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Chapter 28

Hittite Phonology

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28.1. Introduction

Hittite was the chief administrative language of the Hittite Empire. It is attested in extensive cuneiform documents dating from the middle of the sixteenth to the end of the thirteenth century B.C.E. With one notable exception (see Otten 1988), these texts are inscribed on baked clay tablets. Most of these tablets were discovered at the ancient Hittite capital of Hattusha (modern Boğazköy, now Boğazkale) in the central Anatolian plateau. However, there have also been important finds at Maşat Hüyük to the northeast and at Ugarit (Ras Shamra) on the coast of Syria. A set of Hittite texts found very recently at Ortaköy near Çorum has yet to be evaluated.

The content of the Hittite texts is quite varied. While the great majority deals with aspects of the state religion (cultic administration and practice and related myths), we also have annals and treaties, a set of legal precepts, hippological texts, rituals for personal and general use, and more (see Laroche 1971 for an overview).

The last quarter-century has seen great progress in our ability to assign a relative chronology to Hittite texts and manuscripts, and we may now distinguish three successive synchronic stages: Old, Middle, and Neo-Hittite. However, changes in the phonology in the historical period are few, and the phonological system described below may be taken as valid for all stages of the language, except where noted.

Hittite is a member of the Anatolian branch of the Indo-European family. It is thus most closely related to Luvian, Palaic, Lycian, and Lydian (attested in the second and first millennia B.C.E.) and more distantly to well-known groups such as Germanic, Italic, Slavic, and so forth. For a brief survey of comparative aspects of Hittite see Melchert 1995. In what follows I will take

AUTHOR'S NOTE: In italic cited forms, - joins transliterations of individual cuneiform signs. Acute and grave accents serve only to differentiate homophonous signs. Within square brackets or slants, . indicates syllable boundary, - indicates morpheme boundary, = indicates clitic boundary.

historical factors into account only to the extent that they help illuminate the synchronic picture of the language.

The sociolinguistic situation of the Hittite Empire was complex, and the status of the language we call Hittite as a spoken medium in the Empire at various places and times is quite indeterminate. There is some plausibility to the oft-repeated claim that the Hittite we have is a "chancellery" language for written bureaucratic use, while Luvian was the principal spoken language of the "Hittite" Empire. However, this proposal must be regarded as far from proven. In any case, I see no reason to doubt that Hittite was once a real spoken language like any other.

28.2. Writing system and orthography

The cuneiform script in which Hittite is written was borrowed from Mesopotamia, where it was employed to write (Semitic) Akkadian and earlier, of course, Sumerian. The shapes of the signs and other features of Hittite usage suggest that the system was not adopted directly from Assyrian trading colonies in central Anatolia, but passed on through a North Syrian intermediary (Gamkrelidze 1961: 414ff.). It is possible, but by no means assured, that we may identify the Hurrians as this intermediary (see below on the orthography of stops).

As employed by the Hittites, the cuneiform script is a mixed logographic-syllabic system. Some signs function as Sumerograms or Akkadograms, indicating the meaning, but not the phonetic shape, of the underlying Hittite word. One also finds such logograms with "phonetic complements," where the grammatical endings are spelled out phonetically. Finally, many words are written entirely phonetically. Obviously, these must be the basis for our analysis of Hittite phonology.

The phonetic component of the cuneiform script is a syllabary, with signs for V, CV, VC, and CVC. The script may thus unambiguously indicate word-final consonants, but initial or final clusters or internal clusters of more than two consonants can be represented only by the use of "empty" vowels which are not to be read: e.g. *kar-(a)p-ta* = /karpta/. Obviously, for us non-native speakers, determining just which graphic vowels are to be ignored is a difficult task. There are some clues suggesting that a given written vowel is not linguistically real: (1) alternate spellings with and without a vowel or with different vowels (*ki-iš-ri-it, ki-iš-ša-ri-it, ki-iš-še-ri-it* = [kis.srid]; (2) alternate spellings with the vowel before and after a consonant (*ki-iš-šar-ta* and *ki-iš-šar-at* = /kis.sard/); (3) "broken" spellings with (C)VC-VC (*kar-ap-ta* = /karpta/ above). The last argument is based on the observation that the Hittites normally spell /VCV/ sequences (C)V-CV, not VC-V (/karapta/ would be spelled *ka-ra-ap-ta*). However, none of these devices is used consistently, and scholars differ sharply on the interpretation of many individual cases.

Readers should also note that the syllabary does not indicate the voicing quality of stops in VC signs: there is thus a single sign for respectively /ab/ and /ap/, /ad/ and /at/, /ag/ and /ak/, and so on.

The Akkadian syllabary distinguishes /i/ and /e/, but is deficient in Ce and eC signs. For many combinations, a single sign serves for both vowels: thus *li* = /li/ and /le/, *ir* = /ir/ and /er/. The quality of the vowel may be disambiguated by adding a preceding or following V sign (so-called "*scriptio plena*"): *le-e* = /le:/ or *e-er* = /e:r/ vs. *li-i* = /li:/ and *i-ir* = /i:r/. However, as indicated below, the principal function of the *scriptio plena* is to indicate vowel length. This device is thus not available to distinguish short /i/ from /e/, and its use even for long vowels is optional. This widespread ambiguity in the matter of *e*- and *i*-spellings causes serious problems in determining the synchronic status of /e/ and /i/.

The syllabary has signs for /ya/ and /wa/: *ta-a-ya-* = /ta:ya-/, *ne-e-wa-* = /ne:wa-/. Other sequences of glide plus vowel must be spelled using the vowel signs *i* and *u/ú* or C*i* and C*u*: *i-e-mi* = /ye:mi/, *na-a-ú-i* = /na:wi/, *a-ni-e-* = /anye-/, *tu-e-el* = /twe:l/. Two serious problems arise in spelling glides. First, the use of *wa* and *ya* is extended from postvocalic to postconsonantal position; i.e. /Cwa/ and /Cya/ are spelled C*u-wa-a*C and C*i-ya-a*C, as well as expected C*u-a*C and C*i-a*C: *ḫa-at-ta-lu-wa-* and *ḫa-at-tal-wa-* = /ĥatalwa-/, *ti-(ya)-an-zi* = /tyantsi/. However, in a given case it is often impossible to prove that C*u-wa* and C*i-ya* do not spell real disyllabic /Cuwa/ and /Ciya/ instead. Second, in the case of an ambiguous C*i/e* sign (see previous paragraph), it is hard to know whether to read C*i-e* as C*e-e* (/Ce:/) or as /Cye/ (cf. *li-e* = *le-e* /le:/ but *ḫu-la-a-li-e-* = /ĥula:lye-/). For details see Melchert 1984: 83ff.

It is self-evident that analysis of the phonology of an ancient language available only in written records depends crucially on one's interpretation of the orthography. The preceding remarks are intended to give readers some idea of the indeterminacies we face. It will be most efficient to discuss further specific problems in connection with defining the phonemic inventory. In the following phonological sketch, I will try to distinguish between those aspects on which there is fairly general agreement and those which remain controversial.

28.3. Segmental phonology

The standard transliteration of Hittite merely mimics the conventional values assigned for Akkadian and has no independent status. In attempting to define Hittite phonemes we may reasonably use all means at our disposal: internal features of the system (particularly any alternations), etymology, the treatment of Hittite names or loanwords in foreign sources, and conversely the appearance of foreign names or loanwords in Hittite. Internal factors will be treated below. Etymological considerations are of limited value for two reasons: (1) the fact that Hittite itself is part of the basis for the reconstructed systems of Common Anatolian and Proto-Indo-European makes conclusions from the latter to some extent circular; (2) we cannot in principle control for sound changes from the reconstructed pre-stages to Hittite.

Most of the languages with which Hittite comes in contact are also written in cuneiform or systems derived from cuneiform. This fact obviously robs equivalencies between them and Hittite of any probative value. Renderings of Hittite names in Egyptian hieroglyphs do confirm the basic values of many Hittite consonants: e.g. *Muršili-* /mursi:li-/ = *mrsr*, *Zalḫi-* /tsalhi-/ = *trḥ* (see further examples in Edel 1973). For vowels we must resort to spellings in the Greek alphabet of Luvian, Lycian and Lydian words which have cognates in Hittite. The weakness here is that such evidence is not only indirect, but also nearly a millennium later than Hittite. Available testimony suggests that the phonetic values implied by the symbols chosen below are broadly correct, but readers should bear in mind the approximative nature of these values. As usual in the case of a written language, we can for the most part only recover the phonemic contrasts, not the phonetic details.

28.3.1. Consonants

See Table 28-1.

28.3.1.1. Stops

As to point of articulation, only the labiovelars call for any special comment. Evidence for unitary labiovelars comes from the lexeme /e:g^{w}-/ 'drink' (Lindeman 1965): (1) occasional spellings of the stem as *e-uk-* beside usual *e-ku-* suggest that the labial articulation is simultaneous with the velar closure; (2) the first plural present is *akweni* = [agweni], implying underlying /ag^{w}-weni/ and unrounding of the labiovelar before /w/ (underlying */agw-weni/ would lead to [aguweni] and then *[agumeni], as per § 28.5.3); (3) preterite third singular *ekutta* implies [e:g^{w}ta] with final prop-vowel after two consonants (from */e:gwt/ we would predict **ekut* = [e:gud]). For an argument that /k^{w}/ and /g^{w}/ had become [ku] and [gu] before consonant in Neo-Hittite see Oettinger 1979: 237.

Table 28-1. Hittite Consonants

	Labial	Dental	Velar	Labiovelar	Pharyngeal
Stops					
Fortis	/p/	/t/	/k/	/k^{w}/	
Lenis	/b/	/d/	/g/	/g^{w}/	
Affricate		/ts/			
Fricatives					
Fortis					/ḥ/
Lenis		/s/			/ʕ/
Liquids		/r/, /l/			
Nasals	/m/	/n/			

The synchronic manner of articulation of the Hittite stops is perhaps the most disputed aspect of all Hittite phonology. A full discussion is not possible here, and the solution I offer below is necessarily tentative and does not reflect a consensus. Certain facts do seem clear. The Hittite scribes do not use the Akkadian CV signs with voiceless and voiced stops in a consistent contrastive manner, in either initial or medial position. While some words are spelled consistently with voiceless or voiced stop signs, the voicing quality does not correspond regularly to expected etymological values, nor can the distribution be accounted for by any linguistically plausible set of sound changes. There are also many instances of alternate spellings: *ka/ga-ne-eš-* 'recognize', *ta/da-a-an* 'twice', *pé-ta/da-an* 'place', *ki/gi-(i)-nu-* 'break open', etc.

On the other hand, there can no longer be any doubt of the validity of the synchronic portion of so-called "Sturtevant's Law" (Sturtevant 1932). There is a phonemic contrast intervocalically between single stops (spelled with voiceless or voiced stops) and geminate stops: *a-pa-* 'that' vs. *a-ap-pa* 'back-(ward), again', *na-ta/da-* 'reed, arrow' vs. *na-at-ta* 'not', *še-kán* 'cubit' vs. *še-ek-kán-za* 'known', etc. The diachronic aspect of the "Law" has now also been vindicated: most geminate intervocalic stops reflect etymological voiceless stops, while single intervocalic stops continue prehistorical voiced stops. Well-established conditioned sound changes of Common Anatolian now

account for nearly all exceptions (see Eichner 1973: 79ff., 100 n. 86; Melchert in press a with refs.). It is noteworthy that Hurrian documents in cuneiform show the same phonemic contrast between intervocalic geminate and simple stops, which equates to a contrast of voiceless and voiced stops in an alphabetic system (see Laroche 1976: 22 with refs.).

Diachronic evidence involving vowel lengthening suggests that the orthographic geminate stops are true geminates (or long), in that they close a preceding syllable (Melchert in press b). Along with other scholars (e.g., Petersen 1933: 22), I therefore conclude that Hittite has reanalyzed the inherited voiceless/voiced contrast in stops as one of fortis/lenis. A contributing factor to this reanalysis is the likelihood that Hittite has generalized voiceless (i.e. fortis) stops in word-initial position and voiced (lenis) stops in word-final position. For the former, note *ti-tti-* 'install' < PIE **d^{h}eh$_1$-* 'place, put', where the unexpected intervocalic *-tt-* is most easily explained as due to a pre-Hittite reduplication **after** devoicing of the initial stop. Generalization of voicing in final stops is shown by preterite third singular *pait=aš* 'went he' (note single intervocalic *-t-*!) < **-t*. This change, which is already Common Anatolian, is comparable to that in Old Latin (Meillet & Vendryes 1968: 146f.). These neutralizations in initial and final position would have greatly reduced the "functional load" of voicing, and in the chief remaining position of contrast, the phonetic difference had become geminate (voiceless) vs. simple (voiced). A reanalysis does not seem farfetched under these circumstances and seems to best explain the attested orthographic practices. I here use the ordinary symbols for voiced stops for the lenis series for convenience. If the above analysis is correct, there would have been no voicing contrast in stops, and undoubtedly the lenis stops were phonetically voiced under favorable conditions.

28.3.1.2. Affricate

Hittite has a phoneme conventionally transliterated *z*. Since this sound is spelled with the same set of signs as a sequence of /t+s/, the most economical solution is to assume a voiceless (fortis) dental affricate /ts/. In all clear cases [ts] results from assibilation of **t* before **y* and **i*. Analogical processes make the conditioned allophone phonemic: *āšzi* /a:stsi/ 'remains' vs. *pargašti* /pargasti/ 'height' (see Joseph 1984 for details). Since there is no contrasting lenis or voiced phoneme, /ts/ is spelled indifferently as single or geminate intervocalically. The phonetic realization is undoubtedly [Vts.sV]: see § 28.5.2. For rare cases of /t+s+ts/ see § 28.5.1.

28.3.1.3. Fricatives

Hittite has a single sibilant. Its conventional transliteration as *š* is no evidence for a palatal or palatalized articulation, as noted by Hart 1983: 104ff. Egyptian spelling of Hittite confirms a dental: *Muršili-* /mursi:li-/ = *mrsr*; *Ḫattušili-* /ħatusi:li-/ = *ḥtsr* (Friedrich 1960: 32; see also the examples in Edel 1973). Hittite /s/ is underlyingly simple: for synchronic gemination see §§ 28.5.2, 28.5.10. There are also some biphonemic sequences of /s+s/ resulting from prehistoric assimilations.

We turn next to the famous Hittite "laryngeal(s)." Contrary to some claims, there is clearly a synchronic phonemic contrast between orthographic *-ḫḫ-* and *-ḫ-* intervocalically: *šaḫḫan* 'feudal service' vs. *šāḫan* 'clogged'. Transcriptional evidence suggests that the contrast is one of voicing: the city name *Ḫattuša-* appears in Ugaritic as *Ḫt*, but *tarḫuntašša-* 'of the Storm-god' as *trġ(n)ds* (see Starke 1990: 144 and compare the Egyptian examples in Edel 1973). In general, however, the geminate and simple variants are determined by the same prehistoric rules which govern voiceless and voiced stops (references in § 28.3.1.1). I therefore assume in parallelism to the stops a voiceless fortis fricative which is generalized word-initially and realized as a geminate intervocalically, and a lenis fricative which is probably indifferently voiceless or voiced intervocalically. I emphasize, however, that a voiceless/voiced contrast is quite possible.

I follow Keiler (1970: 89ff.) in assuming that PIE **h$_2$*, the principal source of Hittite *-ḫḫ-* and *-ḫ-*, was a pharyngeal fricative. In the absence of any compelling counterevidence, I assume the same point of articulation for Hittite, hence contrasting fortis and lenis pharyngeal fricatives for which I again use the voiceless/voiced symbols merely for convenience: *šaḫḫan* = /saħan/ vs. *šāḫan* = /sa:ʕan/. However, the corresponding phonemes in Lycian, x and g, apparently represent back velar or uvular voiceless stop [k/q] and voiced fricative [ɣ/ʁ] respectively. A similar shift in articulation in Hittite obviously cannot be excluded.

28.3.1.4. Liquids and nasals

All sonorants are simple. I interpret all occurring geminates as biphonemic sequences, whether these result from prehistoric or synchronic assimilation (for a case of the latter see § 28.5.10). One should note the absence of word-initial /r/. I list /r/ as dental by convention. There is a single case of apparent confusion of /r/ with /h/ (*waḫnu-* 'turn' for *warnu-* 'burn'). This raises the possibility that Hittite /r/ is uvular (cf. Kronasser 1966: 70).

28.3.2. *Vowels*

/i/, /i:/ /u/, /u:/

/ẹ/(?)

/e/, /e:/ /a/, /a:/

It is clear that Hittite has at least four distinct vowel phonemes: /i/, /e/, /a/, and /u/. The status of the first three has never been in doubt: compare *ḫarkun* 'I perished', *ḫargan* 'destruction' (acc. sg.), *ḫarkin* 'bright' (anim. acc. sg.), respectively /ħargun/, /ħargan/, /ħargin/. For the contrast of /i/ and /e/ at all periods see Melchert 1984: 78–156 and compare *ēd* 'eat!' vs. *īt* 'go!', /e:d/ vs. /i:d/. The phonetic realization of /i/, /u/, and /a/ is not likely to be far removed from that implied by those symbols. For various reasons, our control of the sound represented by /e/ is far less certain, and [e], [ɛ], or [æ], or some combination of these, is quite possible.

There is no merit to the claim that Hittite has an /o:/ phoneme distinct from /u:/. The signs *u* and *ú* are both used to spell /u(:)/: see Kronasser 1966: 19 and Melchert in press b contra Hart 1983: 124ff. et al.

After much controversy, there is now widespread agreement that the principal function of "*scriptio plena*" (reinforcing a CV or VC sign with corresponding V sign) is to mark phonemic vowel length in Hittite: *a-ap-pa* = /a:pa/ 'back(ward), again' but *at-ta-* = /ata-/ 'father' (see Kimball 1983 passim, Oettinger 1979: 233, Eichner 1980: 154 n. 77, and Melchert in press b). For reasons discussed below in §§ 28.4, 28.5.5–6, I take most phonetic long vowels to be underlyingly short. The phonemic long vowels listed above are thus all relatively rare.

It is uncertain whether we should assume a close /ẹ/ distinct from ordinary /e/. I made this claim in Melchert 1984: 141ff., based on several conditioned prehistoric changes and an apparent incipient merger of /ẹ/, but not /e/, with /i/ in late Neo-Hittite. The evidence remains slim, though not yet contradicted.

Hittite has a bilabial glide /w/ and palatal glide /y/. The synchronic rules involving /w/ cited in § 28.5.3–4 suggest that the glides should be regarded as underlying phonemes, not variants of /u/ and /i/.

28.4. Accent

Our knowledge of the Hittite accent is predictably meager. Prehistoric changes involving the voicing or "lenition" of stops (Eichner 1973, Melchert in press a, with refs.) and lengthening of vowels (Kimball 1983, Eichner 1986: 13, Melchert in press b) would seem to suggest a stress or "ictus" accent. Since some of the rules lengthening vowels remain as living synchronic rules, we may reasonably attribute stress to the attested language. That accented syllables are also higher in pitch than unaccented syllables is likely.

28.5. Synchronic rules

The concept of synchronic phonological rules is relatively new to the study of ancient written languages such as Hittite. The following summary should be regarded as a tentative first step.

28.5.1. *s-Epenthesis*

An underlying sequence of dental stop plus dental stop or affricate is broken up by an inserted [s]: cf. present 1st pers. sg. /'e:d.mi/ > ['e:d.mi] vs. imperative 2nd pers. pl. /'e:d.ten/ > ['e:ts.ten] > ['e:ts.sten] spelled *ēz(zaš)ten* (see § 28.5.2 for the last step) and present 3rd pers. sg. /'e:d.tsi/ > ['e:ts.tsi] spelled *ēzza(z)zi*. Remarkably, this rule is a survival from Proto-Indo-European (see Mayrhofer 1986: 110ff.), which is also attested in Luvian. It is possible that the rule is finally lost by Neo-Hittite due to paradigm leveling, but compelling evidence for this is lacking.

28.5.2. *s-Gemination*

Underlying /s/ is geminated next to another consonant at syllable boundary. As suggested by Bernabé Pajares (1973: 445ff.), this is most plausibly interpreted as spreading of the /s/ across the syllable boundary. The clearest examples are next to sonorants: cf. /sas-/ 'sleep' in pres. 3rd pl. *šašanzi* [sa.'santsi] vs. *šaš(ša)nu-* [sas.'snu-] 'cause to sleep'; conversely /kars-/ 'cut' in *kar(aš)šanzi* [kars.'santsi]. For an example next to an obstruent note *ekušši* 'you drink' = ['e:g^{w}s.si] < /'e:g^{w}.si/. Spellings like *e-ez-za-aš-te-en* beside *e-ez-(za)-te-en* suggest that the same rule applies to the epenthetic [s] of the rule in § 28.5.1.

28.5.3. *w-Dissimilation*

/w/ is dissimilated to [m] before or after /u/: anim. acc. pl. /pargaw-us/ > [pargamus], pres. 1st pl. /arnu-weni/ > [arnumeni] (Kammenhuber 1969: 137, Melchert 1984: 22ff.).

28.5.4. *w-Insertion*

Contrary to earlier claims (Melchert 1984: 29, Kimball 1983: 481ff., et al.), I now believe that spellings like *šu-ú-u* 'full' and *mi-(i)-ú-uš* 'gentle' represent

['su:.wu] and ['mi:.wus], with a sequence [wu] formed historically after the dissimilation rule in § 28.5.3 (due to loss of intervocalic *y and "laryngeals"). If this is true, then we must assume synchronic underlying forms with a hiatus, which is filled next to /u/ with [w]: /'su.u/ > ['su.wu], /'su.a.wus/ > ['su.a.mus] > ['su:.wa.mus], /'mi.us/ > ['mi:.wus]. I cannot pursue the details here, but a synchronic morphological analysis of roots /'su-/ and /'mi-/ plus adjective-forming suffix /-u-, -aw-/ plus case endings seems quite justifiable on independent structural grounds. Note that the preceding dissimilation rule in § 28.5.3 must also apply synchronically before the hiatus-filling rule.

28.5.5. Accent shift with clitic

There is limited evidence for a rightward shift of the accent when a clitic is added: cf. usual *kuitman* 'until' = ['kwid.man] < /'kwid.man/ vs. *kuitmān=aš* 'until he' = [kwid.'ma:.nas] < /kwid.'ma.nas/. The shift in accent is proven by the lengthening of the /a/ in accented open syllable in *kuitmān=aš* vs. *kuitman*, where the /a/ is unaccented (see § 28.5.7). I concede that we do not find orthographic evidence for this rule as frequently as we would expect, but I believe there are enough examples to show that it is real. This accent shift is, of course, reminiscent of that in Latin with enclitics such as *-que*: *uirum* = ['wi.rum] vs. *uirum=que* = [wi.'rumkwe]: see Meillet & Vendryes 1968: 128.

28.5.6. Accent shift in yes/no questions

As per Watkins 1982, at least one means of marking yes/no questions appears to consist of lengthening the final syllable of the sentence (perhaps also with raising of the pitch): cf. *ḫar-te-ni-i* 'Do you (pl.) keep?' vs. usual *ḫar-te-e-ni* 'you (pl.) keep'. Note that in the interrogative form not only is the final /i/ lengthened, but the normally long [e:] of the preceding syllable is shortened. This fact argues that both vowels are underlyingly short, being lengthened under the accent in an open syllable. In yes/no questions the normal word accent of the final word is overridden by a rule which accents the sentence-final syllable: regular /ħar.'te.ni/ > [ħar.'te:.ni] vs. interrogative /ħar.te.'ni/ > [ħar.te.'ni:].

28.5.7. Vowel lengthening in accented open syllables

For this rule as a prehistoric change in Hittite see Kimball 1983 passim and Eichner 1986: 13. For its status as a synchronic rule see §§ 28.5.5 and 28.5.6.

28.5.8. Vowel length in closed syllables

Here the relationship between synchronic and diachronic processes is complex. Historically, unaccented inherited long vowels were shortened (Eichner 1986: 13), but new cases of unaccented long [e:] were created. Accented short */o/ and */e/ were lengthened in closed syllables, but */a/, */i/, and */u/ were not (Melchert in press b contra Kimball 1983).

The result is that for /a/ we have synchronic alternations between accented [a:] and unaccented [a]: *ār-ti* 'you arrive' = ['a:r.ti] vs. participle *ar-ānza* 'arrived' = [a.'ra:nts]. We cannot have a synchronic rule lengthening short [a] in an accented closed syllable, because we find short [a] in this environment: *arḫa* 'away' = ['ar.ħa] (note that if the second syllable were accented, the word would have to be **arḫā* [ar.'ħa:] by § 28.5.7). However, I know of no sure cases of unaccented long [a:]. We may therefore suppose underlying long /a:/ in morphemes such as /a:r-/ 'arrive' and assume that /a:/ is shortened when unaccented.

For /e/ there are also a very few examples of synchronic alternation of accented [e:] and unaccented [e]: preterite 3rd pl. ending [-'e:r] vs. [-er]. Recall that there are also cases of unaccented long [e:]: animate nom. pl. ending [-e:s]. We therefore cannot have a shortening of unaccented /e:/ as we assumed for /a:/. For the few morphemes with alternating [e:/e] we can only assume underlying short /e/ and lengthening under the accent in closed syllable (the historical rule in this case). For the large number of accented long [e:] in closed syllables which do not alternate with short [e], one can either assume underlying short /e/ and application of the above rule or simply underlying /e:/.

28.5.9. Anaptyxis in initial clusters(?)

This rule is far from assured, but alternate spellings such as *ga-ra-a-pí* and *gi-ri-pa-an-zi* 'devour' suggest that the first vowel of this stem is "empty", with underlying /kr-/ (see § 28.2). When we then also find occasionally *ga-a-ra-pí*, I see no alternative but to suppose that at least for some speakers there is a synchronic anaptyxis in initial clusters of velar plus liquid: /'kra.bi/ > ['ka.ra.bi] > ['ka:.ra.bi] (by § 28.5.7). That the anaptyctic vowel draws the accent is not surprising, since this also takes place in prehistoric anaptyxis in similar clusters: cf. **trí-* 'three' > *tēri-* (synchronic underlying /'te.ri-/ > ['te:.ri-] again by § 28.5.7). It is likely that the synchronic anaptyxis seen in *gārapi* also occurs in initial clusters of /sr-/ and /sl-/: cf. *šālig-* beside *šalīg-* 'accost' and *šārap-* beside *šara/ip-* 'sip'.

28.5.10. Assimilation of /n/ *before clitic boundary*

In Old Hittite, word-final /-n/ assimilates to the initial /s-/ or /m-/ of a following enclitic: *na-aš-ša-an* = [nas.san] for /n=an=san/ (conjunction plus 'him' plus particle); *ma-a-am-ma-an* = ['ma:m=man] < /'ma:n=man/ ('if' plus irrealis marker). While a thorough study has yet to be made, we seem to find only *na-an-ša-an* and *ma-a-an-ma-an* in Neo-Hittite. It cannot yet be determined whether this reflects loss of the rule or merely "morphophonemic" spellings.

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