acc.n.</td>
<td>-an &lt; *-o-m</td>
</tr>
<tr>
<td>gen.</td>
<td>-aš &lt; *-o-s</td>
</tr>
<tr>
<td>dat.-loc.</td>
<td>-ai, -i &lt; *-o-ei, *-²²⁸</td>
</tr>
<tr>
<td>all.</td>
<td>-a &lt; *-o²²⁸</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>abl.</th>
<th>instr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>-az &lt; *-oti</td>
<td>-l²²⁸</td>
</tr>
</tbody>
</table>

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.):

<table>
<thead>
<tr>
<th>Case</th>
<th>sg.</th>
<th>pl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.c.</td>
<td>-š₂³²⁹ -Ø &lt; *-š₂³³⁰ -Ø</td>
<td>nom.c. -eš &lt; *-eš-ø²³³¹</td>
</tr>
<tr>
<td>acc.c.</td>
<td>°V-n, °C-an &lt; *-m, *-o-m²³²</td>
<td>acc.c. -uš &lt; *-ms</td>
</tr>
<tr>
<td>nom.acc.n.</td>
<td>-Ø &lt; *-Ø</td>
<td>nom.-acc.n. -a, -Ø &lt; *-eň₂, *-Ø</td>
</tr>
<tr>
<td>gen.</td>
<td>-š₂³³³ -aš &lt; *-(o)š</td>
<td>gen. -an &lt; *-om</td>
</tr>
<tr>
<td>dat.-loc.</td>
<td>-i &lt; *-i</td>
<td>dat.-loc. -aš &lt; *-os(?)</td>
</tr>
<tr>
<td>all.</td>
<td>-a &lt; *-o</td>
<td></td>
</tr>
</tbody>
</table>

| Case     | *
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>abl.</td>
<td>-z, -čz &lt; *-(o)ti</td>
</tr>
<tr>
<td>instr.</td>
<td>°V-t, °C-it &lt; *-t</td>
</tr>
</tbody>
</table>

*i*-stems and *u*-stems

2.0.2.1 The Hittite *i*-stem and *u*-stem nouns reflect the PIE protérodynamique *i*-stem and *u*-stem inflection. In substantives the ablaut has generally been given up, generalizing the zero grade of the suffix, CVC-ï- and CVC-û- (only a few traces remain, e.g. in yešî- / yešai- 'pasture' and ḫēiur- / ḫēi(a)u- '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', têpu- / têpau- 'little, few'.

<table>
<thead>
<tr>
<th>Hitt.</th>
<th>PIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.sg.c.</td>
<td>ḫarkiš &lt; *h₂ērg-š-i-s</td>
</tr>
<tr>
<td>acc.sg.c.</td>
<td>ḫarkin &lt; *h₂ērg-i-m</td>
</tr>
<tr>
<td>gen.sg.</td>
<td>ḫargai &lt; *hargaiš &lt; *h₂ērg-š-i-os &lt;&lt; *h₂ērg-š-i-s</td>
</tr>
<tr>
<td>dat.-loc.sg.</td>
<td>ḫargai &lt; *hargai &lt; *h₂ērg-š-i-i &lt;&lt; *h₂ērg-š-i-i</td>
</tr>
</tbody>
</table>

²³⁹ In stems in -š-, this ending is written -š = l-tsš.
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 protérodynamique ending -š is very rare: it has virtually everywhere been supplanted by hystérodynamique -aš < *-os.
nom.sg.c.  tēpūš  <  *dēh₃-u-s
acc.sg.c.  tēpūn  <  *dēh₃-u-m
gen.sg.  tēpāyaš  <  *dēh₃-eu-os  <<  *dēh₃-eu-s
dat.-loc.sg.  tēpūyi  <  *dēh₃-eu-i  <<  *dēh₃-eu-i

Note that it often is assumed that the word for ‘knee’ reflects a PIE static paradigm *gōn-u, *gēn-u-s (cf. Beekes 1995: 188), whereas the Hittite stems gōmu- and gamu- rather point to an original proterodynamic inflection: *gēn-u, *gīn-ēu-s.

2.0.2 These so-called ‘diphthong-stems’ (cf. Weitenberg 1979) reflect the PIE hyst erotodynamic 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: zahḫai- / zahḫi- ‘battle’, ḫarnau- / ḫarnu- ‘birthing chair’.

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. šēuatt- ‘day’ < *dēuot- with CLuw. tiūatt- ‘Sun-god’ < *diuot- 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:

<table>
<thead>
<tr>
<th></th>
<th>Hitt.</th>
<th>PAnat.</th>
<th>PIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.sg.</td>
<td>ści̇yaṣ</td>
<td>*diēu-ot-s</td>
<td>(&lt;&lt; *diēu-(-t)s)</td>
</tr>
<tr>
<td>acc.sg.</td>
<td>UD-an</td>
<td>*diēu-ot-om</td>
<td>*diēu-ot-m</td>
</tr>
<tr>
<td>gen.sg.</td>
<td>śī̇gaṭaṣ</td>
<td>*diēu-ot-os</td>
<td>*diēu-ot-ōs</td>
</tr>
</tbody>
</table>

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 Nēpaš ‘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. nēpaš vs. obl. nepiš-. Furthermore, the existence of CLuw. tappaš- < *nébe/os- besides HLUw. tipas- < *nebēs- shows that in Proto-Anatolian accentual mobility still existed in this word, going back to a proteterodynamic inflection. Thus the following scenario emerges:

<table>
<thead>
<tr>
<th></th>
<th>Hitt.</th>
<th>“pre-Hitt.”</th>
<th>“PAnat.'/PIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.-acc.sg.</td>
<td>nēpiš</td>
<td>*néḅ-es</td>
<td>*néḅ-os  (&lt;&lt; *néḅ-s)</td>
</tr>
<tr>
<td>gen.sg.</td>
<td>nēpiša</td>
<td>*néḅ-es-os</td>
<td>*néḅ-ēs-os (&lt;&lt; *néḅ-ēs)</td>
</tr>
</tbody>
</table>

Note that aiš / išš-, ultimately reflecting PIE *h₁ēḥ₂-es-, is far less clear regarding its prehistory.

h-stem

2.0.2.5 In Hittite, only one h-stem reflecting a PIE *h₂-stem has been fully preserved, erḥ- / araḥ- / arḥ- ‘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.

<table>
<thead>
<tr>
<th></th>
<th>Hitt.</th>
<th>PIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.sg.</td>
<td>erhaṣ</td>
<td>*h₁ér-h₂-os</td>
</tr>
<tr>
<td>acc.sg.</td>
<td>arhan</td>
<td>*h₁r-h₂-o-m</td>
</tr>
<tr>
<td>gen.sg.</td>
<td>arhaṣ</td>
<td>*h₁r-h₂-ōs</td>
</tr>
<tr>
<td>abl.</td>
<td>arahaṣ</td>
<td>*h₁r-ēh₂-ti</td>
</tr>
</tbody>
</table>
The paradigms of other *h₂-stems have been levelled out, due to which the direct reflex of *h₂ was lost. This caused the eventual merging of these stems with the a-stem nouns, cf. e.g. hāššā - ‘hearth’.

The outcome of the only known PIE proterodynamic *h₂-stem noun, *gʷen-h₂-‘woman’, is not fully clear because the reflex of this word in Hittite is written with a sumerogram only. See the discussion s.v. *kuyan-.

*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. tiyamm(i)- ‘earth’ and HLuw. ta-kam-i- ‘on the earth’, shows that in PAanatolian the -m- must still have been present. Furthermore, CLuw. tiyamm- < *dʰᵉgʰ-ém- points to a hysterodynamic inflection. See s.v. for a detailed account of the prehistory of tēkan / takn-, which can be schematized thus:

<table>
<thead>
<tr>
<th>Hitt.</th>
<th>“PAnat.”/PIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.sg. tēkan</td>
<td>*dégom &lt;&lt; *dʰᵉgʰ-m</td>
</tr>
<tr>
<td>acc.sg. tēkan</td>
<td>*dégom &lt;&lt; *dʰᵉgʰ-ém</td>
</tr>
<tr>
<td>gen.sg. takmāš</td>
<td>*takmāš &lt;&lt; *dgmôs &lt;&lt; *dʰᵉgʰ-m-ós</td>
</tr>
</tbody>
</table>

n-stems

2.0.2.7 Until quite recently the noun šumanzan- ‘bulrush’ was regarded as denoting ‘cord, binding’ and therefore cognate to Gr. υφίν ἱερά ‘sinew’, on the basis of which “nom.sg. šum(m)anza” was reconstructed as *suh₂mén+s. When this form was compared to nom.sg. hārāš ‘eagle’ < *h₁ére-ḥ₂n+s, it was assumed that PIE forms in *-ḥ₂n lost their *-n in PIE already, whereas in *-ṭn 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. υφίν, the awkward split between *-ḥ₂n and *-ṭn 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: ištihmen- ‘string, cord’, ḥāran- ‘eagle’.

<table>
<thead>
<tr>
<th>Hitt.</th>
<th>PIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.sg. ištihmāš</td>
<td>*sh₂i-mén-s (&lt;&lt; *sh₂i-ēi-mn)</td>
</tr>
<tr>
<td>acc.sg. [i]štihman &lt;</td>
<td>*sh₂i-mén-m</td>
</tr>
<tr>
<td>gen.sg. unatt.</td>
<td>*sh₂i-mn-ós</td>
</tr>
</tbody>
</table>
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 protoradynamic inflection, however. Example: *lōman / *lamm- ‘name’.

<table>
<thead>
<tr>
<th>Hitt.</th>
<th>PIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.-acc.sg.</td>
<td>*h₂nēh₂-mn</td>
</tr>
<tr>
<td>lāman</td>
<td></td>
</tr>
<tr>
<td>gen.sg.</td>
<td>*h₂n(h₂)-mn-os</td>
</tr>
<tr>
<td>lamnaš</td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Hitt.</th>
<th>PIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.sg. keššar</td>
<td>*gē3-r</td>
</tr>
<tr>
<td>/kēSēr/</td>
<td></td>
</tr>
<tr>
<td>acc.sg. kiššeran</td>
<td>*gē3-s-ēr-om</td>
</tr>
<tr>
<td>/kiSēran/</td>
<td></td>
</tr>
<tr>
<td>gen.sg. kišraš</td>
<td>*gē3-s-r-ōs</td>
</tr>
<tr>
<td>/kiSrās/</td>
<td></td>
</tr>
</tbody>
</table>

The second one, *hašter(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 *h₂s-ter- or *h₂št-er-.

<table>
<thead>
<tr>
<th>Hitt.</th>
<th>PIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.sg. hašterza</td>
<td>*h₂stēr+s</td>
</tr>
<tr>
<td>*h₂stēr+</td>
<td></td>
</tr>
<tr>
<td>acc.sg. hašteran</td>
<td>*h₂stērom</td>
</tr>
<tr>
<td>*h₂stēr+</td>
<td></td>
</tr>
<tr>
<td>gen.sg. haštiraš</td>
<td>*h₂stēros(?)</td>
</tr>
<tr>
<td>*h₂stēr+</td>
<td></td>
</tr>
</tbody>
</table>

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 protoradynamic one. Examples: *mēhor / *mēhun- ‘period, time’, *pah₇ur / *pah₇uen- ‘fire’.

131
It is often stated that *yāṭar / *yīṭēn- ‘water’ reflects a static paradigm *uòd- r, *uèd-n-s. As I have argued in Kloekhorst fthc.b, this is incorrect: *yāṭar, *yīṭēnāš must be regarded as an inner-Hittite remodelling of an originally protoderivative paradigm *uòd- r, *uèd-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 -ant- ‘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 *Tarhuant- besides Tarhant- < *trh₂u̯ant- / *trh₂ant-, indicates that at least in Proto-Anatolian ablaut was still present. Thus, we get the following picture:

<table>
<thead>
<tr>
<th>Hitt.</th>
<th>“PAnat.”</th>
<th>PIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.sg. *hūyanza &lt; *h₂uh₁-ént-s &lt;&lt; *h₂ueh₁-nt(s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>acc.sg. *hūyanstan &lt; *h₂uh₁-ént-om &lt;&lt; *h₂uh₁-ént-m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>gen.sg. *hūyandāš &lt; *h₂uh₁-ént-os &lt;&lt; *h₂uh₁-nt-ós</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**it-stems**

2.0.2.11 Only two nouns in Hittite show a stem in -it-, namely militt- / malitt- ‘honey’ and *šepptit- ‘a kind of grain’. The latter shows the stem *šepptit- < *sēp-it- throughout, but the former shows ablaut in the root: militt- < *mēl-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 hysteronomic inflection: gen.sg. *ml-it-ós. Nevertheless, we would *a priori* expect a protoderivative paradigm *mēl-it, *ml-it-ōs (or *ml-ät-s ?).

---

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

In Hittite only a few root nouns are attested. Often, original root nouns are thematized (compare e.g. *pāt-/*pat- 'foot' < *pōd-/*pd-, which eventually is altered to *pata-), sometimes in pre-Hittite times already (compare e.g. *hulhuha- 'grandfather' < *h2u-h2o- that in combination with CLuw. *hulhuha- and Lyco. *χυγε- < *h2eιu2h2o- points to a PAnat. ablauting root noun *h2eιh2-s, *h2eιh2-m, *h2u-h2-oš). We can distinguish static and mobile root nouns. Examples: *yitt- (MU*KAM) ‘year’, *kuyan-/*kun- ‘dog’, *ker/*kard(i)- ‘heart’.

<table>
<thead>
<tr>
<th>Static:</th>
<th>Hitt.</th>
<th>PIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.sg.</td>
<td>MUKAM-za</td>
<td>*uót-s (?)</td>
</tr>
<tr>
<td>acc.sg.</td>
<td>MUKAM-an</td>
<td>*uó/ót-m</td>
</tr>
<tr>
<td>gen.sg.</td>
<td>yizza</td>
<td>*uért-s</td>
</tr>
<tr>
<td>dat.-loc.sg.</td>
<td>ŷtti</td>
<td>*uért-i</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mobile:</th>
<th>Hitt.</th>
<th>PIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.sg.</td>
<td>kuyaš</td>
<td>*kūn-s &lt;&lt; *kūn</td>
</tr>
<tr>
<td>acc.sg.</td>
<td>kuyanuš</td>
<td>*kūn-om &lt;&lt; *kūn-m</td>
</tr>
<tr>
<td>gen.sg.</td>
<td>kũnaš</td>
<td>*kun-oš</td>
</tr>
<tr>
<td>nom.-acc.sg.</td>
<td>ker</td>
<td>*kêr</td>
</tr>
<tr>
<td>gen.sg.</td>
<td>kardijaš</td>
<td>*krd-i-oš</td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th></th>
<th>Skt. (encl.)</th>
<th>Av. (encl.)</th>
<th>PIIr. (encl.)</th>
<th>(encl.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘I’</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nom.</td>
<td>ahām</td>
<td>as-čī, azīm</td>
<td>*HaŋH(ām)</td>
<td></td>
</tr>
<tr>
<td>Acc.</td>
<td>mām</td>
<td>māg (Y.)</td>
<td>mā *maH(ām)</td>
<td>*mā</td>
</tr>
<tr>
<td>Gen.</td>
<td>māma</td>
<td>mā, mānā</td>
<td>mā *māna</td>
<td>*mai</td>
</tr>
<tr>
<td>Dat.</td>
<td>māhyā(m)</td>
<td>mābiū, mābiū</td>
<td>mā *māg'ya</td>
<td>*mai</td>
</tr>
<tr>
<td>Abl.</td>
<td>mād</td>
<td>māt</td>
<td>*mad</td>
<td></td>
</tr>
<tr>
<td>Loc.</td>
<td>māyī</td>
<td>-</td>
<td>*mai+i</td>
<td></td>
</tr>
<tr>
<td>Instr.</td>
<td>māyā</td>
<td>-</td>
<td>*mai+i</td>
<td></td>
</tr>
</tbody>
</table>

‘you (sg.)’

<table>
<thead>
<tr>
<th></th>
<th>Skt. (encl.)</th>
<th>Av. (encl.)</th>
<th>PIIr. (encl.)</th>
<th>(encl.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘we’</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nom.</td>
<td>tvām</td>
<td>tū, tuuṃ</td>
<td>*tuH(ām)</td>
<td></td>
</tr>
<tr>
<td>Acc.</td>
<td>tvā, tvā</td>
<td>ūdvān</td>
<td>ūdvā *tuH(ām)</td>
<td>*tvā</td>
</tr>
<tr>
<td>Gen.</td>
<td>tāva, te</td>
<td>tawū, tūi</td>
<td>tūi *tāya</td>
<td>*tai</td>
</tr>
<tr>
<td>Dat.</td>
<td>tābhyāt(m), te</td>
<td>tābī, tābiō</td>
<td>tūi *tāb'ya</td>
<td>*tai</td>
</tr>
<tr>
<td>Abl.</td>
<td>tvād</td>
<td>ūdvāt</td>
<td>*tuad</td>
<td></td>
</tr>
<tr>
<td>Loc.</td>
<td>tvē, tvāyī</td>
<td>-</td>
<td>*tuvā(+/i)</td>
<td></td>
</tr>
<tr>
<td>Instr.</td>
<td>tvā, tvāyī</td>
<td>ūdvā</td>
<td>*tuvāH</td>
<td></td>
</tr>
</tbody>
</table>

‘you (pl.)’

<table>
<thead>
<tr>
<th></th>
<th>Skt. (encl.)</th>
<th>Av. (encl.)</th>
<th>PIIr. (encl.)</th>
<th>(encl.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nom.</td>
<td>asmān</td>
<td>āhūm</td>
<td>*maH-ns-mā+</td>
<td>*nās</td>
</tr>
<tr>
<td>Acc.</td>
<td>asmān</td>
<td>āhūm</td>
<td>*maH-ns-mā+</td>
<td>*nās</td>
</tr>
<tr>
<td>Gen.</td>
<td>asmākam</td>
<td>āhūm</td>
<td>*maH-ns-mā+</td>
<td>*nās</td>
</tr>
<tr>
<td>Dat.</td>
<td>asmē</td>
<td>asmainū</td>
<td>*maH-ns-mā+</td>
<td>*nās</td>
</tr>
<tr>
<td>Abl.</td>
<td>asmād</td>
<td>māt</td>
<td>*ns-mād</td>
<td></td>
</tr>
<tr>
<td>Loc.</td>
<td>asmē</td>
<td>-</td>
<td>*ns-māi</td>
<td></td>
</tr>
<tr>
<td>Instr.</td>
<td>asmābhis</td>
<td>āhūm</td>
<td>*ns-maH</td>
<td></td>
</tr>
</tbody>
</table>
'you (pl.)'

<table>
<thead>
<tr>
<th>Case</th>
<th>Nom.</th>
<th>Ion.-Att.</th>
<th>Dor.</th>
<th>PGreek</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nom.</td>
<td>yūván</td>
<td>yūs, yūsəm</td>
<td>*iuHs</td>
<td></td>
</tr>
<tr>
<td>Acc.</td>
<td>yuṣmáṇ</td>
<td>va</td>
<td>-</td>
<td>*us-ma+</td>
</tr>
<tr>
<td>Gen.</td>
<td>yuṣmakəm</td>
<td>xṣmákm</td>
<td>-</td>
<td>*us-ma+</td>
</tr>
<tr>
<td>Dat.</td>
<td>yuṣmē</td>
<td>xṣmaiβiβ</td>
<td>-</td>
<td>*us-ma+</td>
</tr>
<tr>
<td>Abl.</td>
<td>yuṣmād</td>
<td>xṣma</td>
<td>*us-mād</td>
<td></td>
</tr>
<tr>
<td>Loc.</td>
<td>yuṣmē</td>
<td>*us-mai</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instr.</td>
<td>-</td>
<td>xṣmā</td>
<td>*us-mai</td>
<td></td>
</tr>
</tbody>
</table>

The Greek forms are as follows:

<table>
<thead>
<tr>
<th>Case</th>
<th>Nom.</th>
<th>Ion.-Att.</th>
<th>Dor.</th>
<th>PGreek</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nom.</td>
<td>ἐγό</td>
<td>ἐγό</td>
<td>ἐγό(ας)</td>
<td>*h₁egóH</td>
</tr>
<tr>
<td>Acc.</td>
<td>ἐγέ</td>
<td>με</td>
<td>ἐγέ</td>
<td>με</td>
</tr>
<tr>
<td>Gen.</td>
<td>ἐγεό</td>
<td>μεο</td>
<td>ἐγεό</td>
<td>μου</td>
</tr>
<tr>
<td>Dat.</td>
<td>ἐγοί</td>
<td>μοί</td>
<td>ἐγοί</td>
<td>μοι</td>
</tr>
<tr>
<td>Nom.</td>
<td>ςό(γε), τῶν</td>
<td>ςόγε</td>
<td>τό</td>
<td>*t(γ)uH</td>
</tr>
<tr>
<td>Acc.</td>
<td>σέ</td>
<td>σέ</td>
<td>σέ</td>
<td>τέ</td>
</tr>
<tr>
<td>Gen.</td>
<td>σο</td>
<td>σο</td>
<td>σο</td>
<td>τόσ</td>
</tr>
<tr>
<td>Dat.</td>
<td>σοι</td>
<td>τοι</td>
<td>σοι</td>
<td>σοι</td>
</tr>
</tbody>
</table>

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 *τυ-, which is still visible in Cret. acc. τσέ. This means that in Proto-Greek there must have been a distribution between *τυ- vs. *τυ-, 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 *h₁- in the oblique cases of ‘I’

<table>
<thead>
<tr>
<th>Sg.</th>
<th>‘I’</th>
<th>‘you (sg.)’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nom.</td>
<td>es</td>
<td>*e’eg(?)</td>
</tr>
<tr>
<td>Acc.</td>
<td>is</td>
<td>*h₁m+ge</td>
</tr>
<tr>
<td>Gen.</td>
<td>im</td>
<td>*h₁m-o</td>
</tr>
<tr>
<td>Dat.</td>
<td>inj</td>
<td>*h₁m-gʰe</td>
</tr>
</tbody>
</table>

Another important language is Old Church Slavonic, especially because of gen.sg. *mene ‘of me’ that corresponds to PIIr. *mâna and dat.sg. *teb’oi ‘to you’ that corresponds to PIIr. *tâb’ya. The plural forms clearly have undergone secondary changes.

<table>
<thead>
<tr>
<th>Sg.</th>
<th>‘I’</th>
<th>‘you (sg.)’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nom.</td>
<td>azь</td>
<td>*e’eg-om</td>
</tr>
<tr>
<td>Acc.</td>
<td>mene, mg</td>
<td>= gen., &lt; *momen</td>
</tr>
<tr>
<td>Gen.</td>
<td>mene</td>
<td>*mene</td>
</tr>
<tr>
<td>Dat.</td>
<td>mьтroe, mi</td>
<td>*min-o</td>
</tr>
</tbody>
</table>

Pl. | ‘we’       | ‘you (pl.)’ |
Sg. | nom. | < *muh      | vy          | < *vaH |
|     | acc. | ny, nasь    | vy, vasь    |
| Gen. | nasь     | < *nos-om   | vasь        | < *vos-om |
| Dat. | namь, ny |            | vamь, vy    |

Of the Germanic languages, only nom. and acc. are important. I refer to Kroonen fithc., who shows that the Proto-Germanic system must have been as follows:

<table>
<thead>
<tr>
<th>Sg.</th>
<th>*isk</th>
<th>&lt; *h₁e’eg-V</th>
<th>*tu</th>
<th>&lt; *tuH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nom.</td>
<td>*mik</td>
<td>&lt; *h₁me-ge</td>
<td>*tuk</td>
<td>&lt; *tue-ge</td>
</tr>
<tr>
<td>Acc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pl.
| Nom. | *weis | < *wei-s   | *jǐs | < *iuH-s |
| Acc. | *uns  | < *ins     | *iw  | < *iu   |

Of the Latin system, only nominative and dative provide additional information:
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:

<table>
<thead>
<tr>
<th>Case</th>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nom.</td>
<td>*h₁m₁eH</td>
<td>*u₁H</td>
</tr>
<tr>
<td>Acc.</td>
<td>*h₁m₁(e) *m₁(?)</td>
<td>*tue(ge) *tu₁(?)</td>
</tr>
<tr>
<td>Gen.</td>
<td>*h₁m₁ene *moi</td>
<td>*teue *toi</td>
</tr>
<tr>
<td>Dat.</td>
<td>*h₁m₁e₁i *moi</td>
<td>*teb₁i *toi</td>
</tr>
<tr>
<td>Obl.</td>
<td>*h₁m₁e-</td>
<td>*tue-</td>
</tr>
<tr>
<td>Nom.</td>
<td>*uei</td>
<td>*iu₁H</td>
</tr>
<tr>
<td>Acc.</td>
<td>*ns *n₁s(?)</td>
<td>*us *u₁s(?)</td>
</tr>
<tr>
<td>Obl.</td>
<td>*ns- *nos</td>
<td>*us- *uos</td>
</tr>
</tbody>
</table>

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. *h₁m₁en-e, we would expect an acc.-obl. *h₁m₁en-e, with an -n-.

I believe that this -n- can explain the words for ‘I, me’ in Tocharian that have an otherwise inexplicable anlaut *n₁- < *h₁m₁en-e.

---

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 -mn-stems: e.g. ražmān- has instr.sg. ražmā and držhmān- has instr.sg. držhmā, both from *-m₁n₁-eh₁. When the preceding root contained a labial consonant, the cluster -mn- was assimilated to -n-. Ved. instr.sg. prathmān- from prathmān-, preñā from premān-, bhāmā from bhāmān-, mahmā from mahmān- and vārnā from wārmān-, but also Skt. bāhān- ‘bottom’ < *h₁b₁u₁m₁- as visible in Gr. πρώτος ‘bottom’; Av. raupn- ‘butter’ < *H₁R₁m₁- as visible in kl. rjóni ‘cream’ < *reugmān- and MHG rīm < *reugmān-; PGerm. brāga- ‘brain’ < *m₁r₁g₁- as visible in Gr. πρόσωπον ‘skull’ (last examples taken from Kroonen 2006).
All in all, the outer-Anatolian IE languages point to the following basic system (disregarding the dat.sg. forms):

<table>
<thead>
<tr>
<th></th>
<th>Sg. TochB</th>
<th>TochA</th>
<th>TochB</th>
<th>TochA</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.</td>
<td>ʰnāš</td>
<td>m. nāš, f. ŋuk</td>
<td>tuwe</td>
<td>tu</td>
</tr>
<tr>
<td>obl.</td>
<td>id.</td>
<td>id.</td>
<td>ĉi</td>
<td>cu</td>
</tr>
<tr>
<td>gen.</td>
<td>ŋi</td>
<td>ŋi</td>
<td>ţaŋ</td>
<td>ţi</td>
</tr>
</tbody>
</table>

Pl.

| Nom.     | wesi      | was    | yes   | yas   |
| obl.     | id.       | id.    | id.   | id.   |
| Gen.     | wesi, wesaŋ | wasaŋ  | yesi, yesaŋ | yasaŋ |

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:

<table>
<thead>
<tr>
<th>Hitt.</th>
<th>‘I’</th>
<th>‘you (sg.)’</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.</td>
<td>ū-uk</td>
<td>zi-i-ik</td>
</tr>
<tr>
<td>acc.</td>
<td>am-mu-uk</td>
<td>=μu</td>
</tr>
<tr>
<td>gen.</td>
<td>am-me-el</td>
<td>tu-e-el</td>
</tr>
<tr>
<td>dat.</td>
<td>am-mu-uk</td>
<td>=μu</td>
</tr>
<tr>
<td>abl.</td>
<td>am-me-e-da-az</td>
<td>tu-e-da-az</td>
</tr>
</tbody>
</table>

The gen.sg.-ending -ēl and the abl.-ending -ēdaaz are clearly of secondary origin, being taken over from the other pronouns. So the basic Hittite system is as follows:
The other Anatolian languages show the following forms:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Palaiic</td>
<td>ūk</td>
<td>=mu</td>
<td>=mu</td>
<td>=tu / =tu</td>
</tr>
<tr>
<td>CLuwian</td>
<td>--</td>
<td>=mu</td>
<td>=mi(?)</td>
<td>--</td>
</tr>
<tr>
<td>HLuwian</td>
<td>á-mu</td>
<td>=mu</td>
<td>tu</td>
<td>=tu</td>
</tr>
<tr>
<td>Lydian</td>
<td>amu</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Lycian</td>
<td>êmu, emu, amu</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

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 */mũy/. Since the hieroglyphic script did not distinguish between single and geminate consonants, á-mu can safely be equated with Hitt. *ammy < PAnat. */mũy/, 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 ê of Lyd. gen.adj. êmu- is the regular outcome of raising of *e- due to the following -i-.

\(^{237}\) Which has a variant amu due to u-umlaut.
I therefore arrive at the following Proto-Anatolian reconstruction:

<table>
<thead>
<tr>
<th>Case</th>
<th>Proto-Anatolian</th>
<th>Proto-Anatolian</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.</td>
<td>*ʔuḡ</td>
<td>*ʔuḡ</td>
</tr>
<tr>
<td>acc.-dat.</td>
<td>*ʔMīḡ</td>
<td>*ʔuḡ</td>
</tr>
<tr>
<td>“obl.”</td>
<td>*ʔM-</td>
<td>*ʔu-</td>
</tr>
<tr>
<td>encl.</td>
<td>*=mu</td>
<td>*=to(?) / *=tu</td>
</tr>
</tbody>
</table>

Note that I interpret Hitt. ʿu-uk as /ʔuḡ/\(^{238}\) in analogy to e.g. e-eš ‘be!’ = /ʔèsl/ < *h₁es, e-ep ‘take!’ = /ʔép/ < *h₁ép, e-et ‘eat!’ /ʔéd/ < *h₁éd, i-it ‘go!’ /ʔid/ < *h₁id‘i, etc. There is in my view no indication to assume that ʿu-uk would have a long ʿū (contra Melchert 1994a: 84).

If we compare PANat. *ʔuḡ ‘I’ to the form *h₁eḡH, 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. *ʔuḡ 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. zık (which he falsely reads as zek) reflects *tye-ge, showing a development *tu- > Hitt. z-. Apart from the fact that this does not take into account Pal. ū, CLuw. ṣ and HLuw. ti ‘you’, a development *tu- > Hitt. z- is falsified by e.g. tuekk- ‘body’ < *tuek-. Melchert (1994a: 84) assumes a development *tū > *tyū > *tyi > *ti but such a development is unparalleled in Anatolian. It is important to note that his argument that “the preform *tū is independently required in PA[nat.] as the source of the long ū of the first singular nominative *ʔuḡ seen in Hitt. ūḡ” is incorrect since the spelling ū-uk does not necessarily point to a long ū, but just stands for /ʔuḡ/.

In my view, the form *ʔuḡ, of which the -g can easily be of a secondary origin and the -t must reflect *-ihr,\(^{239}\) 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. *th₁. We therefore cannot conclude otherwise than that the Anatolian system *th₁, *tu- is more archaic than the system *tuH, tu- as reflected in the

\(^{238}\) With /g/ on the basis of ā-ke-el, ā-ki-la ‘I (emph.)’.

\(^{239}\) Note that **-ihr would have yielded **-e (cf. nom.-acc.pl.n. ke-e ‘these’ < *Eih₂).
other IE languages and that this latter system therefore must have been an innovation, namely taking over the obl.-stem tu- into the nominative and altering *tiH₁ to *tuH (which therefore must be identified as *tuH₁).

This means that *ʔúɡ ‘I’ cannot have gotten its -u- from ‘you’ (which was never *tuH, but always *tiH₁), and therefore must have been influenced by *ʔMúɡ (again nominative influenced by obl.)

All in all I arrive at the following scenario:

<table>
<thead>
<tr>
<th>PIE</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.</td>
<td>*h₁é̆gH</td>
<td>*tiH₁</td>
</tr>
<tr>
<td>acc.</td>
<td>*h₁mn-</td>
<td>*tu-</td>
</tr>
<tr>
<td>obl.</td>
<td>*h₁mn-</td>
<td>*tu-</td>
</tr>
</tbody>
</table>

stage (1): the -u- of acc. *tu- is taken over to *h₁mn-

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.</td>
<td>*h₁é̆gH</td>
<td>*tiH₁</td>
</tr>
<tr>
<td>acc.</td>
<td>*h₁mn-</td>
<td>*tu-</td>
</tr>
<tr>
<td>obl.</td>
<td>*h₁mn-</td>
<td>*tu-</td>
</tr>
</tbody>
</table>

stage (2): spread of -u- of acc. *h₁mn- to nom. *h₁é̆gH; assimilation of -mn- to -M-; loss of word-final laryngeal

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.</td>
<td>*h₁ú̄g</td>
<td>*tů́</td>
</tr>
<tr>
<td>acc.</td>
<td>*h₁Mú-</td>
<td>*tu-</td>
</tr>
<tr>
<td>obl.</td>
<td>*h₁M-</td>
<td>*tu-</td>
</tr>
</tbody>
</table>

stage (3): either addition of the element *-ge in nom. and acc., or spread of word-final *-g of *h₁µugu

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.</td>
<td>*h₁ú̄g</td>
<td>*tů́-g(e)</td>
</tr>
<tr>
<td>acc.</td>
<td>*h₁Mú- Źg(e)</td>
<td>*tů́-g(e)</td>
</tr>
<tr>
<td>obl.</td>
<td>*h₁M-</td>
<td>*tu-</td>
</tr>
</tbody>
</table>

---

240 Including Tocharian where TochA tu, TochB tu, now reflect *tuH₁om).
241 Which is a very common development, compare e.g. the Luwian languages where PAnat. nom. *ʔúɡ ‘I’ was replaced by acc.-dat. *ʔMůɡ ‘me’.
242 Thus already Cowgill 1965: 1690°. The fact that the Anatolian branch retained the older situation, *nH, *ntu-, 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. *ʔuŋ  *ʔuŋ
acc.-dat. *ʔmüŋ  *ʔuŋ
obl. *ʔm-  *ʔu-

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:

<table>
<thead>
<tr>
<th>Case</th>
<th>Form 1</th>
<th>Form 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.</td>
<td>ʔu-e-ʔš</td>
<td>šu-me-eš</td>
</tr>
<tr>
<td>acc.</td>
<td>an-za-a-ʔš</td>
<td>šu-ma-a-ʔš</td>
</tr>
<tr>
<td>gen.</td>
<td>an-ze-ʔl</td>
<td>šu-me-en-za-ʔan</td>
</tr>
<tr>
<td>dat.</td>
<td>an-za-a-ʔš</td>
<td>šu-ma-a-ʔš</td>
</tr>
<tr>
<td>abl.</td>
<td>an-ze-da-ʔaz</td>
<td>šu-me-e-da-ʔaz</td>
</tr>
</tbody>
</table>

Again, the endings -ʔl, -ʔdaž and -ʔenjan are likely taken over from the other personal pronouns and are irrelevant. So the basic system is

<table>
<thead>
<tr>
<th>Case</th>
<th>Form 1</th>
<th>Form 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.</td>
<td>y-ʔš</td>
<td>šum-ʔš</td>
</tr>
<tr>
<td>acc.-dat.</td>
<td>anz-ʔš</td>
<td>šum-ʔš</td>
</tr>
<tr>
<td>obl.</td>
<td>anz-</td>
<td>šum-</td>
</tr>
<tr>
<td>encl.</td>
<td>=n-ʔaš</td>
<td>=šmaš</td>
</tr>
</tbody>
</table>

In the other Anatolian languages, these pronouns are only scarcely attested:

CLuwian
nom. -- --
acc.-dat. an-za, a-an-za, an-za-ʔš u-za-ʔš

HLuwian
nom. a-zuʔ-ʔa u-zuʔ-ʔa, u-zuʔ-ʔa
acc.-dat. -- =nζ --
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.  GameController < *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'-/i, 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 PAnatolian pre-form easily. Often, šumeš has been interpreted as the metathesized outcome of *usme as visible in PIIr. *usmā and Gr. ḫμέ. 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. eš₄ {-r₀} ‘to seat oneself’ vs. eš₂{-l ‘to sit’}), but sometimes such a difference is not graspable (e.g. paḫš⁻²{-r₀} besides paḫš⁻²{-l}, both ‘to protect, to be loyal to’). Formally, these verbs sometimes use one stem (e.g. eš₄{-r₀} / aš- besides eš₂{-l} / aš-), but sometimes the stems are different (e.g. ḫuett⁻¹{-w} besides ḫutiiye/a₂{-l ‘to draw, to pull’, or nē₂{-r₀} besides nai₁ / *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, -si, -zi for the singular and -yeni, -steni, -anzi for the plural, whereas ḫi-inflected verbs show -ḫši (-ḫše), -tti, -i (-e), -yeni, -steni, -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. -si is gradually being replaced by the ḫi-ending -tti throughout Hittite, whereas the ḫi-ending 2pl.pres.act. -steni is being replaced by the mi-ending -teni; 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. -ie/a- (= the -ie/a-class) always uses mi-endings, but -ai/-i- (= the dā̱iti/anzi-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 nai₁ / *ni- (inflecting according to the dā̱iti/anzi-class, which happens to be ḫi-conjugating) from MH times onwards is being replaced by the
stem \(nilê/â-\) (according to the -je/a-class, which happens to be mi-conjugating). The inflection types that use *mi*-endings are codified with roman I, whereas the \(hi\)-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**

**2.2.2.1a** 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’.

<table>
<thead>
<tr>
<th>PIE</th>
<th>Gr.</th>
<th>Skt.</th>
<th>Hitt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg. <em>h₁ès-mi</em></td>
<td>ἐμι</td>
<td>ásmi</td>
<td>ḫṣmi</td>
</tr>
<tr>
<td>2sg. <em>h₁ès-si</em></td>
<td>ἐ</td>
<td>ásí</td>
<td>ḫšší</td>
</tr>
<tr>
<td>3sg. <em>h₁ès-ti</em></td>
<td>ἐτι</td>
<td>ásti</td>
<td>ḫẑí</td>
</tr>
<tr>
<td>1pl. <em>h₂s-mé(s)</em></td>
<td>ἐκμέν</td>
<td>smás</td>
<td>*ašušni</td>
</tr>
<tr>
<td>2pl. <em>h₂s-th₁é</em></td>
<td>ἐκτέ</td>
<td>sthá</td>
<td>*ašušni</td>
</tr>
<tr>
<td>3pl. <em>h₂s-énti</em></td>
<td>ἐκτι</td>
<td>sánti</td>
<td>ašanzi</td>
</tr>
</tbody>
</table>

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 ἴστη ‘to stand’) and in Sanskrit (with an additional example of *var- ‘to cover’). The Hittite verb ḫ₃- in fact denotes ‘to speak’ (the plural forms are taken from compound verbs like *peḫu-te-² / peḫu- ‘to bring (away)’ and *ugete-² / uget- ‘to bring (here)’).

<table>
<thead>
<tr>
<th>PIE</th>
<th>Gr.</th>
<th>Skt.</th>
<th>Hitt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg. <em>dʰêh₁-m</em></td>
<td>[ṣṭī]</td>
<td>*dḥám</td>
<td>ḫênun</td>
</tr>
<tr>
<td>2sg. <em>dʰêh₁-s</em></td>
<td>[ṣṭ̀]</td>
<td>dḥás</td>
<td>ḫš</td>
</tr>
<tr>
<td>3sg. <em>dʰêh₁-t</em></td>
<td>[ṣṭ̀]</td>
<td>dḥât</td>
<td>ḫ̀</td>
</tr>
<tr>
<td>1pl. <em>dʰêh₁-mé</em></td>
<td>ἃκμέν</td>
<td>*dḥamma</td>
<td>ẏmen</td>
</tr>
<tr>
<td>2pl. <em>dʰêh₁-té</em></td>
<td>ἀκτε</td>
<td>*dḥàta</td>
<td>ẏtten</td>
</tr>
<tr>
<td>3pl. <em>dʰêh₁-ént</em></td>
<td>ἀκόν</td>
<td>dhúr, [yran]</td>
<td>ẏ̀r, ṣdɔ̀ni</td>
</tr>
</tbody>
</table>

147
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/i, a/i. The verb paji-²/pai- ‘to go’ has its own class.

lα

This class consists of verbs of the structure C-ëC-, Cm- and of the structure
*Ceh-, to which the nasal-infix verbs of the structure *CR-ne-h₁- belong as well.
Note that in zinni-²/zinn- and duyar-²/duyarn- original *e- < *eh₁- has been
raised to -i. The verbs of this type most clearly reflect the PIE *e/Ø-ablaut.

arise-²/aršan- ‘to be envious’ < *h₁jr-ne-h₁- / *h₁jr-n-h₁-; huck-² / hück- ‘to
slaughter’ < *h₂ug¹- / *h₂ug²-; huck-² / hück- ‘to conjure’ < *h₂ug¹- / *h₂ug²-;
huiš-² / huiš- ‘to live’ *h₁nes- / *h₁nes-; hulle-² / hull- ‘to smash’ < *h₁ul-ne-h₁- / *h₁ul-n-h₁-; kuen-² / kun- ‘to kill’ < *g¹wen- / *g²wen-; kuer-² / kur- ‘to cut’ <
k¹er- / k²er-; pešute-² / pešut- ‘to bring (there)’ < *h₁poi + *h₂ou + *d³eh₁- /
*d³h₁-; peje-² / pej- ‘to send’ < *h₁poi + *h₁ieh₁- / *h₁ieh₁-; šamen-² / šamn- ‘to
pass by’ < *smen- / *smn-; tē² / те- ‘to state, to say’ < *d³eh₁-; duyar-² / duyarn-‘to break’ < *d³ur-ne-h₁- / *d³ur-n-h₁-; uje-² / uji- ‘to send (here)’ < *h₁ou +
*h₁ieh₁- / *h₁ieh₁-; uyate-² / uyat- ‘to bring (here)’ < *h₂ou + x + *d³(e)h₁- / *d³h₁-
; ưeře-² / ưeř- ‘to fear’ < x + *d³eh₁- / *d³h₁-; ｙeｔe-² / ｙeｔ- ‘to build’ < x +
*d³eh₁- / *d³h₁-; zinni-² / zinn- ‘to finish’ < *ti-ne-h₁- / *ti-n-h₁-.

lα

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.

hūzi / h- ‘to believe’ < *h₁eH- / *h₁H- or *h₂eh₂- / *h₂h₁-; harna-² / harn- ‘to
sprinkle’ < *h₂r-ne-h₂- / *h₂r-n-h₂-; kallišš-² / kallišš- / kallıšš- / kallišš- ‘to call’ <
*kelh₁s- / *klh₁s- / *ma-² / m- ‘to disappear(?)’ < *meh₁s- / *meh₂s-??
mi-verbs with e/a-ablaut: the e/a-class.

2.2.2.1d This class consists of mi-verbs that show a synchronic ablaut e/a. It contains important verbs like eš² / aš- ‘to be’ and ed² / ad- ‘to eat’. Although it is clear that -e- of the strong stem directly reflects PIE *-e₂⁴³, 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: as written in the weak stem is not phonologically real: WDUDDQ L ‘they speak’ reflects *WUpQWL and therefore must represent phonological /tránti/; PDUDDQGX ‘they must disappear’ < *PUpQWX must be phonologically interpreted as /mrántu/. So in verbs of the structure *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 eš² / aš- ‘to be’, ed² / ad- ‘to eat’, eku-² / aku- ‘to drink’ and epp-² / app- ‘to seize’, matters are less clear. These verbs all show the structure *h₁eC-, and it therefore seems obvious to assume that the weak stems aC- reflect *h₁C-. Nevertheless, in view of the loss of initial *h₁- before consonants in isolated forms (*h₁C- > C-, cf. Kloekhorst fthc.c), the retention of *h₁- in these verbs cannot be phonetically regular.⁴⁴ I therefore assume that at the time that *h₁ was regularly lost in word-initial position before consonant, the ablaut of stems of the structure /teC- / TC-/ still corresponded to the other ablauting mi-verbs, which showed an ablaut *Ce(R)C-/ *C(R)C-. In order to avoid an alternation */teC- / C-/, which would have been fully aberrant in comparison to all other verbs that showed *Ce(R)C-/ *C(R)C-, the initial /?-/ of the full grade was restored.

The question now is: what is the relationship between */?C-/ and the spelling aC-? It has been claimed that aC- shows a vocalization of the initial *h₁- to a-.

There is, however, no proof anywhere in Hittite that *h₁ would vocalize to -a- in any environment. As I have argued in Kloekhorst fthc.c, we should rather assume

---

²⁴ In the literature, we still often find the view that the plene spelling of e in the singular forms (e.g. e-e₃-mi ‘I am’, e-et-mi ‘I eat’ or e-e₂-e₃-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 LIV², where e.g. e-et-mi is given as e₃-mi, reflecting *h₁e₃-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/-ablaut.

²⁴⁴ A common other view is that these verbs introduced the a- in the weak stem in analogy to šē₂ / ša₂- ‘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 ša₂- probably is an empty vowel as well.
that a spelling like a-şa-an-zi must be read as ‘a-şa-an-zi’\(^{245}\) and therefore is comparable to e.g. ta-ra-an-zi = /tránt’i/ in the sense that it stands for /sánt’i/ < *h₁sènti, where -a- is nothing more than an empty vowel. The same goes for şa-şaka-an-zi = /ssánt’i/ < *ss-ánti ‘they sleep’.

All in all, the synchronic ablaut e/a of class Ia3 is equivalent to the ablaut e/O 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 /O/.

\[
eku-² / aku- ‘to drink’ < *h₁egeⁿh₁ / *h₁geⁿh₁ / epp-² / app- ‘to seize’ < *h₁epeⁿ / *h₁peⁿ / ed-² / ad- ‘to eat’ < *h₁edⁿ / *h₁edⁿ / eš-² / aš- ‘to be’ < *h₁esⁿ / *h₁esⁿ / eš-² / aš- ‘to sit’ < *h₁esⁿ / *h₁esⁿ / mer-² / mar- ‘to disappear’ < *merⁿ / *mrⁿ / peš-² / peš- ‘to rub’ < *pesⁿ / *psⁿ / šeš-² / šaš- ‘to sleep’ < *sesⁿ / *ssⁿ / ter-² / ter- ‘to speak’ < *terⁿ / *trⁿ / yeš-² / yah- ‘to turn’ of secondary origin; yen-² / uyan- ‘to copulate’ < *h₁3uṣemh₁ / *h₁3uṁh₁.
\]

Ia4  mi-verbs with a/a-“ablaut”.

\[^{245}\text{Taking the sign A as having the value ‘a, as is known from Boğazköy Akkadian (cf. Durham 1976: 117).}\]
ārš-² / arš- ‘to flow’ < *h₁ers- / *h₁rs- / hari(k) -² / hari(k) ‘to hold, to keep’ < *h₂erk- / *h₂rk-; har(k) -² / har(k) ‘to perish’ < *h₁erg- / *h₁rg-; ḥarp-² / ḥarp- ‘to separate oneself and (re)associate oneself elsewhere’ < *h₁erb⁵- / *h₁rb⁵-; išparšt-² / išparšt- ‘to escape’ *sperdᵗ- / *sprdᵗ-; ištaktšt-² / ištaktšt- ‘to make level, to flatten’ *stelgʰ- / *stelgʰ-; īštār(k) -² / īštār(k)- ‘to ail, afflict’ < *sterkʷ- / *strkʷ-; karp-² / karp- ‘to take away, to pick, to pluck’ < *kērp- / *kērp-; karš-² / karš- ‘to cut off’ < *kers- / *krs-; lappšt-² / lappšt- ‘to catch fire’ < *lēh²p- / *lēh²p-; papparšt-² / papparšt- ‘to sprinkle’ < *pers- / *prs-; paršt-² / paršt- ‘to chase’ < *bʰrēh²- / *bʰrēh²-; parš-² / parš- ‘to flee’ < *bʰers- / *bʰers-; šalk-² / šalk- ‘to knead’ < *salkʰ- / *salkʰ-; ša(n)h-² / ša(n)h- ‘to seek’ < *senh²- / *senh²-; ša(n)hu² / ša(n)hu² ‘to roast’ < *senh²u- / *senh²u-; tarḥu² / tarḥu²- ‘to siege’ < *terh²u- / *terh²u-; tar(k)u² / tar(k)u²- ‘to dance’ < *terkʰʷ / *terkʰʷ; ṣalḥ-² / ṣalḥ- ‘to hit’ < *ṭelh²- / *ṭelh²-; γalk-² / γalk- ‘to damage (?)’ < *γalg- / *γalg-; /navbar² / /navbar- ‘to wash’ < *γerp- / *γerp-.

Ia5  mi-verbs with e/i-ablaut.

2.2.2.1f This class consists of two verbs only, namely of yekek-² ‘to wish’ and terepp-² ‘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 (tamăšš-² / tam/īšš-² / tame/īšš-²; to (op)press) and of class Ia3 (karăp-² / gare/ip- ‘to devour’, šarăp-² / šarip- ‘to sip’, ašăš-² / aš/išš- ‘to seat’ and ḫamank-² / ḫame/ink- ‘to tie’). As I have shown in detail in Kloekhorst fthc.f, the -e/i- in the weak stem tame/īšš- must be regarded as an anaptyctic vowel /i/ that emerged in the cluster *dnh₂s-. In my opinion, this vowel /i/ is the one found in the weak stem forms of these verbs as well.

The case of terepp-² must be taken together with karăp-² / kare/ip- and šarăp-² / šarip-. In my view it is significant that these verbs are the only ones in Hittite that show a structure *CRC-. In principle, we would expect that the zero-grade form of these verbs, *CRC-, would regularly yield Hitt. [CRC-] (compare at class Ia4 and Ia2), spelled CaRC-. We therefore would expect that the ablauting pairs would be *CRC- / *CRC- > Hitt. CRC- / CaRC- when mi-conjugated, and *CRC- / *CRC- > Hitt. CRC-. When hi-conjugated. Note that in synchronic Hittite it looks as if the vowel is shifting place: strong stem CRVC-vs. weak stem CVRC-. Since such a Schewebe-ablaut is further absent in Hittite verbs, I believe that it was eliminated here. The zero-grade stem CRC- secondarily received the anaptyctic vowel /i/ on the place of the full grade vowel.

In this way, mi-conjugating verbs of the structure *CRC- / *CRC- were altered to synchronous CRC- / CRıC-, whereas hi-conjugating verbs of the structure
*CRōC- / *CRC- were altered to synchronous CRāC- / CRiC-. In both cases, the weak stem is spelled CRē/iC-.

With this scenario in mind, we can explain terepp- as an ablauting verb terepp- / tere/ipp- ‘to plough’, which stands for phonological /trep- / trip-/l, the ‘regular’ adaptation of PIE *trep- / *trp-.

The case of yekek- is slightly different. As I have shown under its lemma, here we are dealing with the principle that a PIE ablaut *ye/oC- / *yC- is eliminated in Hittite. In analogy to the *y- of the full grade, the zero-grade *yC- is altered to *yC-. This initial cluster then received an anaptyctic vowel, which is /i/ when the following consonant is a stop. So I interpret yekezi / yekekanzi as /uēkt'i / uikant'i/ < *yeK-ti / *uK-ēnti.

Ia6 tamāšś- / tame/išš- ‘to (op)press’.

2.2.1.2g This verb constitutes a class of its own, since it shows a unique synchronic ā/i- ablaut. As I have shown under its lemma, I regard tame/išš- as the regular outcome of the zero-grade stem *dmhāš-, whereas tamāšś- replaced *tamaḥš-, which would have been the regular outcome of the full grade stem *dmēhāš-.

Ia7 paį- / pai- ‘to go’.

2.2.1.2b 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 paį-. See its lemma for the discussion of the prehistory of this verb.

Ablautpattern of the Ia-verbs

2.2.2.1 In all mi-verbs that show ablaut, this ablaut can be traced back to the PIE ablaut *e/O 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)- / kfun- ‘to kill’ with additional forms from epp- / app- ‘to seize’, tē- ‘to state’, eš- / aš- ‘to be’ and i- ‘to go’), then an abstraction of these Hittite data, followed by the reconstructed PIE forms, exemplified by Sanskrit forms (the verbs han/-ghm- ‘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.
### present

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>ka-e-mi</td>
<td>CēC-mi</td>
</tr>
<tr>
<td>2sg.</td>
<td>ka-e-si</td>
<td>CēC-si</td>
</tr>
<tr>
<td>3sg.</td>
<td>ka-e-en-zī</td>
<td>CēC-zī</td>
</tr>
<tr>
<td>1pl.</td>
<td>ap-pu-e-ni</td>
<td>CC-qēnī</td>
</tr>
<tr>
<td>2pl.</td>
<td>ap-te-ni</td>
<td>CC-tēnī</td>
</tr>
<tr>
<td>3pl.</td>
<td>ka-na-an-zī</td>
<td>CC-ānztī</td>
</tr>
</tbody>
</table>

### pret.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>ka-e-nu-un</td>
<td>CēC-ūn</td>
</tr>
<tr>
<td>2sg.</td>
<td>te-e-eš</td>
<td>CēC-s</td>
</tr>
<tr>
<td>3sg.</td>
<td>ka-en-ta, te-e-et</td>
<td>CēC-t</td>
</tr>
<tr>
<td>1pl.</td>
<td>[ka-e-u-en]</td>
<td>CC-qēn</td>
</tr>
<tr>
<td>2pl.</td>
<td>[ka-en-ten]</td>
<td>*CC-tēn</td>
</tr>
<tr>
<td>3pl.</td>
<td>[ka-e-ner]</td>
<td>*CC-ēr</td>
</tr>
</tbody>
</table>

### imp.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>e-e-li-it</td>
<td>CēC-li</td>
</tr>
<tr>
<td>2sg.</td>
<td>ka-e-ni</td>
<td>CēCī</td>
</tr>
<tr>
<td></td>
<td>e-ep</td>
<td>CēC</td>
</tr>
<tr>
<td>3sg.</td>
<td>ka-en-du</td>
<td>CēC-tu</td>
</tr>
</tbody>
</table>

---

246 Synchronically in Hittite, the normal form of 1pl.pret.act. is CēC-qēn: e-ep-pu-en, e-šu-en, e-du-en, e-ku-en, e-e-šu-en etc. Nevertheless, the original form probably was CC-qēn, as still visible in ap-pu-en 'we seized' (KUB 34.77 obv. 2 (OH or MH/NS)), ū-e-te-me-en 'we built' (KBo 4.1 i 28 (NH)), ūu-ul-lu-mē-en (KUB 23.21 obv. 29 (MH/NS)), ūu-ul-lu-am-me-[en] (KBo 3.15, 6 (NS)) 'we smashed', and possibly ūu-ul-gou-a-en 'we conjured' (KUB 18.12 obv. 13 (NH)). This CC-qēn corresponds to the zero-grade form that we find in the ĥi-conjugated verbs.

247 Synchronically in Hittite the normal form of 2pl.pret.act. is CēC-ten, cf. e-ep-te-en, e-e-šu-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 ĥi-conjugated verbs I assume that originally this form was CC-ten.

248 Synchronically in Hittite, the normal form of 3pl.pret.act. is CēC-er, however: e-ep-pēr, e-du-er, e-še-er, e-šu-er, ku-e-ver, še-še-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 ĥi-conjugated verbs I assume that originally this form was *CC-ē as well. This *CC-ē is possibly visible li-ya-te-er, še-te-er and pē-e-li-te-er although these verbs in principle could reflect both *dēh-i-ēr as well as *dēh-ēr.

249 See at the lemma -lu, -lit for a detailed treatment of the formation of the 1sg.imp.-form.

---

153
Within this class we need to distinguish three types, which I have called Ib1, Ib2 and Ib3.

Ib1 unextended non-ablauting mi-verbs.

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. *hane/išš-² to wipe’ originally belonged to an ablauting verb *ānš- / *hane/išš- < *h₁omh₁s- / *h₂m₁h₂s-, of which eventually both stems formed their own paradigm (cf. *ānš- ‘to wipe’); *kane/išš-² ‘to recognize’ originally belonged to an ablauting verb *kanāš- / *kane/išš- < *♯ne₁h₁s₁- / *♯neh₂s₂-, of which the weak stem *kane/išš- has been generalized: *gulš-² ‘to carve’ originally belonged to an ablauting verb *kuels- / *kul₁s- < *k₁els- / *k₂ls- in which the weak stem *gulš- has been generalized.

In other verbs, the original full-grade and zero-grade (graphically) merged, e.g.: *taks-² ‘to devise, to unify’ may stand for *taks-l / *teks₁s₁- / *teks₂s₁- of which both the stem /teks₁s₁- and /teks₂s₁- are spelled takš-; *ūpp-² ‘to come up (of the sun)’ probably reflects *h₁up₁- / *h₂up₂-, both of which yield Hitt. *upp-; *lukk-² ‘to set fire to’ probably reflects *leuk₁- / *leuk₂-, both of which yield Hitt. *lukk-. Of again other verbs only a few forms are known, which means that it is possible that the

---

¹⁵⁴

²⁵⁰ The archaic *i-t-te-en ‘you must go’ < *h₁-i-té (Gr. ἔχε, Skt. itá) clearly shows that the original form was *CC-tén. Synchronically in Hittite, the normal form of 2pl.imp.act. is CeC-tén, however: *ku-en-te-en, e-ep-te-en, etc.
second stem is unattested by chance: *neku-* < *neg*- ‘to become evening’ is attested in singular forms only, which is the reason that its weak stem counterpart is not attested (we would expect *neg*- > Hitt. **naku-?).

Some of these verbs probably never showed ablaut, however, e.g. *ištamašš-* ‘to hear’, which clearly is of denominative origin (*ištaman- ‘ear’ + -šš-).

*ištamašš-* ‘to remain’; *hane/išš-* ‘to wipe’; *haššikk-* ‘to satiate oneself’; *išš-* ‘to go’; *ištamašš-* ‘to hear’; *kammarš-* ‘to defecate’; *kanen-* ‘to bow down’; *kane/išš-* ‘to recognize’; *kiš-* ‘to comb’; *kukkurš-* ‘to mutilate’; *kukuš-* ‘to taste’; *gulu-* ‘to carve’; *kuyašš-* ‘to kiss’; *le/išš-* ‘to pick, to gather’; *lip(p)-* ‘to lick up’; *lukk-* ‘to set fire to’; *neku-* ‘to become evening’; *pakkušš-* ‘to pound’; *punušš-* ‘to ask’; *pūš-* ‘to be eclipsed’; *šqi-* ‘to become sullen’; *takš-* ‘to devise, to unify’; *tarupp-* ‘to collect’; *uipp-* ‘to come up (of the sun)’; *yatku-* ‘to jump’.

1b2 mi-verbs in -e-, -ēšš- and -nu-.

This class consists of verbs that show non-ablauting athematic suffixes, namely the ‘stative / fientive’ suffix -e- < *-ēḥr-, 251 the ‘fientive’ suffix -ēšš- < *-ēḥr-šh- and the ‘causative’ suffix -nu- < *-n(e)nu-. 252 For a treatment of the suffix -e-, cf. Watkins 1973. For a treatment of -ēšš- and -nu-, see their own lemmas.

Verbs with -ēšš-:

*haššušēš- ‘to become king’; *lalukkēš- ‘to be or become luminous’; *marēš- ‘to become corrupt’; *mišāunušēš- ‘to become old’; *nakkeš- ‘to be honoured’; *papreš- ‘to be proven guilty’; *parkušēš- ‘to be pure’; *sulēš- ‘to become arrogant’.

251 The reconstruction *-ēḥr- goes back to Watkins 1973a. Recently, Jasanoﬀ (2002-03: 147) has stated that a reconstruction *-ēḥ-/-je- is possible as well, assuming that *-ēḥ-/-ti and *-ēḥ-/-je- both would yield Hitt. -e-zi. In view of the development *VH₁V > OH NH / NH /VV as described in § 1.4.8.1.a, this is incorrect, however. A paradigm *CC-ēḥ-/-je-/-ti / *CC-ēḥ-/-je-/-ni would regularly have yielded OH **/CCeit₁ / /CCeant₁, spelled "Ce(-)je-/-ti / "Ce(-)je-/-ni, which further developed into NH **/CCeit₁ / CCeant₁, spelled "Ce(-)je-/-ze-iz₁ / "Ce(-)je-/-an-iz₁. Since a spelling with -i does not occur in any of these verbs (only in 3pl.pres.act. marēš-/-je-/-an-iz₁), which must represent /nakean₁/-i < virtual nakkeš- + -ani₁), we must stick to Watkins’ reconstruction with *-ēḥ-.

252 As we have seen under its lemma, the suffix -nu- does show some traces of original ablaut, however: the forms *iš-ēš-mi-im-t₁ (KBo 17.1 + 25.3 i 18 (OS)) and *iš-ēš-/-mi-im-t₁ (KBo 3.28 ii 19 (OH/NS)) show that originally the strong stems showed /-nul/ vs. /-nu-/ of the weak stem, reflecting *CC-nēu- / *CC-mē-em-t₁.
Verbs with -əwə ə:

aiwə ə ‘to become hot(?)’; alpuə ə ‘to be sharp’; arayə ə ‘to become free’; ašiyə ə ‘to become poor’; ikunə ə ‘to become cold’; ishanə ə ‘to become a blood-shedder’; hannialyə ə ‘to become legal adversaries’; ḫappinə ə ‘to become rich’; harkiə ə ‘to become white’; həšnalə ə ‘to become brave’; hətə ə ‘to become dry’; hətəkə ə ‘to become tight’; hətəkə ə ‘to become terrible’; innarə ə ‘to become strong’; ishaşə ə ‘to become a lord(?)’; idalayə ə ‘to become evil’; karpeə ə ‘to become angry’; kartimmiə ə ‘to become angry’; kunnə ə ‘to turn out right’; lazə ə ‘to become well’; majaŋə ə ‘to become a young man’; makkeə ə ‘to become numerous’; makleškə ə ‘to become weak’; maninkuə ə ‘to be short’; marleš ə ‘to become foolish’; marə ə ‘to become desecrated’; (L) mišaŋuə ə ‘to become an old man’; miğə ə ‘to grow; to be born’; migə ə ‘to be mild’; milšt(e)ə ə ‘to be sweet’; mišriğə ə ‘to become bright (of the moon)’; nakkeə ə ‘to become important’; nakkusə ə ‘to be(come) a scapegoat’; pələ ə ‘to become wide or broad’; pənkə ə ‘to become plentiful(?)’; pəpə ə ‘to be found guilty’; parkə ə ‘to become tall’; parkuə ə ‘to become tall’; sənə ə ‘to be(come) pure’; șaknə ə ‘to be(come) impure’; șallə ə ‘to become large’; sanapileə ə ‘to be emptied’; sanə ə ‘to become pleasant’; șarazə ə ‘to prevail’; sarkuə ə ‘to become mighty’; șulə ə ‘to become arrogant’; supiə ə ‘to become purified’; talliə ə ‘to be pleasant(?)’; dalukeə ə ‘to become long’; təmə Cunningham ə ‘to become different’; tankuə ə ‘to become blunt’; dənkuə ə ‘to become black’; taruə ə ‘to become powerful’; taruileš ə ‘to become powerful’; dəssə ə ‘to become heavy’; tekkuə ə ‘to become visible’; tepeə ə ‘to become little’; tepə ə ‘to become tepə’; tukə ə ‘to become important’; uleš ə ‘to hide’; șante ə ‘to become glowing’; yarhuə ə ‘?’; yarkə ə ‘to grow fat’; yerite ə ‘to be frightened’; zalukeə ə ‘to take long’.

Verbs with -nu ə:

annanu ə ‘to train’; arnu ə ‘to make go, to transport’; arsanu ə ‘to make flow’; ašə/šənə ə ‘to seat, to settle’; șəšianu ə ‘to make beloved(?)’; ašınu ə ‘to take care of’; eə ə ‘?’; șəhənu ə ‘to make bloody’; edriənə ə ‘to feed(?)’; șəlu ə ‘to make kneel’; ḫarənə ə ‘to grind’; ḫarku ə ‘to ruin’; ḫerənə ə ‘to make white’; ḫənu ə ‘to spray’; ḫəššik(ka)nu ə ‘to satiate’; șənu ə ‘to bring to birth’; șənu ə ‘to cause to dry up’; șəgənu ə ‘to make tight’; șəko ə ‘to make tight’; ḫəgənu ə ‘to terrify’; ḫinə ə ‘to make bow’; șənu ə ‘to make run’; șəšu ə ‘to make recover, to rescue’; șəntənu ə ‘to grunt’; șu ə ‘to
make run’; ḥuṣnu-zi ‘to make recover, to rescue’; inu-zi ‘to make hot’; išḥarnu-zi ‘to make bloody’; išparnu-zi ‘to spread’; išpijanu-zi ‘to saturate’; ištantanu-zi ‘to delay’; išṭappinu-zi ‘to shut’; kanganu-zi ‘to have (something) weighed’; kari(ja)nu-zi ‘to silence’; karpanu-zi ‘to pick up’; karšnu-zi ‘to cut off; to cancel’; kardimi(ja)nu-zi ‘to make angry’; karūššiyanu-zi ‘to silence’; genušrnu-zi ‘to make kneel’; kīnu-zi ‘to open up’; ḵiš(sa)nu-zi ‘?’; kištanu-zi ‘to extinguish’; kuyašnu-zi ‘to make kiss’; laknu-zi ‘to fell, to knock over’; lulukke/išnu-zi ‘to illuminate’; lap(pa)nu-zi ‘to kindle’; linganu-zi ‘to make sweat’; lukkanu-zi ‘to make it light(?)’; maknu-zi ‘to increase’; malšškunu-zi ‘to make weak’; maninkušanu-zi ‘to bring near(?)’; marnu-zi ‘to cause to disappear’; maršanu-zi ‘to desecrate’; mem(i)janu-zi ‘to make (someone) talk’; mernu-zi ‘to cause to disappear’; mījanu-zi ‘to make (branches) fruit-bearing’; mienu-zi ‘?’; mpnu-zi ‘to make mild’; naḥšanu-zi ‘to make afraid’; ninganu-zi ‘to drench’; nu(n)tarinu-zi ‘to hurry’; paḥšnu-zi ‘to protect’; paknu-zi ‘to defame’; pāljanu-zi ‘to broaden’; parhanu-zi ‘to make gallop’; parknu-zi ‘to make high’; paršjanu-zi ‘to raise’; parkunu-zi ‘to cleanse’; paršnu-zi ‘to make flee’; paršnu-zi ‘to break up’; pattinnu-zi ‘to run off with’; pirnu-zi ‘to embezzle(?)’; pukkanu-zi, puckunu-zi ‘to cause (someone) to be hated’; šaku(ya)ntarijanu-zi ‘to neglect’; šallanu-zi ‘to melt down’; šallanu-zi ‘to raise, to bring up’; šamenu-zi ‘to bypass’; šāminu-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(?)’; dammešhanu-zi ‘to make punish’; taninu-zi ‘to install’; dankjunanu-zi ‘to make black’; danku(ya)nu-zi ‘to make black’; darijanu-zi ‘to make tired’; taruppijanu-zi ‘to bring together’; daš(sa)nu-zi ‘to make strong’; tekkušša(n)nu-zi ‘to reveal’; tepnu-zi ‘to diminish’; tepšanu-zi ‘to make tepšu-; tīt(a)nu-zi ‘to install’; duššanu-zi ‘to make happy’; unu-zi ‘to adorn, to decorate’; ẏaḥnụ-zi ‘to make turn’; ṣaggašnu-zi ‘to leave out’; ṣaššiyanu-zi ‘to deny a person something’; gyalanu-zi ‘to erase(?)’; yalgangu-zi ‘?’; yarḥu(ya)nu-zi ‘to plant densely’; yargnu-zi ‘to make fat’; ẏarmnu-zi ‘to set fire to’; ẏars(i)janu-ži ‘to appease (trans.)’; ẏaštanu-zi ‘to regard as an offense’; yatkanu-zi ‘to make jump’; vyetanu-zi, vyetienu-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/∅-alteration.

2.2.2.1m This class consists of mi-verbs of which the stems end in ⁰VnC-. In the oldest texts, these verbs show a clear distribution between ⁰VnCV and ⁰VCC, 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 ḫarni(n)k- and ʾištarni(n)k-):

<table>
<thead>
<tr>
<th></th>
<th>pres.</th>
<th>pret.</th>
<th>imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>ḫarnikmi</td>
<td>ḫarnikun</td>
<td></td>
</tr>
<tr>
<td>2sg.</td>
<td>ḫarnikši</td>
<td>ḫarnikta</td>
<td>ḫarnik</td>
</tr>
<tr>
<td>3sg.</td>
<td>ḫarnikzi</td>
<td>ḫarnikta</td>
<td>ḫarnikdu</td>
</tr>
<tr>
<td>1pl.</td>
<td>ḫarninkueni</td>
<td>ḫarninkueni</td>
<td>inf. I</td>
</tr>
<tr>
<td>2pl.</td>
<td>ḫarnikteni</td>
<td></td>
<td>ḫarnikten</td>
</tr>
<tr>
<td>3pl.</td>
<td>ḫarníkani</td>
<td>ḫarníker</td>
<td>ḫarníkandu</td>
</tr>
</tbody>
</table>

I regard the loss of nasal here as a phonetic development²⁵³ that probably took place in recent pre-Hittite times. In young Hittite we come across forms in which the original distribution between °Vn-C-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-² and tame(n)k-²), cf. § 2.2.4 below.

²⁵³ Note that loss of nasal does not occur in verbs like kḕk- or ḫumank- / ḫamank- (e.g. gi-aw-~ga-at-ši /kānki/i, ḫa-aw-aw-at-ši /HmangHi/), but this is in my view due to the fact that we are here dealing with a preceding /i/. The fact that in /mC/ the nasal is retained whereas in e.g. *i/mC/ it is lost in my view is comparable to the fact that in Lycian the vowel ṣ has a nasalized variant ā, but the vowel ṣ does not: low vowels apparently were better in retaining a following nasal element than high vowels.
**Ic = mi-verbs with a thematic suffix**

2.2.2.1.a The third group of *mi*-verbs consists of verbs that show a thematic suffix. I distinguish six types, namely Ic1: *mi*-verbs in -je/a/-; Ic2: *mi*-verbs in -ae/-ě/-; Ic3: *mi*-verbs in -kö/a/-; Ic4: *mi*-verbs in -we/a/-; Ic5: ьашко/a-; Ic6: *mi*-verbs in -ъе/a-. The first five groups belong together in the sense that they all ultimately reflect the PIE verbal suffix *-je/o-.

Ic1 *mi*-verbs in -je/a-: the -je/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 -je/a-class. The suffix -je/a- clearly goes back to the PIE verbal suffix *-je/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. *gʷ mi-je-ti 'he is going' (Gr. ἤβη, Lat. veniō), besides aor. *gʷ ém-t 'he went' (within Hittite, this distribution is still visible in e.g. karp(i)e/a-², karš(i)e/a-², etc.). On the other, it is used to form denominative verbs, e.g. *h₂yn(e)h₂-mn-je/o- 'to name' (Gr. ὀνομάζω, Goth. namnjan, ModDu. noemen, Hitt. lamnijje/a-).

The Hittite verbs that belong to the -je/a-class are divided in three groups: (A) original -je/a-inflecting verbs (i.e. attested in OS and MS texts already); (B) denominative -je/a-inflecting verbs; and (C) secondarily je/a-inflecting verbs (between brackets their original stem).

A: anijje/a-² ‘to work, to carry out’; arrije/a-² ‘to consult an oracle’; arrije/a-² ‘to be awake’; ḫarkije/a-² ‘to get lost’; ḫazzije/a-² ‘to pierce, to prick’; ḫutije/a-² ‘to draw, to pull’; je/a-² ‘to do, to make’; imije/a-² ‘to mingle’; ьзкije/a-² ‘to smear’; karije/a-² ‘to cover, to hide’; karpije/a-² ‘to take away, to pick, to pluck’; karšije/a-² ‘to cut (off)’; lalukije/a-² ‘to be or become illuminous’; lukije/a-² ‘to set fire to’; markije/a-² ‘to disapprove of’; munije/a-² ‘to crumble(?)’; parkije/a-² ‘to raise, to lift’; paršije/a-² ‘to break’; peššije/a-² ‘to throw away’; šije/a-² ‘to shoot’; šapašije/a-² ‘to scout’; šarije/a-² ‘to embroider’; Šaršije/a-² ‘to attack’; šanije/a-² ‘to dip’; tallije/a-² ‘to pray’; tekkuššije/a-² ‘to show’; ьтije/a-² ‘to step’; ьтije/a-² ‘to bind’; ьтrijje/a-² ‘to harness’; Štšije/a-² ‘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: ḫul-je-² = ḫulle-² / ḫul- (Ia1), “sparрā” = on the one hand ḫśarpā-² / ḫsparrā- ‘to spread out’ (Ia2) and on the other ḫsparrā- / ḫsparrā- ‘to trample’ (Ia1y), “lukke-” = lukk(i)e/a-² (lb1 / Ic1), “мalke” = malle-² / мalle- (Ia1y), “papre-” = pапre²- (lb2), “sarr-je-² = ḫšr-² / ḫarr- (Ia2), “sulke” = sulle-² (lb2), “stuge” = stige/a-² (Ic4), “уашке” = ьашко/a-² (Ic5).
happy’; āśšiē/a-ž ‘to draw open (of curtains)’; yēmiē/a-ž ‘to find’; yēriē/a-ž ‘to call, to name’.

B: apat(a)riē/a-ž ‘to take in pledge’; armizzē/a-ž ‘to bridge over’; armanīē/a-ž ‘to become ill’; aršiē/a-ž ‘to plant’; ermanīē/a-ž ‘to become ill’; edriē/a-ž ‘to feed’; ḥāṛriē/a-ž ‘to rake’; ḥaliē/a-ž ‘to watch over’; ḥališšiē/a-ž ‘to encase’; ḥantīē/a-ž ‘to face’; ḥap( pa)riē/a-ž ‘to trade’; ḥarmannīē/a-ž ‘to churn’; ḥaššuṣeṣziē/a-ž ‘to become king’; ḫē'(a)yanīē/a-ž ‘to rain’; ḫulāliē/a-ž ‘to enwrap’; ḫulššiē/a-ž ‘to embrace’; ḥuntariē/a-ž ‘to fart’; išhēζziē/a-ž ‘to dominate’; išhuzzīē/a-ž ‘to gird’; išṭappuliē/a-ž ‘to use as a stopper’; kalelīē/a-ž ‘to tie up’; kalutīē/a-ž ‘to treat as a group’; kanuṣṣarinīē/a-ž ‘to kneel’; kartinīē/a-ž ‘to be angry’; kiššanīē/a-ž ‘to suffer famine’; genuṣšarinīē/a-ž ‘to kneel’; gīmanīē/a-ž ‘to spend the winter’; gīmattariē/a-ž ‘to spend the winter’; kurkuriē/a-ž ‘to scare’; kāruriē/a-ž ‘to be hostile’; kuššańiē/a-ž ‘to employ’; kuṭantīē/a-ž ‘to exert force’; laḥḥiē/a-ž ‘to go on an expedition’; lamnīē/a-ž ‘to name’; lazzīē/a-ž ‘to set straight’; naḥšarinīē/a-ž ‘to be afraid’; nekumandariē/a-ž ‘to undress’; nuntariē/a-ž ‘to hasten’; palahšiē/a-ž ‘to cover’; parkuṣantarīē/a-ž ‘to become pure(?)’; patallīē/a-ž ‘to tie feet, to fetter’; pitullīē/a-ž ‘to be anxious’; puntariē/a-ž ‘to be obstructive’; putal(l)iē/a-ž ‘to tie together’; ṣākšiē/a-ž ‘to give a sign’; ṣakniē/a-ž ‘to anoint’; ṣakunī/a-ž ‘to well up’; ṣakkuńiē/a-ž ‘to overpower’; ṣakuyantarīē/a-ž ‘to stay, to remain’; šamešiē/a-ž ‘to burn for fumigation’; šeḥūrīē/a-ž ‘to urinate’; šešariē/a-ž ‘to sieve’; śimšiē/a-ž ‘to burn for fumigation’; śiś(t)iuriē/a-ž ‘to irrigate’; śittariē/a-ž ‘to seal’; śiunīē/a-ž ‘?’; śuppariē/a-ž ‘to sleep’; tijantīē/a-ž ‘to set up’; takṣatniē/a-ž ‘to level’; tarkuṣallīē/a-ž ‘to look angrily’; terippīē/a-ž ‘to plough’; tešhanīē/a-ž ‘to appear in a dream’; tuzzīē/a-ž ‘to encamp’; usniē/a-ž ‘to put up for sale’; uddanallīē/a-ž ‘to speak about’; uddaniē/a-ž ‘to speak about’; uγkarīē/a-ž ‘to rebel against’; uṣešiē/a-ž ‘to pasture’; uṣešuriē/a-ž ‘to press’; zuḥhiē/a-ž ‘to battle’; zuḥzahšiē/a-ž ‘to battle fiercely’.

C: alalamnīē/a-ž ‘to cry aloud’; allaniē/a-ž ‘to sweat’; anšiē/a-ž ‘to wipe’ (ārš-); appiē/a-ž ‘to be finished’ (āpapa- / āppi-); ārriē/a-ž ‘to wash’ (ārr- / arr-); aršaniē/a-ž ‘to be envious’ (aršane- / aršan-); ar(a)šiē/a-ž ‘to flow’ (ārš- / arš-); ḥalzīē/a-ž ‘to cry out’ (ḥalzai- / ḥalzi-); ḥāniē/a-ž ‘to draw (water)’ (ḥān- / ḫan-); harnīē/a-ž ‘to sprinkle’ (ḥarn- / ḫarn-); ḥarpiē/a-ž ‘to change allegiance’ (ḥarp-); ḥarsiē/a-ž ‘to till (the soil)’ (ḥārš-); ḥuṣšiē/a-ž ‘to smash’ (ḥulle- / ḫull-); išhamiē/a-ž ‘to sing’ (išhamat- / išham-); išhiē/a-ž ‘to bind’ (išhā- / išhi-); išpariē/a-ž ‘to spread out’ (išpār- / išpar-); išpartiē/a-ž
to escape’ (išpar-²); ḫepje/a-² ‘to be satiated’ (išpaj² / išpį-); ḫšalkje/a-² ‘to level’ (ištal-²); ḫšartjke/a-² ‘to ail’ (ištar(k)-²); kanaňje/a-² ‘to bow down’ (kanen-²); mallje/a-² ‘to mill, to grind’ (malla² / mall-); memje/a-² ‘to speak’ (mēma-² / mēmi-); nana(n)kuššje/a-² ‘to be(come) dark’ (nana(n)kušš-²); paškje/a-² ‘to plant’ (pašk-² / pašk-²); peje/a-² ‘to send’ (peje¹ / pej-²); pennje/a-² ‘to drive (there)’ (penna² / penni-); pijje/a-² ‘to give’ (pai¹ / pi-); šijje/a-² ‘to impress’ (šai¹ / ši-); šalkje/a-² ‘to have contact with’ (šalik-² / šalik-²); šalkje/a-² ‘to knead’ (šalk-²); šamnje/a-² ‘to create’ (šamañe-²); šartjje/a-² ‘to rub’ (šarta¹ / šart-²); šulljje/a-² ‘to be arrogant’ (šullē-²); šumnje/a-² ‘to fill’ (šumma² / šunn-); šuppije/a-² ‘to sleep’ (šupp-,šapari); tiğje/a-² ‘to put, to place’ (daï¹ / ti-); taššje/a-² ‘to load’ (tašṭa¹ / tašṭi-); daššje/a-² ‘to leave’ (dāla² / dāli-); taparije/a-² ‘to rule’ (CLuw. tapar-); tarije/a-² ‘to exert oneself’ (tarai¹ / tari-); taruppjje/a-² ‘to collect’ (tarupp-²); taštjje/a-² ‘to thunder’ (tišt-²); taḫtššje/a-² ‘to brandish(?)’; duḫarnji/a-² ‘to break’ (duḫarni² / duḫarn-²); uje/a-² ‘to send here’ (uje² / uj-); ujejje/a-² ‘to cry out’ (uaj¹ / uj-); yaššje/a-² ‘to be lacking’; yałkje/a-² ‘?'; ụppjje/a-² ‘to bark’; ụarjje/a-² ‘to bathe’ (yarp²); yaššje/a-² and yeššje/a-² ‘to wear’ (yaššje/a-²).

The distribution of the ablaut vowels *e/o in the suffix *-je/o- changes throughout the Hittite period:

<table>
<thead>
<tr>
<th></th>
<th>PIE</th>
<th>OS</th>
<th>MH/MS</th>
<th>NH</th>
</tr>
</thead>
<tbody>
<tr>
<td>pres.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1sg.</td>
<td>*-jō</td>
<td>-ja-mi, -i-e-mi</td>
<td>-ja-mi</td>
<td>-ja-mi</td>
</tr>
<tr>
<td>2sg.</td>
<td>*-jē</td>
<td>-i-e-si</td>
<td>-ja-si</td>
<td>-ja-si</td>
</tr>
<tr>
<td>3sg.</td>
<td>*-jē</td>
<td>-i-e-ezzi</td>
<td>-i-e-azzi / -ja-azzi</td>
<td>-ja-azzi</td>
</tr>
<tr>
<td>1pl.</td>
<td>*-jō</td>
<td>-ja-te-em²⁵⁵</td>
<td>-ja-ute-mi</td>
<td>-ja-ute-mi</td>
</tr>
<tr>
<td>2pl.</td>
<td>*-jē</td>
<td></td>
<td>-i-el-te-mi, -ja-at-te-mi</td>
<td>-ja-at-te-mi</td>
</tr>
<tr>
<td>3pl.</td>
<td>*-jō</td>
<td></td>
<td>-ja-an-zi</td>
<td>-ja-an-zi</td>
</tr>
</tbody>
</table>

²⁵⁵ Thus in pē-ē-si-ši-te-e-m (KUB 35.164 obv. 6 (OS)), although we would expect -ī̂ṣya as attested in -i-e-te-em (KBo 3.8 ii 24 (OH/NS)).
### 1c2 mi-verbs in *-ae/-ã-: the ḫatrae-class

#### 2.2.2.1p

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 *je/o- of o-stem nouns, e.g. ḫatrae-21 ‘to write’ < *hætro- + *je/o-.

These verbs show the following inflection:

<table>
<thead>
<tr>
<th></th>
<th>pret.</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>*-i-j ó-</td>
<td>*-i-e-mu-un</td>
<td>*ja-mu-un</td>
<td>*ja-mu-un</td>
</tr>
<tr>
<td>2sg.</td>
<td>*-i-j é-</td>
<td></td>
<td>*ja-áš</td>
<td>*ja-áš / *ja-at</td>
</tr>
<tr>
<td>3sg.</td>
<td>*-i-j é-</td>
<td>*-i-e-et</td>
<td>*i-e-et / *ja-at</td>
<td>*ja-at</td>
</tr>
<tr>
<td>1pl.</td>
<td>*-i-j ó-</td>
<td>*ja-u-en</td>
<td>*ja-u-en</td>
<td>*ja-u-en</td>
</tr>
<tr>
<td>2pl.</td>
<td>*-i-j é-</td>
<td></td>
<td>*ja-at-ten</td>
<td>*ja-at-ten</td>
</tr>
<tr>
<td>3pl.</td>
<td></td>
<td>*i-e-r</td>
<td>*i-e-r, *ja-r</td>
<td>*i-r, *ja-r</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>imp.</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2sg.</td>
<td></td>
<td>*-i</td>
<td>*ja</td>
<td>*ja</td>
</tr>
<tr>
<td>3sg.</td>
<td></td>
<td>*i-e-ed-du / *ja-ad-du</td>
<td>*ja-ad-du</td>
<td></td>
</tr>
<tr>
<td>2pl.</td>
<td></td>
<td>*ja-at-ten</td>
<td>*ja-at-ten</td>
<td></td>
</tr>
<tr>
<td>3pl.</td>
<td></td>
<td>*ja-an-du</td>
<td>*ja-an-du</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>part.</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>*ja-an-t</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>v.n.</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>*ja-u-yá-ar</td>
<td>*ja-u-yá-ar</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>inf.I</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>*ja-u-yá-an-zi</td>
<td>*ja-u-yá-an-zi</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>inf.II</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

256 Thus in ḫar-qt-pa-n-e-mu-un (OS), o-n-e-[mu-un] (OS), but compare pé-e-š-ti-ja-mu-un (OH/MS).

257 Unattested in OS texts, but compare 2sg.pret.act. i-e-š (OH/NS).

258 We would expect **-jeten, but this ending is not attested. The 2pl.pret.act.-ending is attested in NS texts only as -ja-at-ten and -ja-at-ten (both OH/NS).

259 Compare ḫu-íti (OH/MS). This ending is replaced by -já in MH times already (e.g. i-ja ’do!’ (MH/MS), ti-já ’step!’ (MH/MS)).
It is not fully clear how these forms were accentuated: *-ô-je/-ô- or *-ô-jê/-ô-. The forms with *-ô-jê- do not give information because both *-ô-jo- and *-ô-jô- would yield Hitt. -ã-. So we should look at the forms that show *-ô-jê-. On the one hand, the frequent plene spelling of -â- in e.g. 3sg.pres.act. °Ca-a-IZ-zi and 2sg.pret.act. °Ca-a-es seems to point to *-ô-je-. 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-a-mi, 2sg.pret.act. °Ca-a-es, 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 *-ô-jê-. Because the long -ã- can also be explained as the result of compensatory lengthening after loss of intervocalic *i (cf. 1.4.8.1.a), we have to assume that the accentuation in fact was *-ô-je/-ô-. So °CojêCI > °CaêCI > °CaêCI/ > Hitt. /CaêCI/ and *CojêCI > °CaêCI > OH/MH °CaêCI/. The NH forms that are spelled °Ca-a-is may show that OH/MH /CaêCI/ eventually yielded a diphthong /CaêCI/ 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)-et in NS texts.

260 Note that *ô > Hitt. short /á/ when in internal syllables.
Verbs that originally belong to this class:

āppalacī to entrap; araeī to rein in; arkuīyaeī to pray; arḥaeī to go down the line; armacī to be pregnant; armuyalacī to shine (of the moon); aruīyaeī to bow; asandulacī to be on garrison duty; egaeī to cool down; ēḥarumīnacī to make bloody; ḥaluganacī to bring news; ḡantacī to arrange (together); ḡandandacī (+ parā) to show providence; ḡantījīacī to support; ḡepēsīnacī (+ arḥa) to dismember; ḡapaeī to wet; ḡap(pa)raeacī to trade; ḡarmacī to stir, to churn; ḡarpaeī to heap up; ḡaru(ua)naeī to dawn; ḡeššīneznacī to be king; ḡattulacī to bolt; ḡattaracī to prick; ḡatraeī to write; ḡilacī to have a halo; ḡuyantalacī to spare; ḡultalacī to spare; ikacī to cool down; irḥacī to go down the line; isḥarnimacī to make bloody; isḥantacī to stay put; galaktaacī to make drowsy; kappacī to diminish; kappilacī to pick a fight; kartacī to cut off; kattuīyacī to be aggrieved; genzūyacī to treat gently; kinacī to (as)sort; ḡeššīneznacī to provide with head-dress; kurucī to be hostile; kutrūyacī to bear witness; lappiūnacī to insert a wick(?); leccaī to conciliate; leleḥuntacī to use a pitcher; lipacī to lick up; ḡiṣacī to take someone by surprise; marlacī to become mad; marzcī to crumble(?); mītacī to tie with red wool(?); mīgacī to invoke; munlacī to hide; mītacī to root; nekumandacī to undress oneself; palahṣacī to cover; paluacī to cry out; palzḥacī to stretch out; paracī to crumble; parṣacī to squat(?), to crouch(?); parṣultaacī to crumble; paṣḥacī to rub; patalḥacī to letter; pejanaacī to reward (someone); pitacī to bring; to carry; pitlacī to abandon; pūlacī to pound; purutacī to cover with mud; šaḥeṣnaeī to fortify(?); šallakartacī to offend someone through arrogance; šamacī to create; šaracī to exel; to praise; šaruīyacī to loot; šayuṣṭacī to wean; šeḥuracī to urinate; šiptacī to seven(?); taksacī to agree; dammeishacī to damage; tarmacī to nail; taruacī to fix (magically); tattaracī to?; tuḥḥacī to produce smoke; tuḥuṣṣījacī to await; ulacī to hide; uracī to bring a fire-offering; urkiacī to track down; uṣbudacī to offend; yaracī to come to help; yarpacī to suppress; yarp(ī)lacī to surround(?); yeṣīyeacī to bring (here); zahḥuracī to break, to crush; zammuracī to insult.

Stems that secondarily inflect according to the ḡatrae-class (in brackets their original stem):
appae-2 ‘to be finished’ (āppa- / āppi-); arae-2 ‘to (a)rise’ (arai- / ari-); ḥalae-2 ‘to set in motion’ (ḥalai- / ḫali-); ḥarrae-2 ‘to grind’ (ḥarrai- / ḫarr-); ḥarkiae-2 ‘to get lost’ (ḥarkai-); ḥuyae-2 ‘to run’ (ḥuyai- / ḫu-); ʾiṣgaa-2 ‘to smear’ (ʾiṣkīje/a-2); ʾiṣgarae-2 ‘to stab’ (ʾiṣkār- / ʾiskar-); ʾispae-2 ‘to be satiated’ (ʾiṣpāi- / ʾiṣpī-); ʾisparzae-2 ‘to escape’ (ʾispart-); ʾistalgea-2 ‘to level’ (ʾiṣtalk-); ʾıṣtantae-2 ‘to stay put, to linger’ (ʾıṣtantāje/a-2); kappuyae-2 ‘to count’ (kappuye/a-2); karšae-2 ‘to cut (off)’ (karš(i)e/a-2); kišae-2 ‘to comb’ (kiši-2); lae-2 ‘to loosen’ (lā- / l-); ʾaḻăyue-2 ‘to pour’ (ʾaḻăyu- / ʾala-); lukke-2 ‘to set fire to’ (lukki(e)a-2); paæ-2 ‘to go’ (paj- / pai-); paškae-2 ‘to stick in’ (pašk- / pašk-); paškuye-2 ‘to reject’ (pašku-); pataae-2 ‘to run’ (pattai- / patti-); peššiye-2 ‘to throw away’ (pešši(e)a-2); šae-2 ‘to become sullen’ (šē-2); šākuyae-2 ‘to see, to look’ (šākuvä(e)/a-2); šarae-2 ‘to embroider’ (šar- / šari(e)/a-2); šartae-2 ‘to wipe’ (šart- / šart-); šeš̱ae-2 ‘to decide’ (šeš̱a- / šeš̱i-); šullae-2 ‘to become arrogant’ (šul-la-2); šuyae-2 ‘to push away’ (šuy-e/a-2); šuyae-2 ‘to spy’ (šuyāje/a-2); tae-2 ‘to steal’ (tāe/a-2); ʾaḻăšījae-2 ‘to load’ (ʾaḻăšī- / ʾaḻăšī-); ʾaḻaḻae-2 ‘to leave in peace’ (ʾaḻaḻ- / ʾaḻaḻ-); taparijae-2 ‘to lead, to decide’ (taparije/a-2); tarna-2 ‘to allow’ (tarna- / tarm-); taruppae-2 ‘to collect’ (tarupp-2); tekkusšiaje-2 and tekkusšae-2 ‘to show’ (tekkusši(e)a-2); duyrnaae-2 and duyrnija-2 ‘to break’ (duyrn-i- / duyrn-); ʾunuayae-2 ‘to decorate’ (ʾunu-); riye-2 ‘to cry out’ (ri- / yī-); ʾaššae-2 and ʾaššija-2 ‘to wear’ (ʾašše/a-2); ʾaššae-2 ‘to sin’ (ʾašš- / ʾašt-); zaæ-2 ‘to cross’ (za- / zi-); zankila-2 ‘to fine’ (zankila- / zankil-).

Ic3 mi-verbs in -uγe/a-: the tāγe/a-class.

2.2.2.1q This class consists of four verbs only that go back to *-eh2-jê/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 ḥatrae-class verbs in NH times (e.g. ḥstantae- > ḥstantae-; OS šu-ya-i-ez-zi > NS šu-ya-ε-ez-zi), although we often find NH forms in which -i- has been restored (NH ta-a-i-ez-zi). See at their respective lemmas for these verb’s inflections.

ʾiṣtantae-2 ‘to stay put, to linger’; šākuyae-2 ‘to see, to look’; šuyae-2 ‘to spy’; tāγe/a-2 ‘to steal’.

Ic4 mi-verbs in -uγe/a-.

2.2.2.1r The sequence -uγe/a- as found in the verbs of this class clearly goes back to *-u-jê/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-ʔe/ó-. For the prehistory of ye-² / uya- 'to come', see its own lemma.

\( \text{hsue}/a-², \text{huišue}/a-² \) ‘to stay alive’; \( \text{kappuye}/a-² \) ‘to count, to calculate’; \( \text{genzure}/a-² \) ‘to treat gently’; \( \text{šakuruuya}/a-² \) to water (animals); \( \text{šarkuuya}/a-² \) ‘to put on footwear’; \( \text{šaruue}/a-² \) ‘to loot’; \( \text{šuye}/a-² \) ‘to fill’; \( \text{šuye}/a-² \) ‘to push (away)’; \( ye-² / uya- \) ‘to come’.

1e5 \( \text{yašše}/a-² \) ‘to dress’.

This verb constitutes a class of its own, because it is the only verb that shows the sound law \( *VšjV > \text{Hitt. } VššV \). See at its lemma for an elaborate treatment, in which I show that \( yašše/a-² \) ultimately goes back to \( *us-šé/ó- \).

1e6 imperfectives in -ške/a-.

See at its own lemma for an elaborate treatment of the suffix -ške/a- < *-šké/ó-.

The distribution between the thematic vowels -e- and -a- are changing throughout the Hittite period, compare the following overview:

<table>
<thead>
<tr>
<th></th>
<th>PIE</th>
<th>OS</th>
<th>MH/MS</th>
<th>NH</th>
</tr>
</thead>
<tbody>
<tr>
<td>pres.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1sg.</td>
<td>*-škó-</td>
<td>⁰š-ke-e-mi</td>
<td>⁰š-ke-mi</td>
<td>⁰š-ke-mi</td>
</tr>
<tr>
<td>2sg.</td>
<td>*-šké-</td>
<td>⁰š-ke-e-ši</td>
<td>⁰š-ke-ši</td>
<td>⁰š-ke-ši</td>
</tr>
<tr>
<td>3sg.</td>
<td>*-šké-</td>
<td>⁰š-ke-ez-zi</td>
<td>⁰š-ke-ez-zi</td>
<td>⁰š-ke-ez-zi</td>
</tr>
<tr>
<td>1pl.</td>
<td>*-škó-</td>
<td>⁰š-ke-e-ga-ni</td>
<td>⁰š-ke-u-e-ni, ⁰š-ga-u-e-ni</td>
<td>⁰š-ke-u-e-ni</td>
</tr>
<tr>
<td>3pl.</td>
<td>*-škó-</td>
<td>⁰š-kám-zi</td>
<td>⁰š-kám-zi</td>
<td>⁰š-kám-zi</td>
</tr>
<tr>
<td>pret.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1sg.</td>
<td>*-škó-²⁶¹</td>
<td>--</td>
<td>⁰š-ke-e-µun</td>
<td>⁰š-ke-mu-µun</td>
</tr>
<tr>
<td>2sg.</td>
<td>*-šké-</td>
<td>--</td>
<td>⁰š-ke-eš</td>
<td>⁰š-ke-eš</td>
</tr>
<tr>
<td>3sg.</td>
<td>*-šké-</td>
<td>⁰š-ke-e-et</td>
<td>⁰š-ke-et</td>
<td>⁰š-ke-et</td>
</tr>
<tr>
<td>1pl.</td>
<td>*-škó-</td>
<td>--</td>
<td>⁰š-ga-u-en</td>
<td>⁰š-ke-u-en</td>
</tr>
<tr>
<td>2pl.</td>
<td>*-šké-</td>
<td>--</td>
<td>⁰š-ke-et-ten</td>
<td>⁰š-ke-et-ten</td>
</tr>
<tr>
<td>3pl.</td>
<td>--</td>
<td>⁰š-ke-e-er</td>
<td>--</td>
<td>⁰š-ke-er</td>
</tr>
</tbody>
</table>

²⁶¹ Perhaps reflected in the one attestation če-ail-ga-µu-µun (KUB 13.35+ i 40, 44 (NS)).
<table>
<thead>
<tr>
<th>Person</th>
<th>Verb Form</th>
<th>1sg.</th>
<th>2sg.</th>
<th>3sg.</th>
<th>2pl.</th>
<th>3pl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>imp.</td>
<td>*-śké</td>
<td>0ś-ki-i</td>
<td>0ś-ki</td>
<td>0ś-ki-ed-du</td>
<td>0ś-ke-et-tén</td>
<td>0ś-kán-du</td>
</tr>
<tr>
<td>2sg.</td>
<td>*-śké-</td>
<td>--</td>
<td>0ś-ki-ši</td>
<td>--</td>
<td>0ś-ke-ši-ši</td>
<td>--</td>
</tr>
<tr>
<td>3sg.</td>
<td>*-śké-</td>
<td>--</td>
<td>0ś-ki-ši-ši</td>
<td>--</td>
<td>0ś-ke-ši-ši-ši</td>
<td>--</td>
</tr>
<tr>
<td>2pl.</td>
<td>*-śké-</td>
<td>--</td>
<td>0ś-ke-tén</td>
<td>--</td>
<td>0ś-ke-tén</td>
<td>--</td>
</tr>
<tr>
<td>3pl.</td>
<td>*-śké-</td>
<td>--</td>
<td>0ś-ke-tén</td>
<td>--</td>
<td>0ś-ke-tén</td>
<td>--</td>
</tr>
<tr>
<td>part.</td>
<td>*-śké-</td>
<td>--</td>
<td>0ś-ke-ša-an</td>
<td>--</td>
<td>0ś-ke-ša-an</td>
<td>--</td>
</tr>
<tr>
<td>sup.</td>
<td>--</td>
<td>0ś-ke-ša-an</td>
<td>0ś-ke-ša-an</td>
<td>0ś-ke-ša-an</td>
<td>0ś-ke-ša-an</td>
<td>0ś-ke-ša-an</td>
</tr>
</tbody>
</table>

Often, this suffix is transliterated with the vowel -i-: 0ś-ki-mi, 0ś-ki-ši, 0ś-ki-iz-zi, etc. This is incorrect, however, as is clearly shown by cases like 2sg.pret.act. 0ś-ke-ši and plene spellings like 0ś-ke-ši-ši. It must be admitted that plene spellings predominantly occur in OS texts, but occasional NH cases like a-ri-ši-ke-e-nu-un (KUB 14.13 i 53 (NH)) and me-ši-ši-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 0ś-ki-i,\(^{262}\) including an OS one, which indicate that we are dealing with /-skí/. Apparently, absolute word final *-# > Hitt. /-í/.

Because the number of imperfectives in -śke/a- is very large, I did not find it useful to list them all here.

**II = hi-conjugation**

2.2.2 Within the hi-conjugated verbs only two classes can be distinguished: (a) hi-verbs that show ablaut; (b) hi-verbs that do not show ablaut. It should be noted that, unlike under the mi-verbs, there are no hi-verbs that show a thematic suffix. The only suffixes that can be found within the hi-conjugation are the ablauting *-.oi-/-i-suffix (see IIa4 and IIa5), the imperfective suffixes -śša/-śś- (see under IIa1β) and -ämna- / -ämni- (see under IIa5), and the nasal-infix (mainly under IIa1γ, but cf. also § 2.2.4).

**IIa = ablauting hi-verbs**

2.2.2.2a The origin of the Hittite hi-conjugation is fiercely debated. Nevertheless, I think that it is clear that formally the hi-conjugation can be compared to the PIE

---

\(^{262}\) E.g. ḫi-kši-ši-ši-i ‘drink!’ (KBo 7.28 obv. 23 (OH/MS)), az-ši-ši-ši-ši-i ‘eat!’ (KBo 7.28 obv. 23 (OH/MS), KBo 21.60 rev. 15 (OH/NS)), uš-ši-ši ‘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 *hi*-verbs are best compared to the isolated PIE verb *uoíd- ‘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 *dēr- ‘to give’, the preterite paradigm of Hitt. *daɾ / d- ‘to take’ (with the plural forms taken from the compound verbs *pedaɾ- / ped- and *udaɾ- / ud-) as well as the Greek paradigm of *dēxι ‘to know’:

<table>
<thead>
<tr>
<th>PIE</th>
<th>Skt.</th>
<th>Hitt.</th>
<th>cf. Gr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>*de-döh₃h₂-e</td>
<td>dadāu</td>
<td>dāḥḫun</td>
</tr>
<tr>
<td>2sg.</td>
<td>*de-döh₃h₁-e</td>
<td>dadātha</td>
<td>dāṭṭa</td>
</tr>
<tr>
<td>3sg.</td>
<td>*de-döh₂-e</td>
<td>dadāu</td>
<td>dāṣ (cf. pres. dāṣi)</td>
</tr>
<tr>
<td>1pl.</td>
<td>*de-dh₁-mé̄</td>
<td>dadimá</td>
<td>*tumen</td>
</tr>
<tr>
<td>2pl.</td>
<td>*de-dh₁+Ŷ</td>
<td>dadá</td>
<td>*tištēn</td>
</tr>
<tr>
<td>3pl.</td>
<td>*de-dh₁-ēr</td>
<td>dadīr</td>
<td>*ter</td>
</tr>
</tbody>
</table>

As I will explain below, I believe that the PIE ablaut *o/O underlies all the abluting *hi*-verbs as attested in Hittite. Within the abluting *hi*-verbs I distinguish five types, namely verbs that show an ablaut ġO (with subtypes), ġa, ġi, -ai/-i- and -a/-i-.

**IIa1** *hi*-verbs with ġO-ablaut

2.2.2.6 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)-, *au₂ / u- ‘to see’ and *mau₁ / mu- ‘to fall’, use a secondary, mi-inflecting stem in their 3sg.-forms: *aǔšš- and *maušš-. This is probably because expected *čūi and *mći were too intransparent and therefore were changed to āuštī and mauššī on the basis of 3sg.pret.act. *aǔš and *mauš, which afterwards received mi-endings themselves as well: āuštā and mauštā.

*au₂ / u- ‘to see’ < *h₃ou₁ / *h₂u-; *huyapp₂ / *hupp- ‘to hurl; to do evil’ < *h₃u₂h₁ / *h₂u₂h₁; *huyart₁ / *hart- ‘to curse’ < *h₂uᵣt₁ / *h₂uᵣt₁; *mau₁ / mu- ‘to fall’ < *mouh₁ / *muh₁.
It should be noted that in none of these verbs the plene vowel ā < *ā is attested as such. In the verbs au/-u- and maw/-mu- this is regular since *-āu- yields Hitt. āāw/ and not **ā(a)w (cf. *-āi > āā and not **āi in class IIa4 below), but in ḥuapp-/ḥupp- and ḥuārt-/ḥurt- we would have expected *ḥu-ya-a-ap-p° and *ḥu-ya-a-ar-r° 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 /āCCV/ develops into NH /āCCV/ (so shortening of OH āā in non-final closed syllable within the Hittite periode, cf. § 1.4.9.3).

2.2.2.2. The second group (IIa1β) consists of two monosyllabic verbs that end in *-eh₁⁻, namely ḏā^- / d- ‘to take’ < *doh₁⁻ / *dh₁⁻ and Ṽa^- / l- ‘to loosen, to release’ < *loh₁⁻ / *lh₁⁻. The original inflection of these verbs is as follows:

<table>
<thead>
<tr>
<th></th>
<th>pres.</th>
<th>pret.</th>
<th>imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>Ca-ah-ḥé</td>
<td>Ca-ah-ḥu-un</td>
<td></td>
</tr>
<tr>
<td>2sg.</td>
<td>Ca-at-ti</td>
<td>Ca-at-ta</td>
<td>Ca-a</td>
</tr>
<tr>
<td>3sg.</td>
<td>Ca-a-i</td>
<td>Ca-a-aš</td>
<td>Ca-a-ि</td>
</tr>
<tr>
<td>1pl.</td>
<td>ḽe-me-e-ni</td>
<td>Ṽa-ḥe-en</td>
<td>inf. I Ca(a)-u-ya-an-zi</td>
</tr>
<tr>
<td>2pl.</td>
<td>ḽa-at-te-e-ni</td>
<td>Ṽa-at-te-en</td>
<td>Ṽa-at-te-en</td>
</tr>
<tr>
<td>3pl.</td>
<td>Ca-an-zi</td>
<td>Ca-er</td>
<td>Ca-an-du</td>
</tr>
</tbody>
</table>

Note that Ṽa^- / l- from MH times onwards is being replaced by ḏa^-², according to the productive ḥa-trae-class inflection. In the verb ḏa^- / d- the development OH /āCCV/ > NH /āCCV/ gives rise to a slightly different NH paradigm:

<table>
<thead>
<tr>
<th></th>
<th>pres.</th>
<th>pret.</th>
<th>imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>da-ah-ḥi</td>
<td>da-ah-ḥu-un</td>
<td></td>
</tr>
<tr>
<td>2sg.</td>
<td>--</td>
<td>da-at-ta</td>
<td>da-a</td>
</tr>
<tr>
<td>3sg.</td>
<td>da-a-i</td>
<td>da-a-aš</td>
<td>da-a-ि</td>
</tr>
<tr>
<td>1pl.</td>
<td>tu-ḥe-e-ni</td>
<td>--</td>
<td>inf. I da-a-u-ya-an-zi</td>
</tr>
<tr>
<td>3pl.</td>
<td>da-an-zi</td>
<td>da-er</td>
<td>da-an-du</td>
</tr>
</tbody>
</table>

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^- / tarn-. Some of these verbs also go back to roots that end in *-eh₁⁻, but the difference with group IIa1β (dā^- / d-
and $l_\mathcal{T}/l-$ is that these latter are monosyllabic whereas the tarn(a)-class verbs are polysyllabic (e.g. peda-/ped-). This makes the inflection of the tarn(a)-class quite different:

```
<table>
<thead>
<tr>
<th></th>
<th>pres.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>ʰCa-ah-ḥé</td>
</tr>
<tr>
<td>2sg.</td>
<td>ʰCa-at-ṭi</td>
</tr>
<tr>
<td>3sg.</td>
<td>ʰCa-i</td>
</tr>
<tr>
<td>1pl.</td>
<td>ʰCu-me-e-ni</td>
</tr>
<tr>
<td>2pl.</td>
<td>ʰC-šēni &gt; ʰCa-at-te-ni</td>
</tr>
<tr>
<td>3pl.</td>
<td>ʰCa-an-zi</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>pret.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>ʰCa-ah-ḥu-un</td>
</tr>
<tr>
<td>2sg.</td>
<td>ʰCa-at-ta &gt; ʰCa-aš, ʰCi-iš-ta</td>
</tr>
<tr>
<td>3sg.</td>
<td>ʰCa-aš &gt; ʰCi-iš-ta</td>
</tr>
<tr>
<td>1pl.</td>
<td>ʰCu-me-en</td>
</tr>
<tr>
<td>2pl.</td>
<td>ʰC-šēn &gt; ʰCa-at-te-en</td>
</tr>
<tr>
<td>3pl.</td>
<td>ʰCe-er</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2sg.</td>
<td>ʰCa</td>
</tr>
<tr>
<td>3sg.</td>
<td>ʰCa-ū</td>
</tr>
<tr>
<td>2pl.</td>
<td>ʰCi-iš-te-en &gt; ʰCa-at-te-en</td>
</tr>
<tr>
<td>3pl.</td>
<td>ʰCa-an-du</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>part.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2pl.</td>
<td>ʰCa-an-t-</td>
</tr>
<tr>
<td>v.n.</td>
<td>ʰCu-mar</td>
</tr>
<tr>
<td>inf.1</td>
<td>ʰCu-ma-an-zi</td>
</tr>
</tbody>
</table>
```

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-stêni often yielded awkward clusters), the fact that we find forms like 1pl. CVC-umêni, CVC-umên, 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-h1₂- (nasal-infixed verbs, see § 2.2.4), *Ce-C(R)oh1₂- (reduplicated verbs) and verbs in *sša₁ / *sš- (imperfective-suffix) < *soh₁ / *sh₁₂:

\begin{center}
\text{\textit{ha}ẑiš	extit{s}a₁ / \textit{ha}ẑiššś- ‘to cry out, to call’ < *h₂lt-i-soh₁ / *h₂lt-i-sh₁₂; \textit{h}anna₁ / \textit{h}ann- ‘to sue, to judge’ < *h₁e-h₁₂noh₁₁ / *h₁e-h₁₂nh₁₁; \textit{BS}a₁ / \textit{BS}śś- ‘to do, to make’ < *HIH-i-soh₁ / *HIH-i-sh₁₁; \textit{mm}ina₁ / \textit{mm}in- ‘to refuse’ < *mi-moh₁₁ / *mi-mh₁₁; \textit{ped}a₁ / \textit{ped}- ‘to take (away)’ < *h₁poi-doh₁ / *h₁poi-dh₁₂; \textit{pipp}a₁ / \textit{pipp}- ‘to tear down’ < *pi-poh₁₁ / *pi-ph₁₁; \textit{s}anña₁ / \textit{s}ann- ‘to hide’ < sn-no-h₁ / *sn-n-h₁₂; \textit{sśśa₁} / \textit{sśśś- ‘to impress’ < *sh₁₁-i-soh₁ / *sh₁₁-i-sh₁₁; \textit{sənn}a₁ / \textit{sənn- ‘to fill’ < *su-no-h₁₁ / *su-n-h₁₂; \textit{tarna}₁ / \textit{tarn}- ‘to let (go)’ < *tr₁-h₁₁ / *tr₁h₁₁; \textit{uda}₁ / \textit{ud}- ‘to bring (here)’ < *h₂ou-doh₁ / *h₂ou-dh₁₂; \textit{yarišśa}₁ / \textit{yariššś- ‘to help’.
\end{center}

On the other hand, we find verbs with the structure *CoCh₁₂. We would have expected that these verbs, which showed an original ablaut *CoCh₁₂ / *CCh₁₂ ended up in the class Iia₁q or Iia₂. That this is not the case is in my view caused by the 3sg.prs.act.-form. In verbs of the structure *CoCh₁₂, the 3sg.prs.act. *CoCh₁₂-e-i yielded Pre-Hittite *CoCai, whereas in verbs of class Iia₁q and Iia₂, 3sg.prs.act. *CCoh₁-e-i and *CoCe-e-i yielded Pre-Hittite *CC-ac 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 Iia₁q and Iia₂. On the basis of this 3sg.-form, the whole paradigm was taken over into the tarn(a)-class. This scenario explains the inflection of the following verbs:

---

263 Note that this did not happen in verbs of the structure *Ce₁₂, which ended up in class Iia₂ (nôh₁ / nôh₁₂, zôh₁ / zôh₁₂). The different outcome of *CoCh₁₂ > CaCi on the one hand and *CoCai > Ce₂ on the other is due to the fact that in the former verb the regular loss of *h₁ after consonant
\( \text{harra}^{-1} / \text{harr-} \) ‘to grind’ < \( *_h^2\text{arh}_1\text{-ei} / *_h^2\text{rh}_3\text{-enti} \), \( \text{iškalla}^{-1} / \text{iškall-} \) ‘to split’ < \( *\text{skl}_1\text{h}_2\text{ei} / *\text{skl}_3\text{h}_3\text{enti} \), \( \text{išparr}^{-1} / \text{išparr-} \) ‘to trample’ < \( *\text{spor}_1\text{h}_2\text{ei} / *\text{sporh}_3\text{-enti} \), \( \text{mall}^{-1} / \text{mall-} \) ‘to mill’ < \( *\text{mloz}_1\text{ei} / *\text{mlh}_2\text{-enti} \), \( \text{padda}^{-1} / \text{padd-} \) ‘to dig’ < \( *b^b\text{od}_1\text{h}_2\text{-ei} / *b^h\text{d}_2\text{h}_3\text{-enti} \), \( \text{šarta}^{-1} / \text{šart-} \) ‘to wipe, to rub’ < \( *\text{sord}_1\text{h}_2\text{ei} / *\text{srdh}_3\text{-enti} \).

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):

\( \text{ārra}^{-1} / \text{ārr-} \) ‘to wash’ (\( ġ\text{rr}^{-1} / \text{arr-} \)), \( \text{ezza}^{-1} / \text{ezz-} \) ‘to eat’ (\( \text{ed}^{-2} / \text{ad-} \)), \( \text{ḥaliḥla}^{-1} / \text{ḥaliḥl-} \) ‘to genulate’ (\( \text{ḥaliḥla}^{-1} / \text{ḥaliḥli-} \)), \( \text{ḥatta}^{-1} / \text{ḥatt-} \) ‘to pierce’ (\( \text{ḥatt}(-\text{a}®) \)), \( \text{ḥu(ya)rta}^{-1} / \text{ḥu(ya)r}- \) ‘to curse’ (\( \text{ḥuwart}^{-1} / \text{ḥurt-} \)), \( \text{iśḥu}ya^{-1} / \text{išḥu-} \) (\( išḥu(\text{i})- \)), \( \text{išґara}^{-1} / \text{išgarr-} \) ‘to stab’ (\( iš\text{ɡ̣}r^{-1} / iš\text{kar-} \)), \( \text{išparr}^{-1} / \text{išparr-} \) ‘to spread out’ (\( išpār^{-1} / iš\text{par} \)), \( \text{išparza}^{-1} / \text{išparz-} \) ‘to escape’ (\( iš\text{parz}^- \)), \( \text{ganga}^{-1} / \text{gang-} \) ‘to hang’ (\( kānк^{-1} / kank- \)), \( \text{karsa}^{-1} / \text{kars-} \) ‘to cut’ (\( k\text{ars(īj(e)}/a^{-2} \)), \( \text{kuenna}^{-1} / \text{kuenn-} \) ‘to kill’ (\( ku\text{en}^{-2} / kun- \)), \( \text{laḥu}ya^{-1} / \text{laḥu}- \) ‘to pour’ (\( lā\text{ḥu}^{-1} / lā\text{ḥu} \)), \( \text{iḥu}ya^{-1} / \text{iḥu}- \) ‘to pour’ (\( lī\text{ḥu}^{-1} / lī\text{ḥu} \), \( \text{malda}^{-1} / \text{mald-} \) ‘to recite’ (\( mū\text{ld}^{-1} / m\text{ald-} \)), \( \text{mēma}^{-1} / \text{mēm-} \) ‘to speak’ (\( mē\text{m}^{-1} / \text{mēmi} \)), \( \text{nanna}^{-1} / \text{nann-} \) ‘to drive’ (\( nanna^{-1} / nanni- \)), \( \text{parha}^{-1} / \text{parh-} \) ‘to chase’ (\( par\text{ḥ}^{-2} \)), \( \text{parippara}^{-1} / \text{parippar-} \) ‘to blow (a horn)’ (\( par\text{ippara}^{-1} / par\text{ippari-} \)), \( \text{penna}^{-1} / \text{penn-} \) ‘to drive (there)’ (\( \text{penn}^{-1} / \text{penni}^{-1} \)), \( \text{šalika}^{-1} / \text{šalik-} \) ‘to touch’ (\( š\text{ša}® / š\text{ši}® \)), \( \text{šarr}^{-1} / \text{šarr-} \) ‘to divide up’ (\( š\text{šarr}^{-1} / š\text{arr-} \)), \( \text{šišha}^{-1} / \text{šišh-} \) ‘to decide, to appoint’ (\( šiš\text{ša}^{-1} / *šiš\text{ši}^{-1} \)), \( \text{tašša}^{-1} / \text{taššt-} \) ‘to load’ (\( ta\text{šša}^{-1} / ta\text{ššt-} \)), \( \text{dāla}^{-1} / \text{dāl-} \) ‘to let, to leave’ (\( dā\text{la}^{-1} / d\text{āl}^{-1} \)), \( \text{tetša}^{-1} / \text{tētšt-} \) ‘to thunder’ (\( tē\text{ša}® \)), \( \text{tittu}^{-1} / \text{titt-} \) ‘to install, to assign’ (\( t\text{ittu}^{-1} / t\text{ittti}^{-1} \)), \( \text{duyarna}^{-1} / \text{duyarn-} \) ‘to break’ (\( du\text{yarni}^{-2} / du\text{yarn-} \)), \( \text{ūnna}^{-1} / \text{ūnn-} \) ‘to send (here)’ (\( ū\text{nn}^{-1} / ū\text{nni}^{-1} \)), \( \text{uppa}^{-1} / \text{upp-} \) ‘to send (here)’ (\( \text{upp}^{-1} / \text{uppi}^{-1} \)), \( \text{zinna}^{-1} / \text{zinn-} \) ‘to finish’ (\( z\text{inni}^{-1} / \text{zinn-} \)).

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’.

caused phonologization of the ending \(-\text{l-dl}\), whereas in \(*\text{Cōh}_{1}\text{ei} \), despite its phonetic pronunciation [Cōhai] phonologically remained [Cāhei] due to the presence of \(-\text{ḥ}-\), we are dealing with the ending \(-\text{el}\). This ending then regularly developed into \(-\text{el}\) and later on was replaced by \(-\text{i}\), so \(*\text{Cōh}_{1}\text{ei} > *\text{Cāhei} > > \text{Cōhi}\).
2.2.2.2e Ha2  ḥi-verbs with ʾā-a-ablaut

This class consists of verbs with a root structure *HeC-, *Cehy(C)-, *CeR(C)-, *TeT-, *seT- and *Ces-. In these verbs, the full grade vowel *ō yielded Hitt. -ā-, whereas in the initial cluster of the zero-grade stem an empty vowel -a- is used in spelling (e.g. ʾakkanzī = ʾēkāntūl, ʾhananzī = ʾēhanāntūl, īsparanzī = īșprāntūl, maldanzī = īmaldāntūl, paḫšanzī = īpHašāntūl, dakkanzi = īkāntūl, etc.). The often found distribution of single stop in the full grade stem vs. geminate stop in the zero grade stem (e.g. ākī : ʾakkanzī) is due to lenition of consonants after *ō. Note that not all of these verbs have a plene spelling -ā- is indeed attested, but this is due to the inner-Hittite shortening of OH āl to NH lāl in non-final closed syllables (OH āCCV/ > NH āCCV/, 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- / akk- ‘to die’ < *h₂jok- / *h₁jek-; ʿār- / ar- ‘to come’ < *h₁or- / *h₁pr-; ʿarr- / arr- ‘to wash’ < *h₁orh₁- / *h₁prh₁-; ārk- / ark- ‘to cut off’ < *h₁orʾl- / *h₁prʾl-; ārkh- / arkh- ‘to cover, to copulate’ < *h₁orʾgl- / *h₁prʾgl-; ḥān- / ḥan- ‘to draw (water)’ < *h₂on- / *h₁on-: ḥāšš- / ḥašš- ‘to give birth’ < *h₂oms- / *h₁oms-; ʿhār- / ḥar- ‘to dry up’ < *h₂od- / *h₁od-; ḥatk- / ḥatk- ‘to shut, to close’ < *h₂odʾgl- / *h₁odʾgl-; īskār- / īskar- ‘to stab’ < *skar- / *skr-; ʾispānt- / īspant- ‘to libate’ < *spand- / *spnd-; īspār- / īspar- ‘to spread’ < *spor- / *spr-; īstāpp- / īstapp- ‘to shut’ < *stop- / *sp-; kānk- / kank- ‘to hang’ < *könk- / *knk-; kalank- / kalank- ‘to soothe’ < *glonth- / *glonth-; lāhu- / ʾlahu- ‘to pour’ < *loh₂u- / *lh₂u-; lāk- / ʾlāk- ‘to make lie down’ < *log₂ / *lg₂; ʾmālk- / mālk- ‘to spin’ < *molK- / *molK-; ṭālād- / māld- ‘to recite’ < *mol₂ / *māld-; mārk- / mark- ‘to divide, to separate’ < *morth- / *mrk-: nāḫ- / nahh- ‘to fear’ < *morth₂- / *mrh₂-; paḥš- / paḥš- ‘to protect’ < *poh₃s- / *ph₃s-; palāḫ- / palahu- ‘to call(?)’ < *ploh₂- / *plh₂-; papparš- / pappars- ‘to sprinkle’ < *pors- / *pr-s-; pāš- / paš- ‘to swallow, to gulp down’ < *poh₂s- / *poh₂s-; šāk- / šakk- ‘to know’ < *skoh₂- / *skh₂-; dākk- / dakk- ‘to resemble’ < *dɔh₂h₁- / *dɔh₂h₁-; yākk- / yakk- ‘to bite’ < *yuḥ₂g₂ / *yuḥ₂g₂; yarš- / yarš- ‘to harvest, to wipe’ < *yors- / *yrs-; yāš- / yaš- ‘to sell’ < *yuš- / *yuš-; zāḥ- / zahi- ‘to beat’ < *tiḥ₂- / *tiḥ₂-.

2.2.2.2f Ha3  ḥi-verbs with ʾā-i-ablaut

This class consists of verbs aḵāš- / ašē/iš- ‘to sit’, ʾhamank- / ʾhame/ink- ‘to tie’, karāp- / kare/ip- ‘to devour’ and ʾšarēp- / ʾšarip- ‘to sip’. These verbs show
the vowel -avr 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, “šakk- / sekk-” ‘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 šαkk. / šak- and belongs with class IIa2 (avr-ablaut).

The origin of the ablaut -avr/-e/-i- has always been problematic. E.g. Oettinger (1979a: 114) assumes that the source of the -avr/-e/-i- ablaut is the verb "šαkk- / 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 šαkk. / šak- and does not originally belong to the -avr/-e/-i- ablaut 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 “avr” 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 šαkk- / šekk- < *sok- / sok- and karāp-/garāp- < *grōb- / grēb-). 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 -avr/-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 hi-verbs of the present class, and that this vowel must be identified as the anaptyctic vowel /i/. This vowel was used in the zero-grade forms of these verbs for different reasons.

The verbs karāp. / karap- and šarāp. / šarap- must be taken together with terepp. / tereipp- ‘to plough’ (from class Ia5). As I have stated in § 2.2.2.1.f more elaborately, 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 *CRāC- / *CRC- > Hitt. CRāC- / CaRC- (when hi-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 /i/ was secondarily placed on the place of the vowel of the full grade form. In this way, a mi-conjugating verb *CReC- / *CRC- was altered to synchronic CreC- / CréC-, whereas the hi-conjugating *CRāC- / *CRC- was altered to synchronic CRāC- / CRāC-. In both cases, the weak stem is spelled CRE/iC-.
With this scenario in mind, we can explain karāp- / kare'ip- ‘to devour’ as phonological /krāb-/ /krib-/ the ‘regular’ secondary outcome of *g³rōbh₁- / *g³rbh₁- and šarāp- / šarip- ‘to sip’ as phonological /srāb-/ /srib-/, the ultimate outcome of *srobᵲ-/ /*srbᵲ-.

The interpretation of ašāz- / aše/iš- ‘to seat’ and ūmanak- / ūman/ink- ‘to tie’ is less clear. Nevertheless, in the case of ašāz- / aše/iš-, which reflects either *hˑ₁_sh₁₂-oᵲ- / *hˑ₂h₁₁-oᵲ- or *h₁h₁₁_sh₁₂-oᵲ- / *h₁h₁₁h₁₂-oᵲ- (thus LIV⁵, in analogy to Oettinger 1979a: 431), the assumption of an anaptyctic vowel to release the cluster *h₁sh₁₂-oᵲ- or *h₁h₁₁sh₁₂-oᵲ- seems unproblematic to me (cf. the phonetically regular development of *CRHisV > Hitt. CRēšV (Kloekhorst thc.f and § 1.4.4.3)). This means that ašāz- / aše/iš- ‘to seat’ must be phonologically interpreted as /šās- / šis- / *ś₁h₁₁(h₁)₁₆₁₀(h₁)₁₆₁₋₁ / *ś₁h₁₁₁₀₁₆₁₋₁. In the case of ūmanak- / ūman/ink- we are dealing with a zero-grade stem *h₂mngᵲ⁻. As we will see in § 2.2.4, a pre-Hittite cluster *CNNC regularly develops into /CNNC/. So here, *h₂mngᵲ⁻ yields Hitt. /h₁mngₜ₁⁻, spelled ūman/ink-. All in all, ūmanak- / ūman/ink- ‘to tie’ must be phonologically interpreted as /h₁mngₜ₁⁻ / Hmngₜ₁⁻ < *h₂mngᵲ⁻. / *h₂mngᵲ⁻.

IIa4  ḫi-verbs in -ai/-i-: the dā‘/tijānzi-class.

2.2.2.2.g The formal interpretation of this class has been elaborately treated in Kloekhorst thc.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/is-i-

arai⁻ / ari- ‘to (a)rise’ < *h₁r-oᵲ- / *h₂r-iᵲ; ḫalai⁻ / ḫali⁻ ‘to set in motion’ < *h₁l-oᵲ- / *h₂l-iᵲ; ḫaltaiz- / ḫalzi- ‘to call out’ < *h₁l-oᵲ- / *h₂l-iᵲ; ḫuṭai⁻ / ḫui- ‘to run’ < *h₁u₁₁-oᵲ- / *h₂u₁₁-iᵲ; ḫišai⁻ / ḫiši- ‘to bind’ < *sh₁-oᵲ- / *sh₂-iᵲ; ḫišmaiz-i / ḫišmi- ‘to sing’ < *sh₂m-oᵲ- / *sh₂m-iᵲ; ḫišuat-i / ḫišui- ‘to throw, to scatter’ < *sh₂u-oᵲ- / *sh₂u-iᵲ; ḫišp⁻ / ḫišpi- ‘to be satiated’ < *sp₁₁-oᵲ- / *sp₂-iᵲ; maiz-i / mi⁻ ‘to grow’ < *mh₂-oᵲ- / *mh₂-iᵲ; naiz-i / ni⁻ ‘to turn’ < *no₁₁-iᵲ- / *ni₃-iᵲ; paiz-i / pi⁻ ‘to give’ < *hp₁-oᵲ- / *hp₁-iᵲ; parai⁻ / pari- ‘to blow’ < *pr₁-oᵲ- / *pr₁-iᵲ; paddai⁻ / paddi- ‘to run, to flee’ < *pₚ₁-oᵲ- / *pₚ₁-iᵲ; šai⁻ / ši- ‘to press’ < *ṣ₁-oᵲ- / *ṣ₁-iᵲ; šalai⁻ / šalii- ‘? ’ < *sl-oᵲ- / *sl-iᵲ; daiz-i / di- ‘to put, to place’ < *dh₁-oᵲ- / *dₚ₁-iᵲ; tarai⁻ / tarii- ‘to exert oneself’ < *Tr₁-oᵲ- / *Tr₁-iᵲ; yai⁻ / yii- ‘to cry’ < *yoᵲ- / *yiᵲ-; zai⁻ / zi- ‘to cross’ < *h₁t-oᵲ- / *h₁t-iᵲ.
The original inflection of these verbs was as follows:

<table>
<thead>
<tr>
<th></th>
<th>pres.</th>
<th>imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>*CC-óí-h₂e-i</td>
<td>⁹Ce-e-εb-∂é</td>
</tr>
<tr>
<td>2sg.</td>
<td>*CC-óí-th₂e-i</td>
<td>⁹Ca-ít-ti</td>
</tr>
<tr>
<td>3sg.</td>
<td>*CC-óí-e-i</td>
<td>⁹Ca-a-i</td>
</tr>
<tr>
<td>1pl.</td>
<td>*CC-i-yénī</td>
<td>⁹Cl-u-e-ni</td>
</tr>
<tr>
<td>2pl.</td>
<td>*CC-i-stén</td>
<td>⁹Ci-iš-te-e-ni</td>
</tr>
<tr>
<td>3pl.</td>
<td>*CC-i-énti</td>
<td>⁹Ci-an-zi</td>
</tr>
</tbody>
</table>

pret.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>*CC-óí-h₂e</td>
<td>⁹Ce-e-εb-∂un</td>
</tr>
<tr>
<td>2sg.</td>
<td>*CC-óí-th₂e</td>
<td>⁹Ca-ít-ta</td>
</tr>
<tr>
<td>3sg.</td>
<td>*CC-óí-s</td>
<td>⁹Ca-šš</td>
</tr>
<tr>
<td>1pl.</td>
<td>*CC-i-yénī</td>
<td>⁹Cl-u-en</td>
</tr>
<tr>
<td>2pl.</td>
<td>*CC-i-stén</td>
<td>⁹Ci-iš-te-e-ni</td>
</tr>
<tr>
<td>3pl.</td>
<td>*CC-i-ént</td>
<td>⁹Ci-iš-te-e-ni</td>
</tr>
</tbody>
</table>

This is the paradigm as found in OH texts. From the MH period onwards, we find generalization of the long -tₐ- as found in 3sg.pres.act. ⁹Ca-a-i, yielding forms

---

264 Thus in pi-tse-ni. All other verbs show CC-úyéni according to class Ic1.
265 Thus in pi-sí-te-en and zi-iš-te-e-ni. Secondary CC-óx-ten (with the mi-ending -teni) in ta-ái-te-
ni.
266 Thus in il-pi-iš-te-en, ãal-zí-iš-te-en and pi-iš-te-en. Secondary CC-óx-ten in dā-iš-ten, and pa-
-š-ten.
267 But compare 3pl.imp.act. a-ra-an-du from ara₁ / ara₁ - 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
-tₐ-less?
268 But compare part. a-ra-an-t from ara₁ / ara₁ - to (a)rise’, cf. note 267.
269 Thus ãal-zí-te-en and pi-tren. Secondary CC-óx-ten in dā-iš-ten.
270 Thus t₁-te-yar-en. All other verbs have CC-úyéni according to class Ic1.
272 Thus in ãal-zí-iš-er, ãal-iš-er, iš-ha-iš-er, iš-pi-iš-er and pi-iš-er. Secondary CC-óx-en in dā-
-š-e-r and ãal-ga-iš-er.
273 *CC-skél-∂ is the only possible reconstruction for zaškél-∂ /tskél-∂, zikke-∂ /tsikke-∂ < *d’h₁-
skél-∂, but also ãal-gaškél-∂ besides ãal-zaskél-∂ and piške-∂ besides peške-∂. point more to an
interpretation *C-gskél-∂, reflecting *h₁₀-skél-∂ and *h₁₀-pškél-∂, than to *C-siškél-∂ from *h₁₀-
skél-∂ and *h₁₀-iškél-∂. 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 dātitiţanzi-class inflection is gradually being replaced by the -je/a-class (Ic1) and, to a lesser extent, by the ḫaţrae-class (Ic2). The taking over into the -je/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 ḫaţrae-class is based on the trivial replacement of 3sg.pres.act. °Cai by °Căţzi and on the basis of the fact that e.g. 2sg.imp.act. °Cai and verb.noun °Cayar are identical in both classes.

IIa5 ḥi-verbs in -a/-i-: the mēma/i-class.

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:

<table>
<thead>
<tr>
<th></th>
<th>pres.</th>
<th>pret.</th>
<th>imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>°Cāhhe</td>
<td>°Cāḥˌn</td>
<td></td>
</tr>
<tr>
<td>2sg.</td>
<td>°Catti</td>
<td>--</td>
<td>°Ci</td>
</tr>
<tr>
<td>3sg.</td>
<td>°Cai</td>
<td>°Cīšʔ</td>
<td>°Cau</td>
</tr>
<tr>
<td>1pl.</td>
<td>°Ciţiγi</td>
<td>°Ciţiγn</td>
<td>part.</td>
</tr>
<tr>
<td>2pl.</td>
<td>°Ciştēn</td>
<td>°Ciştēn</td>
<td>°Ciştēn</td>
</tr>
<tr>
<td>3pl.</td>
<td>°Cianzi</td>
<td>°Cier</td>
<td>°Ciandu</td>
</tr>
</tbody>
</table>

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 dātitiţanzi-inflected verbs: penna-/penni- / ūnna-/ūnni- and nanna-/nanni- derive from nai-/ni-/ ‘to lead’ (the first two showing the preverbs pe- and u-, the third one showing reduplication) and uppa-/uppi- derives from pai-/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, -je/a-class inflected forms (printed with underlining).
<table>
<thead>
<tr>
<th>OS</th>
<th>MH</th>
<th>NH</th>
</tr>
</thead>
<tbody>
<tr>
<td>pres.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1sg.</td>
<td>&quot;Ca-ah-ḥē&quot;</td>
<td>&quot;Ca-ah-ḥē&quot;</td>
</tr>
<tr>
<td>2sg.</td>
<td>--</td>
<td>&quot;Ca-at-ti&quot;</td>
</tr>
<tr>
<td>3sg.</td>
<td>&quot;Ca-i&quot;</td>
<td>&quot;Ca-i, Ca-a-i&quot;</td>
</tr>
<tr>
<td>1pl.</td>
<td>&quot;Ci-u-e-ni, &quot;Ca-u-e-ni&quot;</td>
<td>&quot;Ci-iu-e-ni&quot;</td>
</tr>
<tr>
<td>2pl.</td>
<td>--</td>
<td>&quot;Ci-iš-te-ni&quot;</td>
</tr>
<tr>
<td>3pl.</td>
<td>&quot;Ci-an-zi, &quot;Ca-an-zi&quot;</td>
<td>&quot;Ci-ja-an-zi, &quot;Ca-an-zi&quot;</td>
</tr>
<tr>
<td>pret.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1sg.</td>
<td>&quot;Ca-ah-ḥu-un&quot;</td>
<td>&quot;Ca-ah-ḥu-un&quot;</td>
</tr>
<tr>
<td>2sg.</td>
<td>--</td>
<td>&quot;Ci-iš-ta, Ci-eš-ta, Ci-eš&quot;</td>
</tr>
<tr>
<td>3sg.</td>
<td>&quot;Ci-iš, Ci-iš-ta&quot;</td>
<td>&quot;Ci-iš, Ci-iš-ta, &quot;Ca-aš, &quot;Ci-ḥ, &quot;Ci-ja-at&quot;</td>
</tr>
<tr>
<td>1pl.</td>
<td>--</td>
<td>&quot;Ci-u-en, &quot;Cu-me-en, &quot;Ca-u-en&quot;</td>
</tr>
<tr>
<td>2pl.</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>3pl.</td>
<td>&quot;Ci-er&quot;</td>
<td>&quot;Ci-e-er&quot;</td>
</tr>
<tr>
<td>imp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1sg.</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>2sg.</td>
<td>--</td>
<td>&quot;Ci, &quot;Ca&quot;</td>
</tr>
<tr>
<td>3sg.</td>
<td>--</td>
<td>&quot;Ca-a-ṭi, &quot;Ca-at-ta, Ci-iš-du&quot;</td>
</tr>
<tr>
<td>2pl.</td>
<td>--</td>
<td>&quot;Ci-iš-te-en, Ci-eš-te-en&quot;</td>
</tr>
<tr>
<td>3pl.</td>
<td>--</td>
<td>&quot;Ci-an-du&quot;</td>
</tr>
<tr>
<td>part.</td>
<td>--</td>
<td>&quot;Ci-an-t&quot;</td>
</tr>
<tr>
<td>v.n.</td>
<td>--</td>
<td>&quot;Ci-ja-an-t, &quot;Ca-an-t&quot;</td>
</tr>
<tr>
<td>inf.</td>
<td>--</td>
<td>&quot;Ci-ja-an-t, &quot;Ca-an-t&quot;</td>
</tr>
<tr>
<td>impf.</td>
<td>&quot;Ci-iš-ke/a-&quot;</td>
<td>&quot;Ci-iš-ke/a-&quot;</td>
</tr>
</tbody>
</table>

In my view, these two facts clearly indicate that the mēma/i-class consists of verbs that belonged to the dū/tižanzi-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 -je/a-inflected forms can be explained by the fact that dāi/tijanzi-class verbs in NH times as a rule are being taken over into the -je/a-class.

The question then is, of course, why have not all dāi/tijanzi-class verbs been taken over into the tarn(a)-class? Why do e.g. penna/i-, ūrna/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-, ūrna/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:

<table>
<thead>
<tr>
<th></th>
<th>1sg.</th>
<th>2sg.</th>
<th>3sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pebhi</td>
<td>*uppebhi</td>
<td>tarnabhi</td>
</tr>
<tr>
<td></td>
<td>paiti</td>
<td>*uppeaiti</td>
<td>tarnatti</td>
</tr>
<tr>
<td></td>
<td>pāi</td>
<td>uppai</td>
<td>tarnai</td>
</tr>
<tr>
<td>1pl.</td>
<td>pīveni</td>
<td>uppīveni</td>
<td>tarnumeni</td>
</tr>
<tr>
<td>2pl.</td>
<td>pīsteni</td>
<td>uppīsteni</td>
<td>tarništeni</td>
</tr>
<tr>
<td>3pl.</td>
<td>pianzi</td>
<td>uppianzi</td>
<td>tarnanzi</td>
</tr>
</tbody>
</table>

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/tijanzi-verbs in analogy to the tarn(a)-verbs. First, the singular forms were changed (*uppebhi > uppaḥhi, *uppeaiti > uppāti), and then the other forms (uppīveni > uppaqemi, uppīsteni > uppattan, uppianzi > uppaqemi, etc.).

The verbs that inflect according to the mēma/i-class are: āppai- / āppi- to be finished; ḥaliḥla- / ḥaliḥi- ‘to genuflect’ < *h₁li-h₁lioi- / *h₂lii-h₂lii-; līlhuya- / līlhuı- ‘to pour’ < *li-l₁huoy-i- / *li-l₁huui-i; mēma- / mēni- ‘to speak’ < *me-h₁m-oï- / *me-h₁m-i-?; nanna- / nanni- ‘to drive’ < *n₁noih- / *n₁noiH-; parippaři- / parippari- ‘to blow (a horn)’ < *pri-prh₁i-oï- / *pri-prh₁i-i-; penna- / penni- ‘to drive (there)’ < *h₁poit-noiH- / *h₁poi+nihH-; śiśha- / śiśhi- ‘to decide, to appoint’ < *śi-sh₁-oï- / *śi-sh₁-i-; tāšta- / taśti- ‘to load’ < *d₁olph₁-es+d₁h₁-oï- / *d₁olph₁-es+d₁h₁-i-; dālā- / dāli- ‘to let, to leave’ < *d₁lo+lh₁-oï- / *d₁lo+lh₁-i-; titta- / titti- ‘to install, to assign’ < *d₁i-d₁h₁-oï- / *d₁i-d₁h₁-i-; ūnna- / ūnni- ‘to send

Ablautpattern of the IIA-verbs

In all ḫi-verbs that show ablaut, this ablaut can be traced back to the PIE ablaut *o/ō. 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-ı / u-ı- ‘to see’, augmented by forms from īstāp-ı / īstapp- ‘to plug up’, āk-ı / akk- ‘to die’, paī / pi- ‘to give’, ārr-ı / arr- ‘to bathe’ and mēma-ı / 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’.

<table>
<thead>
<tr>
<th></th>
<th>pres.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>u-üb-ḫi</td>
<td>CōC-ḫi</td>
</tr>
<tr>
<td>2sg.</td>
<td>a-ur-ti</td>
<td>CōC-ti</td>
</tr>
<tr>
<td>3sg.</td>
<td>īs-ta-a-pi</td>
<td>CōC-i</td>
</tr>
<tr>
<td>1pl.</td>
<td>u-me-(e-)ni</td>
<td>CC-gēni</td>
</tr>
<tr>
<td>2pl.</td>
<td>uš-te-ni</td>
<td>CC-stēni 274</td>
</tr>
<tr>
<td>3pl.</td>
<td>u-ya-an-zi</td>
<td>CC-ānzi</td>
</tr>
</tbody>
</table>

274 See its own lemma for a treatment of the 2pl.-ending -šten(i).
pret.
1sg.  $u$-$\nu$-$\nu$-$u$n  CoC-$\delta\nu$n  *CoC-$\nu$-$\nu$  vēđa
2sg.  a-$\nu$-$t$  CoC-$\nu$t  *CoC-$\nu$-$\nu$  vēţha
3sg.  a-$\nu$-$k$-$k$-$i$Ş  CoC-$\nu$s  *CoC-$\nu$-$\nu$  vēđa
1pl.  pī-$\nu$-$e$n  CC-$\nu$-e$n$  *CC-$\nu$-e  vidmā
2pl.  --  *CC-$\nu$tn  *CC-$\nu$-$\nu$P ? 276  vīdā
3pl.  pī-$\nu$-$e$-$e$r  CC-$\nu$r  *CC-$\nu$r  vīdūh

imp.
1sg.  ā-$\nu$-$a$-$l$-$l$-u, ā-$\nu$-$\nu$-$\nu$-$e$-$l$-$l$-$a$-$u$t  CC-$\nu$-$\nu$-$\nu$l($\nu$)
2sg.  a-$\nu$, ī-$\nu$-$a$-$a$-$p$i  CoC-$\nu$-$i$
3sg.  ī-$\nu$-$a$-$a$-$p$u  CoC-$\nu$
2pl.  pī-$\nu$-$e$-$e$t-en  CC-$\nu$tn
3pl.  ā-$\nu$-$a$-$n$-$d$u  CC-$\nu$-$\nu$d

part.  ā-$\nu$-$a$-$n$-$t$-$t$  CC-$\nu$-$\nu$t-
  v.n.  ā-$\nu$-$\nu$-$\nu$-$\nu$-$a$t-$t$  CC-$\nu$-$\nu$-$\nu$-$\nu$
  v.n.  gen.sg.  a-$\nu$-$r$-$u$-$a$-$a$Ş  CoC-$\nu$-$\nu$-$\nu$r
inf.I  me-$\nu$-$\nu$-$\nu$-$a$-$n$-$z$i  CC-$\nu$-$\nu$-$\nu$-$z$i
inf.II  ā-$\nu$-$a$-$n$-$n$a  CC-$\nu$-$\nu$-$\nu$n
impl.  ā-$\nu$-$\nu$-$k$-$e$a-$a$  CC-$\nu$-$\nu$-$\nu$k-$\nu$-$\nu$

IIb = non-ablauting hi-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:

275 The form *CoC-$\nu$-$\nu$ is still visible in 3sg.pres.act. CoC-$\nu$-$\nu$ < *CoC-$\nu$-$\nu$. For a treatment of the 3sg.prot.act.-ending -$s$ (*CoC-$\nu$s), see its own lemma.
276 Usually, this ending is reconstructed as *-$\delta$ on the basis of Skt. -$\delta$. See the lemma -$\delta$m($\delta$) as well as Kloekhorst fthc.d, however, for the possibility that Hitt. -$\delta$m together with the PToch. 2pl.prot.-ending *-$\nu$p points to a PIE ending with an element -$s$.
277 Note that the spelling ā-$\nu$-$\nu$-$\nu$-$\nu$-$a$t phonologically stands for $\nu$hādēr < *Hiti-$\nu$-$\nu$-$\nu$-$\nu$-$\nu$r, which contrasts with the spelling y$a$-$\nu$-$\nu$-$\nu$-$\nu$-$a$t ‘water’ that denotes hādēr < *hādr without initial glottal stop.
āns-\textsuperscript{i} ‘to wipe’ originally belonged to an ablauting verb āns- / ḫane/išš- < *h₂ömḥ₂s- / *h₂mḥ₂s-. Both stems formed their own paradigm: āns-\textsuperscript{i} and ḫane/išš-\textsuperscript{ii}.

ḥūrs-\textsuperscript{i} ‘to till the soil’ originally belonged to an ablauting verb ḥūrs-\textsuperscript{i} / *ḥare/išš- < *h₂örh₂-s- / *h₂rḥ₂-s-. After the initial h- of the weak stem spread to the strong stem (which regularly should have yielded *ṛōrs-\textsuperscript{i}), the stem ḥūrs- was generalized.

šāh-\textsuperscript{i} ‘to stuff up’ reflects *soh₂- / *sh₂-. Here the strong stem *soh₂- > šāh- was generalized because the weak stem *sh₂- phonetically yielded *išḥ-, which was too aberrant.

yās-\textsuperscript{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 **uś- as attested in uśinič/wa-w: ‘to put up for sale’. Within the paradigm yās- / **uś- it is likely that the latter stem was eliminated and replaced by yās-, or that it received an anaptyctic vowel, resulting in yaś- (cf. yaśšē/wa-w for a similar scenario).

geyakk-\textsuperscript{i} ‘to demand’ goes back to *ue-uok- / *ue-uk-. Here, too, the strong stem was generalized because the weak stem *ue-uk- phonetically yielded *uūk-, which was too aberrant.

On the other hand, this class consists of the factitives in -āḥh-\textsuperscript{i} (see at its own lemma for a treatment of this suffix):

ālyanzaḥh-\textsuperscript{i} ‘to bewitch’; arayahḥ-\textsuperscript{i} ‘to make free’; armahḥ-\textsuperscript{i} ‘to make pregnant’; ēsharyaḥḥ-\textsuperscript{i} ‘to make blood-red’; ḥahlahḥ-\textsuperscript{i} ‘to make yellow(green)’; ḫantezziāḥḥ-\textsuperscript{i} ‘to make foremost’; ḫoppinahḥ-\textsuperscript{i} ‘to enrich’; ḫattahḥ-\textsuperscript{i} ‘to instruct’; ikunahḥ-\textsuperscript{i} ‘to make cold’; imn(ar)ahḥ-\textsuperscript{i} ‘to make strong’; immarauyahḥ-\textsuperscript{i} ‘to make strong’; išhaššaryahḥ-\textsuperscript{i} ‘to make lordly’; išhiyāḥḥ-\textsuperscript{i} ‘to bind by treaty’; iḍīwaḥḥ-\textsuperscript{i} ‘to treat badly’; kaḷaraḥḥ-\textsuperscript{i} ‘to make inauspicious’; kappiṣahḥ-\textsuperscript{i} ‘to get in a fight’; karmiṣahḥ-\textsuperscript{i} ‘to make angry’; katterahḥ-\textsuperscript{i} ‘to lower’; kunahḥ-\textsuperscript{i} ‘to set aright’; ḫururiṣahḥ-\textsuperscript{i} ‘to wage war on’; kutruṣahḥ-\textsuperscript{i} ‘to summon as witness’; *lāẓziāḥḥ-\textsuperscript{i} ‘to make right’; leliyāḥḥ-\textsuperscript{i} ‘to make haste’; lūriyāḥḥ-\textsuperscript{i} ‘to humiliate’; majantaḥḥ-\textsuperscript{i} ‘to rejuvenate’; manijahḥ-\textsuperscript{i} ‘to distribute’; man(n)i(n)kuṣahḥ-\textsuperscript{i} ‘to approach’; manikuyandahḥ-\textsuperscript{i} ‘to make short’; markiṣṭahḥ-\textsuperscript{i} ‘to take someone by surprise(?)’; marlaḥḥ-\textsuperscript{i} ‘to make foolish(?)’; marṣahḥ-\textsuperscript{i} ‘to desecrate’; meṣṣawandahḥ-\textsuperscript{i} ‘to make old’; miṣriṣahḥ-\textsuperscript{i} ‘to make miṣīrant-’; nakkiṣahḥ-\textsuperscript{i} ‘to become a concern to someone’; *neknaḥḥ-\textsuperscript{i} ‘to regard someone as a brother’; neyāḥḥ-\textsuperscript{i} ‘to renew’; *palṣiṣahḥ-\textsuperscript{i}
'to set on the road'; papraḥḥ-ı ‘to defile’; pararaḥḥ-ı ‘to chase’; pedaššaḥḥ-ı ‘to install’; šakijaḥḥ-ı ‘to give a sign’; šallakariaḥḥ-ı ‘to offend someone through arrogance’; šannapilaḥḥ-ı ‘to empty’; šanezzijahḥḥ-ı ‘to make pleasant’; šanōzzijahḥḥ-ı ‘to make win’; šumumaḥḥ-ı ‘to braid together(?); šuppiaḥḥ-ı ‘to purify’; dankuyaḥḥ-ı ‘to make black’; tarappahḥ-ı ‘?’; taruppiaḥḥ-ı ‘?’; dasuyahḥ-ı ‘to make blind’; tatraḥḥ-ı ‘to incite’; tepayahḥ-ı ‘to make little’; ū(a)kiššarahl-ı ‘to make perfectly’; yašṭaḥḥ-ı ‘to sin’; yašarnaḥḥ-ı ‘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 “ḥi-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 -ēri. 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 difference between these endings, namely *-e = ‘deponent’ and *-te = ‘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 *-e originally belonged to ‘statives’ and the ending *-to to ‘middles’. Falsely e.g. Jasanoff (2003: 51), who merely sees “*-to(ri)” as a modernized form of “*-o(ri)”.

183
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-tó; (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 -jeé/á/(òtò) and (h) middle verbs of other structures, which are probably from secondary origins.

In order to explain the formal peculiarities of the first six categories, 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 > ál in internal syllables (§ 1.4.9.3.a), but > ál 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 -år as well. Result: situation as attested.

IIIa middle verbs of the structure *CéC-o
2.2.3.1 át(i)-ó to be hot’ < *h₁éh₂i-o? (>> aé-ò (NH)); eš-(ò) ‘to sit down’ < *h₁éh₂s-o (>> eš-ò (NH)); hopp-ò ‘to work out’ < *h₂ép-ò (>> hopp-ò (MH)); hatt-
IIIb  middle verbs of the structure *CéC-to

2.2.3.2  harp-mar(i) ‘to change allegiance’ < *h₂erb₃-to; huett-mar(i) ‘to draw, to pull’ < *h₂erb₃-TH-to (OH); kis-mar(i) ‘to have, to occur’ < *kiss-o; klikki-mar(i) ‘to happen, to occur’ < *kūs-o (NH); ne-mar(i) ‘to turn’ < *neʰ₁-to; pahs-mar(i) ‘to protect’ < *pʰēz-s-o > pahs-mar(i) (NH); park-mar(i) ‘to rise’ > parki-mar(i); šalš-mar(i) ‘to touch’ if from *slēiⁿ-o; yeh-mar(i) ‘to turn oneself’ < *uēih₃-o > yeh-mar(i) (MH); zō-mar(i) ‘to cook (intr.)’ < *tiē₁-o.

IIIc  middle verbs of the structure *CC-ó

2.2.3.3  ar-mar(i) ‘to stand’ < *h₂r₃-to; karp-mar(i) ‘to be angry’ < *kṛp-tó (?) > karpi-rela (MH); tarupp-mar(i) ‘to collect oneself’ < *trup-tó.

IIId  middle verbs of the structure *CC-tó

2.2.3.4  ar-mar(i) ‘to stand’ < *h₂r₃-to; karp-mar(i) ‘to be angry’ < *kṛp-tó (?) > karpi-rela (MH); tarupp-mar(i) ‘to collect oneself’ < *trup-tó.

IILe/d middle verbs whose original structure (*CC-ó or *CC-tó) cannot be determined

2.2.3.5  pukk-mar(i) ‘to be hateful’; šar-mar(i) ‘to embroider’ < *sr-(t)-o; šupp-mar(i) ‘to sleep’ < *sup-(t)-ó.

IIIe  impersonally used middle verbs of the structure *CéC-o

2.2.3.6  tilt-mar(i) ‘to thunder’ (preform unclear).

IIIf  impersonally used middle verbs of the structure *CC-ó

2.2.3.7  ištu-mi ‘to be exposed’ < *stu-ör-i; kis-mi ‘to perish’ < *ki₃-mi ‘to fall’ < *ki₃-ör-i; mi-mi ‘to be born’ < *mhi₂-ör-i (?); tukk-mi ‘to be visible’ < *tuk-ör-i; ur-mi ‘to burn’ < *urhi₂-ör-i; yakk-mi ‘to be lacking’ < *uh₂₃-ör-i.

185
IIIg  middle verbs in -ie/(-a)-

2.2.3.8 āši̱ije/a-SD(r) ‘to be loved’; armani̱je/a-TE(r) ‘to become ill’; armali̱je/a-\na(r) ‘to become ill’; ḫali̱je/a-an(r) ‘to kneel down’; ḫandaie/a-an(r) < *handaie/a- ‘to get fixed’; *hašu̱ezzi̱je/a-an(r) ‘to become king’; īe/a-\na(r) ‘to go’; imi̱i̱je/a-\na(r) ‘to mingle’; īša̱hṟje/a-an(r) < *iša̱hṟje/a- ‘to weep’; kari̱je/a-\na(r) ‘to be gracious towards’; kari̱je/a-\na(r) ‘to be angry’; kardimiji̱je/a-\na(r) ‘to be angry’; kišanzi̱je/a-\na(r) ‘to suffer famine’; lāzi̱je/a-\na(r) ‘to be good’; leli̱je/a-\na(r) ‘to infuriate’; marri̱je/a-an(r) ‘to melt down’; naḥšari̱je/a-\na(r) ‘to show respect’; pangari̱je/a-\na(r) ‘to become widespread’; šali̱je/a-\na(r) ‘to melt down’; šari̱je/a-\na(r) ‘to be divided’; yeši̱je/a-\na(r) ‘to pasture’; ūšu̱ri̱je/a-\na(r) 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 because the etymology is unknown). Note that these also include verbs like ḫa̱ni̱a-an(r), marra-an(r) and tarra-an(r), 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-an(r) for an elaboration of this idea).

āša-an(r) ‘to be loved’; ḫai̱(n)k-an(r), ḫinak-an(r) ‘to bow’; ḫa̱ni̱a-an(r) ‘to sue’; ḫini̱k-an(r) ‘to pour’; marra-an(r) ‘to melt down’; šaḻla-an(r) ‘to melt down’; šarra-an(r) ‘to be divided’; šuppia̱ḥ-\na(r) ‘to purify’; damiumma\ḥ-an(r) ‘to change’; tarra-

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 hi-inflected nasal infixed verbs: ḫamank- / ḫame\ink- ‘to tie’, šanma- / šam- ‘to hide’, šumma- / šum- ‘to fill’ and tarma- / tarm- ‘to let (go)’. Because I do not see how these hi-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)-: ḥarnikzi / ḥarninkanzi ‘to make disappear’ from *h₁ern-. ḥunikzi / ḥuninkanzi ‘to bash’ from *h₂eṅg₃-. ḫastnikzi / ḫastñinkanzi ‘to afflict’ from *stérk-. ninikzi / nininkanzi ‘to mobilize’ from *nėik-. and šartnikzi / šartñinkanzi ‘to compensate’ from *sērk-.

2. Verbs with an infix -Vm-: ḥamankzi / ḥameṅñanzi ‘to tie’ from *h₂emg₃- and tamekzi / tameṅñanzi ‘to attach’ from *temk-.

3. Verbs with an infix -nV-.²⁷⁹ āršanezzi / āršananzi ‘to be envious’ from *h₁₃erṣh₁- or *h₁₃resh₁-; āhrnazi / āhranzi ‘to sprinkle’ from *h₂erḥ₂₃- or *h₂erḥ₂-; ḫulnazi / ḫullanzi ‘to smash’ from *h₂uelḥ₁-; kinae-² ‘to (as)sort’ from *kielhr₂-, mnnae-² ‘to hide’ from *mehḥ₃-, šannai / šannanzi ‘to hide’ from *senh₁-; šannai / šannanzi ‘to fill’ from seuḥ₁₃-; tannai / tannanzi ‘to let (go)’ from *terk⁻ḥ₁₃-; duyaṙnizzi / duyaṙnnanzi ‘to break’ from *dʿerḥ₁-; and zinnizzi / zinnanzi ‘to finish’ from *tieh₁-.

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 < *h₁leng₃- (see also § 1.4.7.2.b). This means that e.g. ħarnikzi goes back to ḥarninkzi, ḥunikzi < *huninkzi, and, in type (2), tamekzi < *tamankzi.

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-nège-C-ti / *CR-n-C-énti (e.g. Skt. bhinnáti / bhindánti < *bʰi-nég-d-ti / *bʰi-n-d-énti from the root *bʰi-énti). Indeed, this structure seems to underly the Hittite type (3), e.g. duyaṙnnanzi / duyaṙnnanzi < *dʿur-nég-h₁-ti / *dʿur-n-h₁-énti and šannai / šannanzi < *sn-nég-h₁-ēti / *sn-n-h₁-énti.

The other two types, are less clear regarding their interpretation, however. Type (1) seems to reflect a structure *CR-₃Vm-C-ti / *CR-₃Vm-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-ën-C-ti / *CR-ën-C-énti and *CR-ën-C-ëi / *CR-ën-C-ënti, 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-² < *k₁-nég-h₁-ti / *k₁-n-h₁-énti and mnnae-² < *m₁-nég-h₂₃-ti / *m₁-n-h₂₃-énti form their own sub-category. See at their lemmas for further treatment.
type of verbal root: type (1), *-nim-, is formed of roots of the structure *CeRK- and
*CREK- in which R ≠ *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 *ték-i-ti / *tēk-i-enti and *dēh₁-i-ēr or the original form of the s-presents, *CC-ēs-ti / *CC-s-ēnti,281 it is likely that in (pre-) PIE, the
structure of the n-suffixed verbs was *CRC-ēn-ti / *CRC-n-ēnti and *CRC-ōn-e /
*CRC-n-ēr, 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 *h₁erg-, *temk- and *dʰuerh₁-).

(1) Original situation:

*a₁erg-ēn-ti, *a₁erg-n-ēnti *tmk-ēn-ti, *tmk-n-ēnti *tih₁-ēn-ti, tih₁-n-ēnti

(2) In the forms with *CRC-n- n-epenthesis occurs: the stops preceding -n-
become prenasalized282:

*a₁ergentti, *a₁erggnenti *tmkentti, *tmkknenti *tih₁entti, *tih₁nenti

(3) The prenasalized stop of the plural spreads throughout the paradigm:

*a₁ergenti, *a₁erggnenti *tmkenenti, *tmkknenenti *tih₁nenenti, *tih₁nentti

(4) The cluster *-"CN- is simplified to -"C-:

*a₁ergenti, *a₁erggnenti *tmkenenti, *tmkkntenenti *tih₁ntenenti, *tih₁ntenenti

(5) Under pressure of the plural forms, which seem to contain a root *CRCnC-, the
singular stem *CRCnC- metathesizes to *CRCnC-:

282 Cf. Thurneysen 1883 for the Latin phenomena that can be explained by prenasalization (the
mediae found in Lat. para� < *pēth-, ping� < *pēth-, ġ-munγγ < *meuk-, man� < *mēth- etc.), and
cf. Kortlandt 1979: 61 for prenasalization in e.g. the BSL. stem *tünk- ‘water’ < *tuk-n-.

188
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-iti / *CR-n-C-énti:

\[ *h.rnégętį, *h.rnęgęntį *tnęękęti, *tmnkęntį *tinęhętį, *tinęhęntį \]

In Anatolian, the following developments take place:

(6b) The laryngeals lose their nasalization, and the cluster *Cmne- is assimilated to *Cme-:

\[ *h.rnęgęntį, *h.rngęntį *tmęękęti, *tmnkęntį *tinęhętį, *tinęhęntį \]

(7) The nasalization of the velars develops into a real nasal consonant:

\[ *h.rnęngętį, *h.rngęntį *tmęękęti, *tmnkęntį *tinęhętį, *tinęhęntį \]

(8) On the basis of the full grade stem *CRnenK- in type (1), the zero grade stem *CRnK- is altered to *CRnmK-

\[ *h.rnęngętį, *h.rngęntį *tmęękęti, *tmnkęntį *tinęhętį, *tinęhęntį \]

(9) In the sequence *CNNC an anaptyctic /i/ develops:

\[ *h.rnęngętį, *h.rningęntį *tmęękęti, *tmnkęntį *tinęhętį, *tinęhęntį \]

(10) *-nenK- \> *-ninK-

\[ *h.rningętį, *h.rningęntį *tmęękęti, *tmnkęntį *tinęhętį, *tinęhęntį \]

(11) *e/lnCC \> *e/iCC

\[ ĥarnikši, ĥarninkanzi tamekši, tame/inkanzi zinizzi, zimnanzi /Hrniktši, Hrninkántš Fi /tmešši, tmünkantš/ /tšNšši, tšNántš/ \]