



CaR vs. Ca-aR spellings in Hittite: evidence for a phonemic distinction between /ə/ and /a/

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Abstract: Inspired by earlier work on the distribution between the sign *kán* and the sign sequences *k/g/qa-an* in Hittite texts (Frotscher forthcoming), this article investigates the Hittite usage of three more cuneiform signs of the structure *CaR* (*pár*, *hal* and *tar*) vis-à-vis their corresponding *Ca-aR* spellings (*pa-ar*, *ha-al*, *t/da-ar*). It is argued that the distribution between *CaR* and *Ca-aR* spellings is not random, but etymologically determined: consistent spelling with *CaR* reflects PIE **CṚ* and **CeR[C]*, whereas alternation between *CaR* and *Ca-aR* reflects PIE **CoR*. This is interpreted as evidence for a synchronic phonetic / phonemic distinction between the two types of spelling: consistent *CaR* renders the vowel /ə/, whereas alternation between *CaR* and *Ca-aR* denotes the vowel /a/.

Keywords: Hittite, cuneiform script, phonology, Indo-European

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1. Introduction¹

The cuneiform script that is used to write Hittite is a syllabic writing system that contains signs of the structure *V* (*a*, *i*, *e*, etc.), *CV* (*la*, *mi*, *ku*, etc.), *VC* (*ak*, *ir*, *uš*, etc.) and *CVC* (*tar*, *liš*, *kur*, etc.). The number of signs of the latter category is limited, however: there are many syllables for which no *CVC* sign exists. In such cases, these syllables can only be spelled *CV-VC*: e.g. /nas/ ‘and (s)he’ can only be spelled *na-aš* because no sign ***naš* exists in the Hittite version of the cuneiform script. Syllables for which a *CVC*-sign is available are often spelled *CVC*, but not always: for instance, we find the word ‘he sprinkles’ being spelled both *pa-ap-pár-ši* and *pa-ap-pa-ar-ši*, where the *CVC* spelling *pár* alternates with the *CV-VC* spelling *pa-ar*. It is usually assumed that in such words the *CVC* and *CV-VC* spellings are fully equivalent to each other, and both *pa-ap-pár-ši* and *pa-ap-pa-ar-ši* are in bound transcription therefore rendered as *papparsi* and phonologically interpreted as /paparsi/.

¹ The basic concept of this article was developed by Alwin Kloekhorst, who is also responsible for the majority of the text. Substantial parts of the article, especially regarding the treatments of *hal* vs. *ha-al* and *tar* vs. *t/da-ar*, have been taken over and adapted from Erik Mens’s 2020 BA thesis (Mens 2020, supervised by Kloekhorst). In our phonological interpretation of Hittite, we adhere to the view that Hittite knew a length opposition in its consonant system (e.g. /t/ vs. /t/, cf. Kloekhorst 2021), possessed ejectives (e.g. /t’/), cf. Kloekhorst 2010, 202–207; 2013, 127–131 and 2020), and contained the vowel /ɪ/, spelled *e/i* (cf. Kloekhorst 2014b, 60–64).

The idea that CVC and CV-VC spellings are fully equivalent of each other was challenged by Tremblay,² however, who states that CVC-signs represent “extra-short vowels, *jers* or *schwas*”, i.e. $CaC = [CəC]$, $CiC = [CɛC]$, $CuC = [CɯC]$. His reasoning is partly graphic, partly etymological. For instance, he points out that some CVC signs “do not alternate with any other sign in some words”, giving *ḫar-ni-ik-* ‘destroy’, *pár-ta-a-u-ḫa-ar* ‘wing’, etc. as examples, which indeed are never attested with the spellings ***ḫa-ar-ni-ik-* and ***pa-ar-ta-a-u-ḫa-ar*. However, the consistent presence of CVC-spellings in these words could in principle be explained by the fact that the CVC signs *ḫar* (𐎲) and *pár* (𐎶) are graphically more simple than the CV-VC sequences *ḫa-ar* (𐎲𐎶) and *pa-ar* (𐎶𐎶), so that it would be more economical for a scribe to use the CVC sign than the CV-VC spelling. Another graphic argument given by Tremblay is that CVC spellings “almost never [alternate] with *scriptio plena*”. He exemplifies this with the word for ‘(goddess of the) earth’, which is spelled *da-ga-an-zi-p°* as well as *ta-ga-a-an-zi-p°*, but never ***da-gán-zi-p°*. This distribution is certainly interesting, but on its own not enough to prove Tremblay’s interpretation of the CVC signs as denoting a different type of vowel than corresponding CV-VC spellings. As far as we are aware, no one has therefore taken his claim seriously.

Nevertheless, Tremblay’s assertion that some words seem to show some kind of distribution regarding CVC and CV-VC-spellings matches an observation made by Kloekhorst³ in a footnote regarding the relationship between signs of the value *CaC* and their corresponding *Ca-aC* sequence. There it was noted that, for instance, the verb *ḫal-zai-* ‘to call’ is always spelled *ḫal-z°* but never ***ḫa-al-z°*, whereas the noun *ḫāḫḫal-* ‘greenery’ is spelled both *ḫa-aḫ-ḫal(-)* as well as *ḫa(-a)ḫ-ḫa-al(-)*. Although the possibility is mentioned that such a spelling difference may be phonologically relevant, on that occasion this idea was not pursued any further.

The first scholar to give a systematic treatment of a specific CVC sign and its corresponding CV-VC spelling is Michael Frotscher, who in a forthcoming article discusses the usage of the sign *kán* vs. the sign combinations *ka-an*, *ga-an* and *qa-an* in the spelling of inflected forms of verbs with a root-final *k* (also thematic verbs in *-ke/a-*, including imperfectives in *-ške/a-*).⁴ His results are spectacular. He convincingly shows that finite forms (3pl. pres. act. *-kanzi*, 3pl. imp. act. *-kantu*, 3pl. pres. midd. *-kanta(ri)*, 3pl. pret. midd. *-kantat(i)*, 3pl. imp. midd. *-kantaru*) are in principle always spelled with the sign *kán*, whereas infinite forms (participle in *-kant-*, oblique stem of the verbal abstract in *-kann-*) are spelled both with *kán* and with *k/g/qa-an*. There is one real exception, viz. the verb *mūgae-zi* ‘to invoke’ which both in its finite and infinite forms never shows *kán*, but always *-ga-an-* as well as *-ga-a-an-*.⁵ As Frotscher argues, the interesting aspect of these distributions is that they correlate with the etymological origins of the vowel *a* in these formations. In the finite forms, the *a* reflects PIE **e* that was coloured to *a* before **-nt-* (*-anzi* < **-énti*; *-antu* < **-éntu*; *-anta(ri)*, *-antat(i)*, *-antaru* < **-énto*); in the infinite forms, the *a* reflects PIE **o* (*-ant-* < **-ónt-*; *-ann-* < **-ótn-*); and in *mūgae-zi*, the *ā* reflects **-oio-* (*ḫatrae*-verbs go back to the structure **Co-je/o-*).⁶ To these observations made by Frotscher, we may add the following: in the verb *kānk-i* ‘to hang’, we find plene spelling of the strong stem in OS texts, *ka-a-an-k°* / *ga-a-an-k°*,

² Tremblay 1999–2000, 220–221.

³ Kloekhorst 2014a, 238 n. 862.

⁴ Frotscher forthcoming. We are very grateful to Michael Frotscher for sharing the manuscript of his article with us, and for his permission to quote from this manuscript even though it has not yet been published.

⁵ All other exceptions to Frotscher’s distribution are NS 3pl. pres. act. forms of root verbs spelled *-ga-an-zi* instead of expected *-kán-zi*. To our minds, these can be explained as having taken over the *ḫatrae*-class 3pl. pres. act. ending: cf. Kloekhorst 2008, 132 for the fact that in New Hittite times the *ḫatrae*-class inflection is becoming very productive.

⁶ Some scholars assume that the *ḫatrae*-class inflection reflects PIE **-eh₂-je/o-*, which is irrelevant for the present discussion, however.

but non-plene spelling in MS and NS texts, *ka-an-k°*, *ga-an-k°*, *kán-k°*.⁷ Since the strong stems of *hi*-verbs etymologically go back to **o*-grade formations, these forms of *kānk-i* must reflect PIE **kónk-*. Combining the data from the verb *kānk-i* with Frotscher's observations, we arrive at the following scheme (in which *Ka* represents *ka/ga/qa*):

Table 1. Etymological origins of the spellings *kán*, *Ka-an*, and *Ka-a-an*.

	PIE * <i>Ken</i> [T]	PIE * <i>Kon</i>	PIE * <i>Kojon</i>
<i>CaR</i>	<i>kán</i>	<i>kán</i>	--
<i>Ca-aR</i>	--	<i>Ka-an</i>	<i>Ka-an</i>
<i>Ca-a-aR</i>	--	<i>Ka-a-an</i> (OH)	<i>Ka-a-an</i>

In the present article, we will discuss three other signs of the structure *CaR*, viz. *pár*, *hal*, and *tar*, and compare them to their *Ca-aR* counterparts. Using the combined evidence of all four *CaR* signs, we will discuss what consequences these findings may have for Hittite phonology.

2. *pár* vs. *pa-ar*

In our files,⁸ the sign *pár* (= BAR) occurs over 3400 times. Words that are consistently spelled with *pár* are the following:⁹ *hāppar* ‘business, trade’ (nom.-acc. sg. *ha(a)-ap-pár* (13× in our files)); ^{LÚ}*hippar-* ‘serf’ (nom. sg. ^{LÚ}*hi-ip-pár-aš* (3× in our files)); ^(DUG)*hūppar* ‘bowl’ (nom.-acc. sg. *hu(-u)-up-pár* (over 100× in our files)); *išparnu-zi* ‘to scatter’ (*iš-pár-nu-* (8× in our files)); *išparra-i* ‘to trample’ (*iš-pár-ra-* (4× in our files)); ^(PIŠ)*kapart-* / *kapirt-* ‘rodent’ (nom. sg. *ka-pár-za* (1×), obl. *ga-pár-t°* (9× in our files)); *parrant-* (adj.), modifying straw (*pár-ra-an-t°* (3× in CHD)); *parranda* (adv.) ‘across’ (*pár-ra-(a)-an-ta/da* (23× in CHD) (also *pa-ra-an-ta/da*)); *parḥ(ije/a)-zi* ‘to chase, to hunt’ (*pár-ḥ°*, *pár-aḥ-* (over 80× in CHD)); *parḥa-* ‘nipple’ (acc. pl. *pár-ḥu-uš* (1× in CHD)); *parḥanu-zi* ‘to make gallop’ (*pár-(aḥ-)ḥa-nu-* (4× in CHD)); *parḥeššar* ‘haste’ (*pár-ḥ°* (14× in CHD)); *parḥuena-* ‘a kind of grain’ (*pár-ḥu(-u)-e/i-n°* (over 20× in CHD)); *park(ije/a)-zi* ‘to raise; to rise’ (*pár-k°*, *pár-g°*, *pár-ak-* (27× in CHD)); *parknu-zi* ‘to make high’ (*pár-ga-nu-*, *pár-qa-nu-*, *pár-ak-nu-* (9× in CHD)); *pargašti-* ‘height’ (*pár-ga-aš-ti-*, *pár-qa-aš-ti-* (over 20× in CHD)); *pargatar* ‘height’ (*pár-ga-tar* (4× in CHD)); *parkuṭatar* ‘height’ (*pár-ku-ṭa-tar* (1× in CHD)); *pargaṭeške/a-zi* ‘to grow tall’ (*pár-ga-u-e-eš-k°* (6× in CHD)); *parkiṭanu-zi* ‘to raise’ (*pár-ki-ṭa-nu-* (2× in CHD)); *parkešš-zi* ‘to become high’ (*pár-ki-iš-* (4× in CHD)); *parkeššar* ‘height’ (*pár-ke-eš-n°* (1× in CHD)); *parku-* / *pargau-* ‘high’ (*pár-ku-* (10× in CHD), *pár-ga-u°* (23× in CHD)); *parkuṭa-* ‘to clear’ (*pár-ku-ṭa-* (3× in CHD)); ^Ḫ*parkuṭa(i)a-*, a building (*pár-ku-ṭa(i)a-* (5× in CHD)); *parkuṭalla-* ‘pure’ (*pár-ku-ṭa-al-l°* (1× in CHD)); *parkuṭantarije/a-* ‘to become pure(?)’ (*pár-ku-ṭa-an-ta-ri-* (1× in CHD)); *parkue-* ‘to be pure’ (*pár-ku-e°* (3× in CHD)); *parkui-* / *parkuṭa(i)-* ‘pure’ (*pár-ku-* (over 80× in CHD)); *parkuije/a-* ‘to be pure’ (*pár-ku-i-i°* (2× in CHD)); *parkuiṭatar* ‘purification’ (*pár-ku-i°* (4× in CHD)); *parkuemar* ‘purification’ (*pár-ku-e-m[ar]* (1× in CHD)); *parkuešš-zi* ‘to be(come) pure’ (*pár-ku(-e)-eš-*, *pár-ku-iš-* (14× in CHD)); *parkuešš-zi* ‘to become high’ (*pár-ku-e-eš-*, *pár-ku-iš-* (2× in CHD)); *parkunu-zi* ‘to purify’ (*pár-ku-nu-* (108× in CHD)); *parmi* / *parni* (Hurr. offering term) (*pár-mi(-)*, *pár-ni(-)* (7× in CHD), *par-mi* (KUB 32.84 iv 9)¹⁰); *parn-* ‘house’ (*pár-n°* (over 35× in CHD)); ^{TÜG/GAD}*parna-*, a tapestry (*pár-n°* (20× in CHD)); *parnalli-* ‘of the house’ (*pár-na-al-l°* (2× in CHD)); *parnaṭ(a)iške/a-* ‘to make into the property of the royal house’ (*pár-na-u°* (5× in CHD)); *parš-zi* ‘to flee, to escape’ (*pár-aš-*,

⁷ Kloekhorst 2014a, 265.

⁸ Consisting of a collection of computerized transliterations of some 3300 Hittite texts (containing ca. 280.000 words).

⁹ Note that some of these lexemes show inflected forms in which the *r* is followed by a vowel and which are spelled *(-pa-rV(-))* (e.g. ^{LÚ}*hi-ip-pa-rV(-)*, ^(DUG)*hu-up-pa-rV(-)*): these are irrelevant for the present discussion and therefore have not been taken into account.

¹⁰ The sign PAR = UD.

pár-š° (17× in CHD)); ^(NINDA)*parša-* ‘morsel’ (*pár-š°* (19× in CHD)); *paršae-zi* ‘to crumble’ (*pár-ša-* (20× in CHD)); *parš(e/ī)na-* ‘cheek, buttock’ (*pár-ši-n°* (2× in CHD), *pár-še(-e)-n°* (5× in CHD), *pár-aš-n°* (1× in CHD)); *paršeššar* ‘crack’ (*pár-še-eš-šar* (1× in CHD)); *paršīianna-* ‘to break (imperf.)’ (*pár-ši-(īa-)an-n°* (39× in CHD)); ^(U)*paršna-* ‘leopard(-man)’ (*pár-ša-n°* (6× in CHD), *pár-aš-n°* (2× in CHD), *pár-aš-ša-n°* (1× in CHD)); *paršnae-zi* ‘to crouch’ (*pár-ša-na-* (16× in CHD), *pár-aš-na-* (ca. 90× in CHD), *pár-aš-ša-na-* (8× in CHD)); *paršnili* ‘in the manner of a leopard’ (*pár-ša-ni-li* (1× in CHD), *pár-aš-ni-li* (1× in CHD)); *paršnu-* ‘to make flee away’ (*pár(-aš)-ša-nu-* (2× in CHD)); ^(GŠ)*parštu-* ‘leaf, foliage’ (*pár-aš-du/tu-* (17× in CHD)); *parštuḫḫa-* ‘earthenware cup’ (*pár-aš-du/tu-uḫ-ḫ°* (5× in CHD)); *paršul(l)ae-zi* ‘to break into pieces’ (*pár-šu-(u)(-ul)-la-* (3× in CHD)); ^(NINDA)*paršul(li)-* ‘crumb’ (*pár(-aš)-šu-ul-l°* (over 50× in CHD), *pár-ši-ú-ul-l°* (1× in CHD)); *paršur* ‘cooked dish’ (*pár-šu-* (20× in CHD)); *par(š)za* ‘-wards’ (*pár(-aš)-za* (14× in CHD)); *partāuar* ‘wing, feather’ (*pár-da/ta(-a)-u°* (39× in CHD)); *partūni-*, a bird (*pár-tu-u-ni-* (3× in CHD)); *šupparuant-* ‘sleepy’ (*šu-up-pár-ua-an-t°* (4× in our files)); ^(NINDA)*taparuašu-*, a bread (^(NINDA)*ta-pár-ua_a-su-* (ca. 25× in our files)); ^(d)*za/īparua-*, a deity (^(d)*zi/za-pár-ua_a-* (over 20× in our files)).

The sequence *pa-ar* is much less often attested;¹¹ we have been able to find the following 31 attestations: *iš-pa-ar-ḫi* (KUB 12.44 ii 30 (NS)) ‘I spread out’; *iš-pa-ar-zi-zi* (KUB 4.72 rev. 5 (OS)) ‘he escapes’; *la-pa-ar-na-aš* (KUB 11.23 vi 4 (LNS), KUB 35.4 iii 16 (NS)) ‘Labarna’; ^(L)*la-pa-ar-n[a]* (KuSa 1/1.5 obv. 10 (LNS)), personal name; *la-a-pa-ar-ša* (KUB 7.1 i 24 (OH/NS)) ‘a garden vegetable’; ^(G)*pa-ar-nu-ul-li* (KUB 58.99 i 4 (NS)) ‘an aromatic woody plant’; *pa-ap-pa-ar-ši* (KBo 13.260 ii 40 (NS)), *pa-ap-pa-ar-aš-zi* (KBo 39.8 iii 20 (MH/MS)), *pa-ap-pa-ar-aš-ša-an-zi* (KBo 13.164 i 6 (OH/NS)), *pa-pa-ar-aš-ḫu-un* (KUB 17.10 ii 29 (OH/MS)), *pa-ap-pa-ar-šu-u-ua-an-zi* (KBo 21.12 rev. 22 (NS)), *pa-ap-pa-ar-iš-x[...]* (HKM 116 ii 25 (OH?/MS)) ‘to sprinkle’; *pa-pa-ar-ta-ma<an>* (KBo 13.241 rev. 19 (NH/NS)) ‘?’; *pa-ar-x-x-x* (KUB 22.61 i 5 (NS)), *pa-ar-re-en-ti* (*ibid.* i 6), *pa-ar-ri-it-ti* (*ibid.* i 19) ‘to apply (a medicine)’; *pa-ar-li-ia* (KBo 23.1 ii 8, iv 27 (fr.) (NH), KUB 45.79 rev. 3 (NS)), *pa-ar-li-ia-aš* (HT 24 obv. 5 (NS)) ‘offence, crime’; *pa-ar-ši* (HT 1 i 60 (MH/NS)) ‘he breaks’; *pa-ar-ša-nu-ut* (KUB 32.121 ii 31 (NS)) ‘he broke open’; ^(URU)*ta-pa-ar-la-a* (KUB 57.108 iii 16 (NS)), a toponym; *ta-pa-ar-ta* (KBo 3.4 iii 73 (with gloss wedge), 76 (NH/NS), KBo 16.17+ iii 31 (NH/NS), KUB 14.4 i 8, 11, 17 (NH/NS)) ‘he ruled, governed’; *du-ú-pa-du-pa-ar-ša* (KUB 9.6 iv 25 (MH/LNS)), *du-pí-du-pa-ar-ša* (KUB 35.40 iv 6 ([ša]) (NS), KUB 35.41 iv 2 (NS)), name of a Luwian ritual.¹²

The number of attestations of the sequence *pa-ar* (31 occurrences) is extremely low when compared to the more than 3400 occurrences (in our files) of words spelled with *pár*: the sequence *pa-ar* thus takes less than 1% of the total of number of attestations containing *pár* or *pa-ar*. As was mentioned above, one could argue that this distribution reflects the fact that the CVC-sign *pár* (𐎶) is graphically much more simple than its CV-VC counterpart *pa-ar* (𐎶𐎵). One could then assume that *pár* and *pa-ar* would denote the exact same phonetic sequence, but that in the far majority of cases the Hittite scribes preferred to use the graphically simplistic sign *pár*, whereas the graphically more complex sign combination *pa-ar* was used only rarely, as a marginal spelling variant of *pár*. If this indeed were the case, we would expect the few occurrences of *pa-ar* to be randomly distributed across the attestations of words with a syllable (-)par(-). However, this is not what we find. If we look at the attestations in which the sign sequence *pa-ar* is used in spelling, we clearly see that they cluster in certain lexemes: especially the verbs *papparš-* ‘to sprinkle’ and *tapar-* ‘to rule’ remarkably often show attestations that are spelled (-)pa-ar(-), much more often than can be

¹¹ The sequence *ba-ar* only occurs in the name/title *labarna-*, *tabarna-*, and will be left out of consideration here.

¹² Another possible occurrence of the sequence *pa-ar* is cited by Groddek – Hagenbuchner – Hoffmann (2002, 139) for VSNF 12.95 rev. 2, which they transliterate as “[j]-pa-ar [’]. Note, however, that according to Jared Miller *apud* Hetkonk (v. 1.993), VSNF 12.95 is a join with IBoT 2.128 (CTH 446.E), on the basis of which it becomes clear that its line rev. 2 rather should be read [... du-ū]a-ar[-ni-iz-zi ...] (cf. dupls. KUB 41.8 i 12 and KBo 10.45 i 29).

accounted for by chance. It is therefore worthwhile to investigate whether the spelling *pa-ar* may mark a phonetic sequence that is distinct from *pár*. This can be done by investigating whether the two different spellings correlate with a specific etymological origin of the syllable they denote.

2.1 Etymologies of words spelled *pa-ar*

First, we will dive more into the details of the forms that show a *pa-ar* spelling, with a special attention to their etymologies.

iš-pa-ar-ḫi (KUB 12.44 ii 30 (NS)) ‘I spread out’: This word also occurs as *iš-pár-aḫ-ḫi* (KUB 7.57 i 8 (OH/NS)), spelled with *pár*.¹³ Since the verb *išpār-i* / *išpar-* is a *ḫi*-verb, we would morphologically expect its strong stem forms to reflect an **o*-grade stem **spór-*. This means that *iš-pa-ar-ḫi* must go back to **spór-h₂ei*. Although we would expect **spór-* to have yielded OH *išpār-*, with a long *ā* (as possibly attested in [i]š-pa-a-ar-ḫu-u[n?]) (KUB 46.55 obv. 5 (NS))¹⁴, in the post-OH period long *ā* was shortened in non-final closed syllables,¹⁵ yielding the form *išparḫi*, with short *a*. In the verb’s weak stem forms we expect the zero-grade stem **spr-*, for instance in 3pl. pres. act. *iš-pa-ra-an-zi* < **spr-énti*, which is also spelled *iš-pár-ra-an-zi*, always with *pár* (over 10× in our files). Zero-grade is also expected in the derivative *išparnu-* < **spr-neu-*, which is always spelled *iš-pár-nu-* (8× in our files), with *pár*.

iš-pa-ar-zi-zi (KUB 4.72 rev. 5 (OS)) ‘he escapes’: The verb *išpart-zi* is *mi*-conjugated, so we would morphologically expect its strong stem to reflect an **e*-grade stem **spérd^h-*. This means that *iš-pa-ar-zi-zi* must go back to **spérd^h-ti*, showing the development **eRC* > *aRC*. Note that all other attestations of this verb (over 40× in our files) are spelled *iš-pár-C°*, with the sign *pár*. Most of these are strong stem forms reflecting **spérd^h-* (including the 3sg. pres. act. form *iš-pár-za(-az)-zi*). A zero-grade stem **sprd^h-* may be present in the derived stem *išpartiḫe/a-* < **sprd^h-ḫe/o-*, which is spelled *iš-pár-ti-*, with *pár*.

la-pa-ar-na-aš (KUB 11.23 vi 4 (LNS), KUB 35.4 iii 16 (NS)) ‘Labarna’; **ṽla-pa-ar-n[a]** (KuSa 1/1.5 obv. 10 (LNS)), personal name: These forms belong to the lexeme *labarna-*, title of the king, which is in the vast majority of cases spelled *la-ba-ar-na-* and *la-bar-na-* (or *la-pár-na-*). Since this word is a loanword,¹⁶ we cannot compare its synchronic shape to its etymological predecessor, and it therefore cannot be used for the present investigation.

la-a-pa-ar-ša (KUB 7.1 i 24 (OH/NS)) ‘a garden vegetable’: The exact meaning of this word, which occurs only once, is unknown, and it therefore does not have an etymology. It cannot therefore be used in this investigation.

[^{GI}]š-pa-ar-nu-ul-li (KUB 58.99 i 4 (NS)) ‘an aromatic woody plant’: This word occurs spelled (^{GIS})*pár-nu-ul-li* as well (9× in CHD). Its meaning and etymology are unknown, so it cannot be used in the present discussion.

pa-ap-pa-ar-ši (KBo 13.260 ii 40 (NS)), **pa-ap-pa-ar-aš-zi** (KBo 39.8 iii 20 (MH/MS)), **pa-ap-pa-ar-aš-ša-an-zi** (KBo 13.164 i 6 (OH/NS)), **pa-pa-ar-aš-ḫu-un** (KUB 17.10 ii 29 (OH/MS)), **pa-ap-pa-ar-šu-u-ua-an-zi** (KBo 21.12 rev.? 22 (NS)), **pa-ap-pa-ar-iš-x[...]** (HKM 116 ii 25 (OH/? MS)): All these forms belong to the verb *papparš-i* ‘to sprinkle’. Most of them occur spelled with *pár* as well: 3sg. pres. act. *pa-ap-pár-ši*, *pa-ap-pár-aš-zi*, 3pl. pres. act. *pa-ap-pár-(aš-)ša-an-zi*, inf. *pa-ap-pár-šu-u-ua-an-zi*.¹⁷ In the case of the infinitive *papparšūuanzi*, we find the spelling with

¹³ Compare also the corresponding preterite forms *iš-pár-ḫu-un* (KUB 15.34 i 41, 42 (MH/MS)) and *iš-pár-ra-aḫ-ḫu-un* (KUB 7.60 ii 2 (NS)).

¹⁴ We would like to thank an anonymous reviewer for pointing out to us the existence of this form.

¹⁵ Kloekhorst 2014a, 256–307.

¹⁶ Cf. Kloekhorst 2008, 520–521 for a discussion.

¹⁷ See CHD P, 98 for attestations.

pa-ar two lines below the spelling with *pár* (KBo 21.12 rev.[?] 20 and 22, respectively).¹⁸ Since *papparš-i* is an original *hi*-verb, we would morphologically expect **o*-grade in its strong stem, **pV-pórs-*, whereas in its weak stem we expect zero-grade, **pV-prs-*. Interestingly, the majority of forms spelled with *pa-ar* are strong stem forms. In forms where we would morphologically expect the weak stem, we find in principle always the spelling with *pár* (e.g. part. *pa-ap-pár(-aš)-ša-an-t°* < **pV-prs-ónt-*; imperf. *pa-ap-pár-as-ke/a-* < **pV-prs-ské/ó-*). The only real exception is 3pl. pres. act. *pa-ap-pa-ar-aš-ša-an-zi* (KBo 13.164 i 6 (OH/NS)): from an etymological / morphological perspective we would expect zero-grade here, **pV-prs-énti*. However, since Hittite shows many instances of levelling of verbal paradigms through spread of their strong stem,¹⁹ it cannot be excluded that *pa-ap-pa-ar-aš-ša-an-zi*, which is found in a New Hittite copy of an Old Hittite composition, is a form that has undergone this levelling and thus contains a strong stem with original **o*-grade.

◀ *pa-pa-ar-ta-ma<-an>* (KBo 13.241 rev. 19 (NH/NS)) ‘?’: This word, which occurs only once, is a clear Luwianism (gloss wedge and Luw. part. suffix) and cannot therefore be used in this investigation.

◀ *pa-ar-x-x-x* (KUB 22.61 i 5 (NS)), ◀ *pa-ar-re-en-ti* (*ibid.* i 6), ◀ *pa-ar-ri-it-ti* (*ibid.* i 19) ‘to apply (a medicine)’: It is interesting that all three attestations of this verb are spelled with *pa-ar*. Since this verb is Luwian (cf. the endings), it cannot be used in this investigation.

pa-ar-li-ia (KBo 23.1 ii 8, iv 27 (fr.) (NH/NS), KUB 45.79 rev.[?] 3 (NS)), *pa-ar-li-ia-aš* (HT 24 obv. 5 (NS)) ‘offence, crime’: This word, which as CHD notes, “is never written w. *pár-*”,²⁰ is a Hurrian loan, and therefore of no use in this investigation.

pa-ar-ši (HT 1 i 60 (MH/NS)) ‘he breaks’: The verbal root ‘to break’ is attested with several different finite stems: a medio-passive root stem *parš-(tt)a(ri)* (4 times); a medio-passive *-i(ie/a)-stem* *parši(ie/a)-(tt)a(ri)* (90+ times); an active *mi*-inflected root stem *parš-zi* (2 times); an active *mi*-inflected *-iie/a-stem* *paršiie/a-zi* (90+ times); and an active *hi*-conjugated stem *parš-i* (2 times).²¹ The medio-passive forms and active *mi*-inflected forms are consistently spelled with *pár*. From a morphological point of view, we would expect these stems to contain either **e*-grade (*parš-(tt)a(ri)* < **b^hérs-(t)o*; *parš-zi* < **b^hérs-ti*; *parši(ie/a)-(tt)a(ri)* < **b^hérs-i-?*) or zero-grade (*parši(ie/a)-(tt)a(ri)* < **b^hrs-i-?*; *paršiie/a-zi* < **b^hrs-ié/ó-*). A spelling with the sign sequence *pa-ar* is only found in a *hi*-conjugated form, 3sg. pres. act. *pa-ar-ši* (HT 1 i 60 (MH/NS)). In fact, together with 3sg. pres. act. *pár-ši* (KBo 4.11 obv. 15 (NS)), which is spelled with *pár*, this is the only attested *hi*-conjugated form of ‘to break’. From a morphological point of view, we would expect *hi*-conjugated stems to reflect **o*-grade, i.e. *parš-i* < **b^hórs-ei*.

pa-ar-ša-nu-ut (KUB 32.121 ii 31 (NS)) ‘he broke open’: This form belongs to the verb *paršnu-zi* ‘to break open’, which is a causative to the verb *parš(i)(ie/a)-* ‘to break’, treated above. Next to this attestation spelled *pa-ar*, we find one other attestation spelled *pár-ša-nu-ut* (KUB 33.120 ii 36 (NS)), with *pár*. From an etymological-morphological point of view, we would expect *-nu*-causatives to contain zero-grade in the root, i.e. *paršnu-* < **b^hrs-neu-*. However, since *nu*-causatives are very

¹⁸ An anonymous reviewer points out that *pa-ap-pa-ar-šu-u-ua-an-zi* in KBo 21.12 rev. 22 is at the beginning of the line, while *pa-ap-pár-šu-u-ua-an-z[i]* in *ibid.* 20 is at the end of the line, so that the form with *pár* may depend on the shorter space available.

¹⁹ This is best seen in *mi*-conjugated verbs, like OH *šašanzi* >> NH *šešanzi* ‘they sleep’, but compare also a case like *hi*-conjugated OH *uštení* >> MH *auštení* >> NH *autteni* ‘you see’.

²⁰ CHD P, 154.

²¹ We cannot be always certain from which finite stems the infinite forms are derived, which means it is difficult to etymologize them, and we will therefore leave them out of consideration. Note, however, that they are always spelled with *pár*: 9 times *pár-š°*; 60+ times *pár-ši-*. Note that the forms spelled *pa-ra-ša-an-t°* that are analysed by Puhvel (HED Pa, 154) as participle forms of *parš-* ‘to break’, are in CHD P, 138–139 convincingly interpreted as belonging to a different lexeme. They are therefore not taken into account here.

productive and can be formed from any synchronic stem, it cannot be excluded that the form *pa-ar-ša-nu-ut* is built on the *hi*-conjugated stem *parš-* that is treated in the preceding lemma and that is spelled with the sequence *pa-ar*, too.

^{URU}*ta-pa-ar-la-a* (KUB 57.108 iii 16 (NS)), a city: Since both the meaning and etymology of this toponym are unknown, it is useless for this discussion.

ta-pa-ar-ta (KBo 3.4 iii 73 (with gloss wedge), 76 (NH/NS), KBo 16.17+ iii 31 (NH/NS), KUB 14.4 i 8, 11, 17 (NH/NS)) ‘he ruled, governed’: Besides these forms with *pa-ar*, this verb is attested with the spelling *pár* as well (1sg. pret. act. *ta-pár-ḫa*, 3sg. pret. act. *ta-pár-ta*, etc.). Since it is a Luwianism (cf. the use of gloss wedges and the 1sg. pret. act. form *ta-pár-ḫa* with the Luwian ending *-ḫa*), it cannot be used in this investigation.

du-ú-pa-du-pa-ar-ša (KUB 9.6 iv 25 (MH/LNS)), *du-pí-du-pa-ar-ša* (KUB 35.40 iv 6 ([*-ša*]) (NS), KUB 35.41 iv 2 (NS)), name of a Luwian ritual: This word, which occurs only once, is a Luwianism as well, and therefore cannot be used.

We can conclude that the spelling *pa-ar* in the vast majority of cases alternates with *pár* (*iš-pa-ar-ḫi* ~ *iš-pár-aḫ-ḫi*, *iš-pa-ar-zi-zi* ~ *iš-pár-za(-az)-zi*, *pa-ar-nu-ul-li* ~ *pár-nu-ul-li*, *pa-ap-pa-ar-ši* ~ *pa-ap-pár-ši*, *ta-pa-ar-ta* ~ *ta-pár-ta*, etc.). Nevertheless, its common occurrence in just a few lexemes makes clear that *pa-ar* is not a random alternative spelling for *pár*. Although the spelling *pa-ar* is clearly mostly attested in foreign words or borrowings (from Luwian and Hurrian), we find some genuine Hittite words that show it, too. In these words, the vowel of the syllable spelled *pa-ar* (~ *pár*) in most cases etymologically goes back to a PIE **o*: *iš-pa-ar-ḫi* ‘I spread out’ < **spór-h₂ei*; *pa-ap-pa-ar-ši* ‘he sprinkles’ < **pV-pórs-ei*;²² *pa-pa-ar-aš-ḫu-un* ‘I sprinkled’ < **pV-pórs-h₂e*; *pa-ap-pa-ar-šu-u-ua-an-zi* ‘to sprinkle’ < **pV-pórs-uen-ti*; *pa-ar-ši* ‘he breaks’ < **b^hórs-ei*. There is only one case where from a morphological point of view we would expect an etymological **e*: *iš-pa-ar-zi-zi* ‘he escapes’ < **spérd^h-ti*. In two other cases we would expect an etymological zero-grade, *pa-ap-pa-ar-aš-ša-an-zi* ‘they sprinkle’ < **pV-prs-énti* and *pa-ar-ša-nu-ut* ‘he broke open’ < **b^hrs-néu-t*, but in both cases it cannot be excluded that these forms have secondarily received an **o*-grade stem.

2.2 Etymologies of words consistently spelled *pár*

The preponderance of etymological **o*-grade formations among the words spelled with *pa-ar* (~ *pár*) is remarkable when compared to the words that are consistently spelled with *pár*. Here we find two main groups.

1. The first group consists of words in which *pár* spells a syllable containing a vowel that is the result of a vocalization of **r* in an original zero-grade formation (reconstruction of ablaut grade on the basis of morphological expectations):²³ *ḫāppar* ‘business, trade’ < **h₃ép-r₁*; ^(DUG)*ḫūppar* ‘bowl’ < **H(V)up-r₁*; *išparnu-zi* ‘to scatter’ < **spr₁-neu-*; *parḫ-zi* ‘to chase, to hunt’ (in weak stem forms) < **b^hṛh_{2/3}-*; *parḫanu-zi* ‘to make gallop’ < **b^hṛh_{2/3}-neu-*; *parḫeššar* ‘haste’ < **b^hṛh_{2/3}-éh₁sh₁-r₁*; *park-zi* ‘to raise; to rise’ (in weak stem forms) < **b^hṛḡ^h-*; *parknu-zi* ‘to make high’ < **b^hṛḡ^h-neu-*; *pargatar* ‘height’ < **b^hṛḡ^h-ót₁*; *parkešš-zi* ‘to become high’ < **b^hṛḡ^h-eh₁sh₁-*; *parkuešš-zi* ‘to be(come) pure’ < **pṛk^w-éh₁sh₁-*; *parkunu-zi* ‘to purify’ < **pṛk^w-neu-*; *parš-zi* ‘to flee, to escape’ (weak stem forms) < **b^hṛs-*; ^(NINDA)*parša-* ‘morsel’ < **b^hṛs-o-*; *paršae-zi* ‘to crumble’ < **b^hṛs-o-ie/o-*; *paršeššar* ‘crack’ < **b^hṛs-éh₁sh₁-r₁*; ^(LÚ)*paršna-* ‘leopard(-man)’ < **pṛsno-(?)*; *paršnae-zi* ‘to crouch’ < **pṛsno-ie/o-*; *paršnili* ‘in the manner of a leopard’ < **pṛsn-*; *paršnu-zi* ‘to make flee away’ < **b^hṛs-neu-*; *partāuar* ‘wing, feather’ < **pṛtH-ó-ur₁*; *partūni-*, a bird < **pṛtH-*; *šupparuant-* ‘sleepy’ < **sup-r₁-uent-*.

²² The 3sg. pres. act. form *pa-ap-pa-ar-aš-zi* shows introduction of the *mi*-ending *-zi*. Yet, its stem is underlyingly still reflecting the **o*-grade of the *hi*-conjugation.

²³ See Kloekhorst 2008, s.vv. for etymologies.

2. The second group consists of words in which the vowel of the syllable spelled *pár* reflects an original *e-grade, which has been coloured in the sequence *erC*:²⁴ *parh*-^{zi} ‘to chase, to hunt’ (in strong stem forms) < **b^hérh_{2/3}*-; *park*-^{zi} ‘to raise; to rise’ (in strong stem forms) < **b^hérgh^h*-; *parku*- / *pargau*- ‘high’ < **b^hérgh^h-(e)u*-;²⁵ *parkui*- / *parkuua(i)*- ‘pure’ < **pérk^w-(e)i*-;²⁶ *parn*- ‘house’ < **Pér-n*-;²⁷ *parš*-^{zi} ‘to flee, to escape’ (in strong stem forms) < **b^hérs*-; *paršur* ‘cooked dish’ < **b^hérs-ur*; *par(š)za* ‘-wards’ < **pérti*.²⁸

There is only one word consistently spelled with *pár* where this sign spells a syllable with a vowel that should on etymological / morphological grounds reflect PIE *o. The verb *išparra*-ⁱ ‘to trample’ is *hi*-conjugated, and therefore should be reconstructed with an *o-grade in its strong stem, **spórh_{2/3}*- (whereas its weak stem should have had zero-grade, **sprh_{2/3}*-). Of its in total four (secured) occurrences, two are strong stem forms, which both are spelled with *pár*: 2sg. pres. act. *iš-pár-ra-at-ti* (KUB 21.27 iii 30 (NH/NS)) and 1sg. pret. act. *iš-pár-ra-aḫ-ḫu-un* (KUB 17.27 iii 12 (MH/NS)).²⁹ However, since we are dealing with two forms only, it could easily be coincidental that no strong stem form spelled **iš-pa-ar-ra*- is attested. This verb therefore does not alter the overall distribution regarding *pár* vs. *pa-ar*.

2.3 Conclusions on *pár* vs. *pa-ar*

We may thus conclude the following: consistent spelling with *pár* correlates with the etymological sequences **Pṛ* and **Pér*[C], whereas a spelling that alternates between *pa-ar* and *pár* in the majority of cases correlates with the etymological sequence **Pór* (only once do we find that *pa-ar* spells an etymologic sequence **Pér*[C]). The plene spelled sequence *pa-a-ar* (attested once, in [i]š-pa-a-ar-ḫu-u[n?]) (KUB 46.55 obv. 5 (NS))) reflects the original, Old Hittite, outcome of **Pór*.

Table 2. Etymological origins of the spellings *pár*, *pa-ar*, and *pa-a-ar*.

	PIE * <i>Pṛ</i>	PIE * <i>Pér</i> [C]	PIE * <i>Pór</i>
<i>CaR</i>	<i>pár</i>	<i>pár</i>	<i>pár</i>
<i>Ca-aR</i>	--	-- ¹	<i>pa-ar</i>
<i>Ca-a-aR</i>	--	--	<i>pa-a-ar</i>

¹ Only once, in *iš-pa-ar-zi-zi* < **spérd^h-ti*.

²⁴ See Kloekhorst 2008, s.vv. for etymologies.

²⁵ The adjective *parku*- / *pargau*- is usually reconstructed as **b^hérgh^h-(e)u*- (thus, e.g., Kloekhorst 2008, 637) on the assumption that **b^hérgh^h-(e)u*- should have yielded Hitt. ***perku*- / *perkau*-, with the development **erCV* > *erCV*. However, all words showing a synchronic sequence *erCV* may be explained differently: e.g. *kuērzi* ‘he cuts’ may have an analogical *e* after *kuērmi*; *kuēršun* ‘I cut’ may reflect **ē*-grade, **k^wér-s*- (the expected ablaut grade in s-aorists); *šērḫ*- ‘an object to rinse feet with’ may reflect **sérh₂*-; etc. This opens up the possibility to assume that **erCV* regularly yielded *arCV*, just like *erCC* > *arCC* (Kloekhorst plans to expand on this topic elsewhere). Since other *u*-stem (and *i*-stem) adjectives regularly show *e*-grade in their root (e.g. *tēpu*- / *tēpau*-), it has now become morphologically attractive to assume that *parku*- / *pargau*- had **e*-grade, too: hence **b^hérgh^h-(e)u*-.

²⁶ Although *parkui*- / *parkuua(i)*- is usually reconstructed as **pṛk^w-(e)i*- (thus Kloekhorst 2008, 638–639), for reasons set out above (n. 25), a reconstruction **pérk^w-(e)i*- seems now preferable.

²⁷ Cf. Kloekhorst 2014c, 148 for this reconstruction.

²⁸ Although in Kloekhorst 2008, 684 this adverb was reconstructed as **pṛ-ti*, it now seems preferable to reconstruct **pér-ti* (with the rule **erCV* > **arCV* as discussed in n. 25).

²⁹ The other two attestations are weak stem forms: 3pl. pres. act. *iš-par-ra-an-zi* (KBo 6.34 iii 25 (MH/NS)), 3pl. imp. act. *iš-par-ra-an-du* (KBo 6.34 iii 28 (MH/NS)). Here we would etymologically expect zero-grade, **sprh_{2/3}*-, and their spelling with *pár* is thus in line with the other words where consistent spelling with *pár* correlates with an etymological zero-grade PIE **PṛC*.

3. *ḫal* vs. *ḫa-al*

In our files, the sign *ḫal* occurs some 1100 times in phonetically spelled words. The majority of these show spelling with *ḫal* only, never with *ḫa-al* (words that occur only once or twice have been left out): *ḫallanna/i*-ⁱ ‘to lay waste’ (*ḫal-la-an-n°* (3×)³⁰); *ḫallapuṣanza* ‘?’ (← *ḫal-la-pu-ṣa-an-za* (3×)³¹); *ḫalḫaltum(m)ar*- ‘corner’ (*ḫal-ḫal-tu/du-(um-)ma-ri*- (over 30× in our files)); *ḫalliṣa*-, an animal (*ḫal-li-ṣa*- (5×)³²); ^{LÚ}*ḫalli(ṣa)ri*-, a cult-singer (^{LÚ}*ḫal-li-(ṣa)ri*- (over 140× in our files)); ^ḫ*ḫalki*- ‘grain (deity)’ (^ḫ*ḫal-ki*- (over 150× in our files)); *ḫalkuēššar* / *ḫalkuēšn*- ‘supplies’ (*ḫal-ku*- (over 30× in our files)); ^ḫ*ḫalmašutt*- ‘throne (deity)’ (^ḫ*ḫal-ma-šu-it-t°* (over 70× in our files)); ^{URU}*ḫalpa*- ‘Aleppo’ (^{URU}*ḫal-p°* (over 10×)³³); ^{URU}*ḫalpūma*- ‘man from Aleppo’ (^{URU}*ḫal-pu-u-ma*- (1×, KBo 3.27 obv. 30 (OH/NS))); *ḫalluṣae*- ‘to fight’ (*ḫal-lu*- (10×)³⁴); *ḫalluṣai*- ‘fight’ (*ḫal-lu-ṣa-i°* (5×)³⁵); *ḫalṣani*-, a vessel (*ḫal-ṣa-ni*- (4× in our files)); *ḫalṣašši*-, an oracle bird (*ḫal-ṣa-aš-ši*- (4× in our files)); *ḫalzai*- / *ḫalzi*- ‘to call out’ (*ḫal-z°* (over 600× times in our files)); *tuḫalzi*-, a certain type of offering (*tu(-u)-ḫal-zi*- (4× in our files)).

The sign combination *ḫa-al*, however, is much less often attested: we have found only the following 18 cases: nom.-acc. sg. *ḫa-a-aḫ-ḫa-al* (KBo 17.1 iv 27 (OS), KBo 17.3 iv 24 (OS)), *ḫa-aḫ-ḫa-al* (KUB 39.61 i 12 (NH/NS)), dat.-loc. sg. [*ḫa-aḫ-ḫ*]*a'-al-li* (KUB 17.15 ii 2 (NS)), instr. *ḫa-a-aḫ-ḫa-al-li-it* (KBo 17.3 iv 27 (OS)), *ḫa-aḫ-ḫa-al-li-it* (KBo 17.3 iv 30 (OS)), erg. sg. *ḫa-aḫ-ḫa-al-la-an-za* (KBo 13.248, 12 (NH/NS)) ‘greenery, bush’; ^{MUNUS.MEŠ}*ḫa-aḫ-ḫa-al-la-al-li-eš* (KBo 20.68 i 7 (MH/MS)) ‘greenery women (nom. pl.)’; nom. sg. ^ḫ*ḫa-al-la-ra-aš* (KBo 5.9 iv 7 (NH/NS), KUB 19.50 iv 18 (NH/NS)), a deity; [*ḫal*’-]*ḫa-al-za-ni-it* (KUB 7.55 obv. 7 (NS)), a body part (instr.); ^m*ḫa-al-pa-an-x* (HKM 111, 21 (MH/NS)), personal name; ^{GIŠ}*ḫa-al-pu-u-ti* (KUB 28.75 ii 1 (OS)), a wooden object (dat.-loc. sg.); acc. pl. c. *ḫ[a-a]l-lu-ú-ṣa-u-uš* (KBo 3.8 iii 4 (OH/NS)) ‘hollow’; 1sg. pres. act. *te-ṣa-aḫ-ḫ[a-a]l-li-iš-ke-mi* (KUB 33.65 iii 4 (OH/NS)), 3sg. pres. act. *te-ṣa-aḫ-ḫa-al-li[-iš-ke-ez-zi]* (*ibid.* 2) ‘?’; nom. sg. c. [*te-eš*]-*ḫa-al-li-iš* (KBo 13.87, 5 (OH/NS)), acc. sg. c. [*t*]*e-eš-ḫa-al-li-in* (KUB 36.35 iv 10 (LNS)) ‘sleepy’.³⁶

Just as in the case of *pár* vs. *pa-ar*, we see also here that the number of attestations of the *Ca-aR* spelling *ḫa-al* (18 occurrences) is extremely low when compared to its corresponding *CaR* spelling *ḫal*, which shows more than 1100 occurrences in our files: the sequence *ḫa-al* thus represents not more than 1.4% of the total number of attestations containing *ḫal* or *ḫa-al*. Also here, if *ḫal* and *ḫa-al* would express the exact same phonetic sequence, we would expect the occurrences of *ḫa-al* to be randomly distributed. However, this is not what we find: especially the fact that the lexeme *ḫaḫḫall*- ‘greenery, bush’ shows multiple attestations with *ḫa-al* is telling.

3.1 Etymologies of words spelled *ḫa-al*

In order to investigate whether the spellings *ḫal* and *ḫa-al* may represent phonetically different sequences, we will first treat all words containing *ḫa-al* in more detail.³⁷

³⁰ Cf. HED H, 13.

³¹ Cf. HW² Ḫ, 19.

³² Cf. HW² Ḫ, 38.

³³ Cf. del Monte – Tischler 1978, 71.

³⁴ Cf. HW² Ḫ, 85–86.

³⁵ Cf. HW² Ḫ, 86–87.

³⁶ The form [...(-)a]l-li-ṣa-ri (KUB 34.50, 3 (NS)) is read by Puhvel (HED H, 30) as [^{LÚ}ḫa-a]l-li-ṣa-ri, i.e. a dat.-loc. sg. form of the noun ^{LÚ}*ḫalli(ṣa)ri*- ‘cult-singer’ (thus also independently(?) Rieken *et al.* 2009, §2: “[... ḫa²-a]l-li-ṣa-ri”). If correct, it would be the only occurrence of this word spelled *ḫa-al*: all other attestations, more than 140 in our files, are spelled *ḫal-li*-, with *ḫal*. We are therefore reluctant in taking the broken form [...(-)a]l-li-ṣa-ri as belonging to this lexeme, and we will leave it out of consideration for the present paper.

³⁷ Leaving the personal name ^m*ḫa-al-pa-an-x* (HKM 111, 21) out of consideration.

ḫāḫḫall- ‘greenery, bush’: Next to the seven attestations spelled *-ḫa-al-* that were cited above,³⁸ this word is also twelve times written *-ḫal-*,³⁹ and thus shows an alternation between the two. The etymology of this word is not fully clear, but on the basis of a structural resemblance to the noun *mēmall-* ‘coarsely ground meal’ < **mé-molh*-, it was proposed by Kloekhorst⁴⁰ that *ḫāḫḫall-* goes back to a similar formation, i.e. **Hé-HolH*-. If this is correct, the second *a* in *ḫāḫḫall-* would go back to PIE **o*.

ḫallara-, a deity: Next to the two attestations spelled *ḫa-al-* mentioned above, this theonym occurs 19 times spelled *ḫal-* as well.⁴¹ Since we are dealing with an onomastic form of an unknown origin, it cannot be used for etymological purposes.

ḫalḫalzana-, ḫalḫanzana-, ḫalḫaldāna-, a body part: Next to the one attestation [*ḫal*?-] *ḫa-al-za-ni-it* written with *-ḫa-al-* that was mentioned above, this word is in its other three attestations written with *ḫal*.⁴² The alternation between the three stems *ḫalḫalzana-*, *ḫalḫanzana-* and *ḫalḫaldāna-* indicates that this word probably is of a non-IE origin, which means that it cannot be used in the present discussion.

ḫalputi-, ḫalmuti-, a wooden object exhibited in cult: Next to the one attestation ^{GIS}*ḫa-al-pu-u-ti* spelled with *ḫa-al-* that was mentioned above, this word is in its other eight occurrences spelled *ḫal*.⁴³ The alternation between *p* and *m* points to a non-IE (probably Hattic⁴⁴) origin of this word, which makes it useless for the present discussion.

ḫallūuḫuṣ (acc.pl.c.) ‘hollow’: Besides the one form spelled *ḫ[a-a]l-lu-* that was mentioned above, the adjective *ḫallūuḫa-* ‘hollow, deep’ is usually spelled *ḫal-lu-(u-)ḫa-*, with *ḫal* (over 25× in our files). The etymology of this word is not fully clear. Puhvel⁴⁵ connects it with Lat. *alvus* ‘bowels, womb’, *alveus* ‘hollow, cavity’, which would point to a stem **h₂el-u-*. Note, however, that the geminate *-ll-* of Hitt. *ḫallūuḫa-* implies an earlier **-lH-*. Moreover, Lat. *alvus* is generally derived from a root **h₂eul-* (through metathesis⁴⁶). This makes it difficult to draw any conclusions.

teḫḫalliṣke/a- ‘?’: This verb, which occurs only twice, is in both its attestations spelled with *-ḫa-al-*. Since its meaning is unclear, we cannot know its etymology, which means it is of no use for the present discussion.

teṣḫalli- ‘sleepy’: This adjective, which in both of its attestations is spelled with *-ḫa-al-*, is a derivative in *-alli-* of the noun *teṣḫa-* ‘sleep’, which reflects **d^heh₁-sh₂o-*. The exact origin of the suffix *-alli-* is unclear,⁴⁷ but there can hardly be any doubt that the initial part of *teṣḫalli-* reflects **d^heh₁-sh₂o-l°*, and that the syllable that is spelled with *-ḫa-al-* goes back to **-h₂ol-*.

We can conclude that in practically all words that show one or more spellings with *ḫa-al*, this spelling alternates with *ḫal*: *ḫa-a-aḫ-ḫa-al* ~ *ḫa-a-aḫ-ḫal*, ^ḫ*ḫa-al-la-ra-* ~ ^ḫ*ḫal-la-ra-*, [*ḫal*]-*ḫa-al-za-n°* ~ *ḫal-ḫal-za-n°*, *ḫa-al-pu-ti-* ~ *ḫal-pu-ti-*, *ḫa-al-lu-ú-ḫa-* ~ *ḫal-lu-(u)-ḫa-* (*teḫḫalliṣke/a-* and *teṣḫalli-* are attested too rarely to be certain whether their *ḫa-al* spelling would alternate with *ḫal* or not). However, *ḫa-al* is not just a random alternative spelling to *ḫal* that just happens to be used once in

³⁸ To which can be added the one attestation of the derivative ^{MUNUS}*ḫaḫḫallalla/i-*, which, too, is spelled *-ḫa-al-*.

³⁹ See the attestations gathered in Kloekhorst 2014a, 257 n. 923.

⁴⁰ Kloekhorst 2014a, 257.

⁴¹ Cf. van Gessel 1998, 70–71 for attestations.

⁴² See HED Ḫ, 22.

⁴³ See HED Ḫ, 44 for attestations.

⁴⁴ Cf. HW² Ḫ, s.v.

⁴⁵ HED Ḫ, 49.

⁴⁶ Cf. e.g. Schrijver 1991, 43.

⁴⁷ See a discussion in Kloekhorst 2019, 85–86.

a while: especially the fact that in the attestations of *ḫāḫḫall-* the relative number of occurrences of the spelling *ḫa-al* is much higher than can be attributed to chance (7× *ḫa-al* vs. 12× *ḫal* yields a ratio of 36%, which is much higher than the 1.4% of overall attestations of *ḫa-al* vs. *ḫal*), indicates that its usage is not random. In the two words whose etymologies are relatively secure, the vowel of the syllable spelled *ḫa-al* (~ *ḫal*) reflects a PIE **o*: *ḫāḫḫall-* ‘greenery, bush’ < **Hé-HolH*(?) and *tešḫalli-* ‘sleepy’ < **d^heh₁sh₂o-l^o*. This is strikingly reminiscent of the fact that the vowel spelled by *pa-ar* ~ *pár* and *k/g/qa-an* ~ *kán* goes back to PIE **o*, as well.

3.2 Etymologies of words consistently spelled *ḫal*

If we now look at the origins of the words that show a consistent spelling with *ḫal* (taking into account only genuinely Hittite words of an Indo-European origin), we see the following:

ḫallanna/i- ‘to lay waste’: This verb looks like an imperfective in *-anna/i-* of an unattested root verb **ḫall-* that has been connected with the PIE root **h₃elh₁-* (Gr. ὄλλῶμι ‘to destroy’, Lat. *ab-oleō* ‘id.’).⁴⁸ Since *-anna/i-* is usually attached to the weak stem of a verbal root, we would morphologically expect zero-grade, **h₃lh₁-*, but other options certainly cannot be excluded.

ḫalḫaltumar- ‘corner’: This word is generally seen as containing a reduplication of a root *ḫal-* that is connected with the root of Hitt. *ḫaliē/a-^{zi}* ‘to kneel down’, and which seemingly reflects **h_{2/3}el-*.⁴⁹ However, the exact origin of the formation of *ḫalḫaltumar-* is unclear, so that we cannot decide whether the syllables written with the *ḫal*-signs should be reconstructed with PIE **e-*, **o-*, or zero-grade.

ḫalkuēšsar / ḫalkuēšn- ‘supplies’: This word is generally connected with the PIE root **h₂elg^{wh}-* (Skt. *árhati* ‘to earn’, Gr. ἀλφεῖν ‘to obtain’, Lith. *algà* ‘salary’). Since the suffix *-ēšsar / -ēšn-* usually combines with zero-grade roots, we can reconstruct this word as **h₂lg^{wh}-éh₁sh₁-r/n-*.⁵⁰

ḫalzai- / ḫalzi- ‘to call out’: This verb has been connected by Puhvel⁵¹ with Goth. *laþon* ‘to call, to summon’, from a PIE root **h₂let-*, which implies that *ḫalzai-* reflects a formation **h₂lt-oi-*⁵² with a zero-grade root **h₂lt-*.

All words of this group that have a (reasonably) secure IE etymology, show that their syllable that is consistently spelled with the sign *ḫal* reflects an etymological sequence **H_l*.

3.3 Conclusions regarding *ḫal* vs. *ḫa-al*

We may thus conclude the following: consistent spelling with *ḫal* correlates with the etymological sequence **H_l*, whereas a spelling that alternates between *ḫa-al* and *ḫal* correlates with the etymological sequence **Hol*. Note that a plene spelled sequence *ḫa-a-al* is unattested in Hittite.

Table 3. Etymological origins of the spellings *ḫal* and *ḫa-al*.

	PIE * <i>H_l</i>	PIE * <i>Hol</i>
<i>CaR</i>	<i>ḫal</i>	<i>ḫal</i>
<i>Ca-aR</i>	--	<i>ḫa-al</i>
<i>Ca-a-aR</i>	--	--

⁴⁸ Cf. Kloekhorst 2008, 271–272.

⁴⁹ Melchert 1983, 13; Rieken 1999, 364–366. The further proposals to connect this root with Gr. ὠλένη, Lat. *ulna*, etc. ‘elbow’ are difficult, since the latter words rather reflect **HeHl-n-* (Kloekhorst 2008, 274).

⁵⁰ Cf. Kloekhorst 2008, 275.

⁵¹ HED H, 63–64.

⁵² Kloekhorst 2008, 277.

4. *tar* vs. *ta-ar* / *da-ar*

In our files, the sign *tar* occurs in phonetically spelled words over 3200 times. Many words (and morphemes) are consistently spelled with *tar*, which include the following: *-ātar/-ānn-*, verbal abstract suffix (nom.-acc. sg. n. *-Ca(-a)-tar* (over 500× in our files)); *hilištarni-*, a divine icon (*hi-li-iš-tar-ni-* (ca. 10×)⁵³); *ištar(k)-zi* ‘to ail, afflict’ (*iš-tar-k°*, *iš-tar-ak-* (over 30× in our files)); *ištarna/i* ‘amidst, between, among’ (*iš-tar-n°* (over 180× in our files));⁵⁴ *ištarni(n)k-zi* ‘to ail, to afflict’ (*iš-tar-ni-(in)-k°* (over 15× in our files, including derivatives)); *galaktar* ‘smoothing substance’ (nom.-acc. sg. *ga/ka-la-ak-tar* (over 10× in our files)); *kalle/ištaruan-* ‘feast, party’ (*k/gal-li-e/iš-tar-ua-n°* (6× in HED 4)); *nuntar-, nuttar-* ‘haste, swiftness’ (*nu-un-tar-*, *nu-ut-tar-* (over 40× in our files, including derivatives)); *pattar/paddan-* ‘wing’ (nom.-acc. sg. *pát-tar* (12× in CHD)); *pattarpalha/i-* ‘broad-wing’ (*pát-tar-pal-h°* (over 15× in CHD)); *šāuatar-* ‘horn’ (*ša(-a)-ua-tar(-)* (13× in CHD)); *šittar* ‘sun disk?’ (*ši-it-tar(-)* (over 20× in CHD)); *tarra-tta* ‘to be able’ (*tar-r°* (over 10× in our files)); *tarhu-zi* ‘to conquer’ (*tar-hu-*, *tar-uḫ-* (over 140× in our files)); *tarḫuili-* ‘strong, powerful’ (*tar-ḫu-i-l°* (over 10× in our files, including derivatives)); *tarku-zi* ‘to dance’ (*tar-ku-*, *tar-uk-*, *tar-ú-* (over 20× in our files)); *tarkummae-, tarkummiḫe/a-* ‘to translate’ (*tar-kum-m°*, *tar-ku-m°* (over 45× in our files)); *tarlipa-*, a substance used in rituals (*tar-li-p°* (4× in our files)); *tarma-* ‘nail’ (*tar-ma-* (7× in our files)); *tarmae-zi* ‘to nail, to hammer’ (*tar-ma-* (over 30× in our files)); *tarna-i* ‘to let go’ (*tar-n°* (over 600× in our files)); *tarnu-*, a building (*tar-nu-* (ca. 10× in our files)); *sig tarpāla-*, a cloth (*tar-pa(-a)-l°* (ca. 10× in our files)); *tarpalli-* ‘substitute’ (*tar-pa-al-li-* (over 40× in our files)); *tarš-* ‘to dry’ (*tar-š°* (3× in our files)); *taršanzipa-*, place in temple (*tar-ša-an-zi-p°* (over 15× in our files)); *ter-zi / tar-* ‘to speak’ (*tar-*, *tar-ši-ke/a-*, *tar-aš-ke/a-* (ca. 15× in our files)); *uātar / uiten-* ‘water’ (nom.-acc. sg. *ua(-a)-tar* (over 200× in our files)); *NINDA uatarmašši-*, a bread (*ua-tar-ma-aš-ši-* (5× in our files)); *uātarnahḫ-i* ‘to order, to instruct’ (*ua(-a)-tar-na-aḫ-* (over 50× in our files)).

The sequences *ta-ar* and *da-ar* are much less often attested: we have counted 23 cases: *[ḫu-i]-ta-ar* (KBo 20.33 obv. 14 (OH?/MS)), *[ḫu]-i-ta-ar* (*ibid.* obv. 15), *ḫu-i-ta-ar-r=a* (KBo 4.2 i 59 (OH/NS)), *ḫu-i-da-ar* (VSNF 12.143, 4 (NS)) ‘game, wild animals’; *i-ta-ar-ki-ja* (KBo 4.2 iv 2 (NH/NS), KUB 15.36 obv. 24 (NH/NS)), a bird omen term; *ku-un-ta-ar-ra* (Bronzetafel i 95, 101 (NH/LNS)) ‘abode or shrine of the storm-god’; *ku-up-ta-ar-r=a* (KBo 6.2 ii 34 (OS)) ‘refuse’; *[pát]-ta-ar-r=a* (KBo 17.1 iii 24 (OS)), *pát-ta-ar-r[=a]* (KBo 17.3 iii 24 (OS)), *pát-ta-ar-r=a* (KBo 17.6 iii 16 (OS)) ‘basket(s)’; *[ta-a]r-p[í-iš]* (KUB 34.91 i 1 (OH/NS)), *ta-ar-pí-in* (KUB 33.66 ii 11 (OH/MS)) ‘something evil’; *ud-da-ar* (KUB 12.65 ii 9 (MH/NS), KUB 55.38 iii 13 (NS)), *ud-da-ar=m=a-a[š-ta]* (KUB 27.29 ii 17 (MH/NS)); *[ud-d]a-ar=ta* (KBo 26.70, 17 (MH/NS)), *ud-da-ar=še-et* (KBo 22.6 i 7 (OH/NS)) ‘word(s)’; *ú-ūi₅-ta-ar* (KUB 13.3 iii 23 (OH/NS)) ‘waters’; broken [...] *šī-da-ar*⁵⁵ (KUB 55.15 ii 3 (NH/NS)).

The number of attestations of the sequence *ta-ar* / *da-ar* (23 occurrences) is extremely low when compared to the more than 3200 occurrences (in our files) of words spelled with *tar*: it takes up ca. 0,6% of the total number of cases. If *ta-ar* / *da-ar* and *tar* would express the exact same phonetic sequence, we would expect the occurrence of *ta-ar* / *da-ar* to be randomly distributed. However, this is not what we find: it seems to cluster in certain lexemes, especially *ḫuitar* / *ḫuidar*, *pattar*

⁵³ Cf. HED H, 313.

⁵⁴ As an anonymous reviewer informs us, HW² (I, 272–273) lists in its lemma *ištarna/i* the spellings *iš-tar-na* and *iš-tar-ni*, as well as “*iš-ta-ar-na*”, which would occur in KUB 8.41 ii 2 (OS), “u[nd] ö[fter]”. However, the reviewer states that (s)he “was not able to find this form anywhere”, which is our experience as well. KUB 8.41 only shows the spelling *iš-tar-na*, with *tar* (ii 3, 8, iii 8, 18), and we have been unable to find any secure attestation of the shape “*iš-ta-ar-na*” (unfortunately, it is not clear whether HW²’s remark “u[nd] ö[fter]” refers to more attestations of “*iš-ta-ar-na*” on the tablet of KUB 8.41 itself, or within the Hittite corpus as a whole). Note that Hagenbuchner (1989, 133) reads a form *[iš-t]a-ar-na* in KBo 18.115 rev. 10, but this cannot be confirmed. Only a vertical wedge of the broken sign is visible, which would fit other signs than TA, as well, like, e.g. BA, which would yield a possible reading *[la-b]a-ar-na*. We have therefore left this broken form out of the discussion.

⁵⁵ This broken form is hesitatingly (with question mark) cited by CHD Š, 457 under the lemma *šittar-* ‘(sun) disk’, but this identification is far from assured.

and *uddar*. This makes it worthwhile to investigate whether *ta-ar* / *da-ar* may mark a phonetic sequence that is distinct from *tar*.

4.1 Etymologies of the words spelled *ta-ar* / *da-ar*

In order to find out whether *tar* may denote a different phonetic sequence than *ta-ar* / *da-ar*, we will look more closely at all words containing *ta-ar* / *da-ar*.

Some of these words are probably non-Hittite or have an otherwise unclear origin, and therefore cannot be used for etymological purposes:

i-ta-ar-ki-ia (KBo 4.2 iv 2 (NH/NS), KUB 15.36 obv. 24 (NH/NS)): this word occurs in an enumeration of birds in a bird omen passage, and is therefore probably of Hurrian origin. It is interesting, though, that both attestations of this word are spelled with *ta-ar*, not with *tar*.

⁽⁶⁾***kuntarra-*** ‘abode or shrine of the storm-god’: This word occurs twice spelled with *ta-ar* (dat.-loc. sg. *ku-un-ta-ar-ra* (Bronzetafel i 95, 101 (NH/LNS))), but is also found spelled with *tar* (acc. sg. *ku-un-tar-ra-an-n=a* (KUB 33.92 iii 17 + KUB 33.93 iv 27 (MH/NS)), ⁽⁷⁾*ku-un-tar-ra-an[-n=a]* (KUB 33.106 i 19 (NS)), ⁽⁸⁾*[ku-u]n-tar-ra-an-n=a* (KBo 26.65 iv 27 (NS)), stem form ⁽⁹⁾*ku-un-tar-ra* (KUB 36.12 i 16 (MH/NS))). According to Puhvel,⁵⁶ this word is Hurrian, and it therefore cannot be used for etymological purposes. Note, however, that it shows an alternation between spellings with *ta-ar* and *tar*, and as such represents a category that is known from *kán* vs. *k/g/qa-an* and *pár* vs. *pa-ar* as well.

kuptar ‘refuse’: This word is attested once as *ku-up-ta-ar* (KBo 6.2 ii 34 (OS)), with duplicates that are spelled *ku-up-tar* (KBo 6.3 ii 55 (OH/NS), KBo 6.5 iv 8 (OH/LNS)), which goes for all other attestations as well (KUB 12.58 iii 14 (NS), KUB 24.9 iii 51 (OH/NS), KUB 27.67 iii 47 (MH/NS), KUB 58.83 ii 14 (NH/LNS)). According to Puhvel,⁵⁷ this word may be an “old frozen abstract noun (of the type *itar*, *kalaktar*)”, and he reconstructs **g^hub^h-tr*. However, this is far from assured. For the time being, we refrain from using this word as an argument in the present discussion.

tarpi- ‘something evil’: Next to the two attestations spelled with *ta-ar* (nom. sg. *[ta-a]r-p[í-iš]* (KUB 34.91 i 1 (OH/NS)), acc. sg. *ta-ar-pí-in* (KUB 33.66 ii 11 (OH/MS))), we also find some attestations spelled *tar-pí*.⁵⁸ This word, too, would thus belong to the category where *ta-ar* and *tar* spellings alternate. Unfortunately, the etymology of this word is unclear.⁵⁹

This means that we are left with *huidar* / *huitar*, *pattar*, *uddar* and *uṭitar*, which all four belong to Hittite words that are clearly inherited.⁶⁰ Interestingly, they all belong to neuter *r/n*-stems: *huitar* / *huitn-* ‘game, wild animal(s)’, *pattar* / *paddan-* ‘basket’, *uddar* / *uddan-* ‘word’ and *uṭitar* / *uṭiten-* ‘water’. For three of these forms, this fact obscures their formal interpretation. For instance, the paradigm of *uddar* / *uddan-* ‘word’ knows a nom.-acc. singular form that is usually spelled *ut-tar* (which in principle can also be read *ud-dar₆*), reflecting a PIE form ending in **-r*, and a nom.-acc. plural form that is usually spelled *ud-da-a-ar* (sometimes also *ut-ta-a-ar*), which reflects PIE **-ór*. This makes it *a priori* difficult to judge the few spellings *ud-da-ar*: are they nom.-acc. singular forms, corresponding to *ut-tar* = *ud-dar₆* (and would prove an alternation between *tar* / *dar₆* and *da-ar*), or are they nom.-acc. plural forms, corresponding to *ud-da-a-ar* (and thus show a mere absence of plene spelling)? Likewise in the case of *hu-i-da-ar* / *hu-i-ta-ar* and *pát-ta-ar*: do they

⁵⁶ HED K, 254.

⁵⁷ HED K, 259.

⁵⁸ See HEG T/D, 214–215.

⁵⁹ HEG T/D, 217.

⁶⁰ The remainder of this section, including the analyses of the contexts in which these words occur, has largely been adapted from Erik Mens’s BA thesis (Mens 2020, see n. 1).

correspond to nom.-acc. sg. n. *ḫu-i-tar* and *pát-tar*, or to nom.-acc. pl. n. *ḫu-i-ta-a-ar* / *ḫu-i-da-a-ar* and **pát-ta-a-ar* / **pád-da-a-ar* (the latter forms being unattested)?

This problem is absent in one of these forms, however: *ú-ḫi₅-ta-ar* (KUB 13.3 iii 23 (OH/NS)) is clearly a plural form, since its root vocalism corresponds with nom.-acc.pl. *ú-i-ta-a-ar* / *ú-i-da-a-ar* < **ud-ór*, but not with nom.-acc.sg. *ḡa-a-tar* < **uód-r*. There can thus be no doubt that the sequence *-ta-ar* in *ú-ḫi₅-ta-ar* represents a ‘shortened’ version of the normally plene spelled sequence *-ta-a-ar*. For the other three words we have to discuss the context they occur in:

uddar: The form spelled *ud-da-ar* occurs five times. In four of these cases, the form is clearly plural:

KUB 27.29 ii

(56) **ud-da-ar**=m=a-a[š-ta]

(57) *ḡu-e* KA×U-az *pa-ra-a i-ia-at-ta-ri* [...]

(58) *n=a-at LĀL-it i-ḡa-ar ša-ni-iz-zi e-eš-du* [...]

‘... (And / but) the **words** which come out of the mouth must be sweet like honey.’

In this passage, *ud-da-ar* stands in a relative clause with *ku-e* as its corresponding relative pronoun. Since this form is specifically plural, *ud-da-ar* must be plural as well.

KUB 55.38 iii

(13) [... *ar-t*]a-ri nu *šu-up-pa ud-da-ar*

(14) [...]x *me-mi-iš-ke-ez-zi*

‘... he/she stands and he/she speaks pure **words**.’

In this passage, *ud-da-ar* is preceded by the adjective *šu-up-pa*. Since this latter form is specifically plural, *ud-da-ar* must be plural as well.

KBo 26.70

(16) ^d*ku-mar-bi-iš*[*ud-da-a-ar*] A-NA ^{LÚ}SUKKAL=ŠÚ *me-mi-iš-ke-u-ḡa-an* [*da-iš*]

(17) ^d*mu-ki-ša-n*[u ^{LÚ}SUKKAL=IA **ud-d**]a-ar=ta *k[u-e te-mi ...]*

‘Kumarbi [began] speaking [the words] to his vizier: “O Mukišan[u, my vizier, the **wo**rd]s wh[ich I speak] to you ...”’

The additions are taken over from Siegelová,⁶¹ who undoubtedly based them on the following parallel (duplicate?) text:

KBo 26.82

(1) [...]x[] *ud[-d]a-a-ar* A-NA ^{LÚ}x-]

(2) [*me-mi-iš-k*]e-u-ḡa[-a]n d[a-]iš ^d*mu-ki-š*[a-nu]

(3) [*ud-da-*]a-ar=ta *ku-e te-mi nu=mu ud-d*[a-na-aš]

In line 3 of the parallel text we see a plene spelling in [*ud-da-*]a-ar as well as the presence of the nom.-acc. pl. n. relative pronoun *ku-e*, which means that in this case the word for ‘word’ is plural. This implies that the form [*ud-d*]a-ar in KBo 26.70 is plural, too.

KUB 12.65 ii

(5) ^d*mu-ki-ša-nu-uš* ^d*ku-mar-bi-ia-aš ud-da-a-ar a-ru-ni* EGIR-pa *me-mi-iš-ke-u-ḡa-an da-a-[iš]*

....

(9) ... *ma-a-an šal-li-iš a-ru-na-aš ud-da-ar IŠ-ME*

⁶¹ Siegelová 1971, 38.

‘Mukišanu began to pass on the words of Kumarbi to the sea: [quotation follows]. When the great sea heard the **words**.’

Since the form *ud-da-ar* of line 9 refers to the same words that in line 5 are indicated with the specifically plural form *ud-da-a-ar*, the form *ud-da-ar* in line 9 must be interpreted as a plural as well. This is confirmed by the fact that its duplicate text, KUB 33.122, contains the form [*ud-d*]a-a-ar (iii 7), with plene spelling that proves the form’s plural number.

There is one case, however, where it cannot be independently determined whether the form *ud-da-ar* is singular or plural.

KBo 22.6 i

(7) [*nu*] <A-NA> ^{LÚ.MEŠ}<UR.>SAG **ud-da-ar**=še-et me-mi-iš-ke-u-ua-an da-a-[iš]

‘And he began saying his **word(s)** to the heroes.’

In this passage, there is no word that agrees with *ud-da-ar*=še-et that could indicate whether it is singular or plural, nor does the context provide any clues, since the sentence that follows is simply a quotation. Nevertheless, there can hardly be any doubt that here a plural form is meant, too.

We can thus conclude that the spelling *ud-da-ar* is always used as a variant of *ud-da-a-ar* ‘words’, and not of *ut-tar* (= *ud-dar*₆) ‘word’. This implies that the spelling of nom.-acc. sg. n. *ut-tar* (= *ud-dar*₆) with the sign *tar* (= *dar*₆), which occurs over 250× in our files, is a consistent one.

huidar / huitar: We find three forms spelled with *ta-ar*, and one with *da-ar*. Of the four forms in total, there are two attestations where a plural interpretation seems certain.

KBo 20.33 obv.

(13) [TUŠ-aš] ^di+na-ar Û ^aha-ba-an-da-li IŠ-TU É ^di+na-ar

(14) [**hu-i**]-**ta-ar** KÙ.BABBAR ú-da-an-zi 1 hu-pár GEŠTIN A-NA PÌRIG.TUR 1 hu-pár GEŠTIN A-NA ŠAH.NÍTA la-hu-an-zi

(15) [**hu**]-**i-ta-ar** ša-mi-nu-an-zi pé-e-ri-in ša-mi-nu-an-zi

‘[Sitting]. Inar and Ḫabandali. From the temple of Inar they bring [**ani**]m^als (of) silver. They pour one *hupar* wine for the panther, one *hupar* wine for the boar. They cause [the **ani**]m^als to pass by. They cause the *pēri* to pass by.’⁶²

Since the two forms spelled *hu-i-ta-ar* in this passage refer to both the panther and the boar, the forms are to be interpreted as plural forms.

The interpretation of the two other attestations is less clear.

KBo 4.2 i

(58) me-mi-iš-ke-ez-zi=ma kiš-an ḫal-ki-iš=ua ma-aḫ-ḫa-an NAM.LÚ.ULÙ^{LU} GUD UDU

(59) **hu-i-ta-ar-r**=a hu-u-ma-an hu-iš-nu-uš-ke-ez-zi LUGAL MUNUS.LUGAL ki-i=ia

(60) É-er ka-a-aš ḫal-ki-iš kal-la-ri-it ud-da-na-az QA-TAM-MA hu-iš-nu-ud-du

‘And he speaks as follows: “Just as grain keeps alive mankind, livestock and all **wildlife** / **wild animals**, this grain must likewise save king, queen and this house from inauspicious things”.’

In this passage, *hu-i-ta-ar-r=a* is followed by the postposing adjective *ḫūman* ‘all’, which is a nom.-acc. sg. n. form. Since we expect this adjective to agree with the noun it modifies, the implication is that *hu-i-ta-ar-r=a* must then be singular as well: ‘mankind, livestock and all wildlife (sg.)’. However, note that just three lines below this passage we find the clause *nu NUMUN^{HLA} kue ḫūman šanḫuta*

⁶² Translation: Burgin 2019, 33.

(KBo 4.2 i 62) ‘all the seeds which were roasted’,⁶³ in which the formally singular form *hūman* agrees with the clearly plural form NUMUN^{HI.A} *kue* ‘which seeds’ (note the specifically plural form *kue*). This implies that *hu-i-ta-ar-r=a* may be interpreted as a plural form, too: ‘mankind, livestock and all wild animals (pl.)’.

VSNF 12.143

(3) [...]^d*hé-pát* URU^x[...]

(4) [...] *hu-i-da-ar* [...]

This fragment is so small that there is no way to determine from the context what the number of *hu-i-da-ar* is.

In conclusion, the only two cases of *hu-i-ta-ar* whose number can be interpreted with certainty are plural. In the other two cases, the grammatical number cannot be independently determined, but a plural interpretation is certainly possible. We may therefore assume that the spelling *hu-i-da-ar* / *hu-i-ta-ar* corresponds to the plural form *hu-i-da-a-ar* / *hu-i-ta-a-ar* ‘animals’, and not to the singular form *hu-i-tar* ‘game, wildlife’. This implies that this latter form (which occurs over 5 times⁶⁴) is consistently spelled with *tar*.

pattar: All three attestations of *pát-ta-ar* are, in fact, duplicates of each other: [*pát*]-*ta-ar-r=a* (KBo 17.1 iii 24 (OS)) // *pát-ta-ar-r*[=*a*] (KBo 17.3 iii 24 (OS)) // *pát-ta-ar-r=a* (KBo 17.6 iii 16 (OS)). The fact that all three forms are spelled with *ta-ar*, a sequence that is very rare, is peculiar. Moreover, for many other words attested in these duplicate texts, no consistency in spelling can be found. Compare, for instance, *i-ia-mi* (KBo 17.6 iii 13, 15) vs. *i-e-mi* (KBo 17.1 iii 21, 23) ‘I do, make’, *mu-ri-ia-la-aš* (KBo 17.3 iii 27) vs. *mu-ri-ia-le-eš* (KBo 17.6 iii 19, KBo 17.1 iii 27) ‘fruit breads’, *ti-iš-šum-mi-u[š]* (KBo 17.3 iii 23) vs. *te-eš-šum-mi-uš*¹ (KBo 17.6 iii 15) vs. *te-eš-šu-mi-uš* (KBo 17.1 iii 23) ‘cups’. And compare also *I-NA SI-ŠU* (KBo 17.6 iii 18, 19) vs. *garauni=ši* (KBo 17.1 iii 26, 27) ‘on its horn’. The fact that in all three duplicates the form *pát-ta-ar-ra* is spelled in the same, remarkable way, can thus hardly be coincidental. The passage in which this word occurs can, on the basis of the three duplicates, be read as follows (taking KBo 17.1 iii 23–24 as main text):

(23) [...]*ha-li-]i-na-aš te-eš-šu-mi-uš [(i)]-e-mi ku-un-ku-ma-ti*^S[^{AR}]

(24) [... (x-*hi pát*)]-*ta-ar-r=a* *har-mi nu-u=š-ša-an NUMUN-an* []

(25) [...]*k]i-it-ta* ^{GIŠ}*zu-pa-a-ri ki-it-ta 1 MÁŠ.GAL-r[i]*

‘I make cups of clay. I [...] *kunkumati*-plants [in it?]. I also hold **a basket** / **baskets**. Seed is lying [inside?], a torch / torches lie(s) (inside). One billy-goat.’

It cannot be independently determined whether *pát-ta-ar* denotes a singular or a plural form here: both ‘a basket’ and ‘baskets’ would be fitting translations. However, since in the preceding clause the narrator of the text refers to making multiple cups (*teššummiuš*), it certainly does not seem impossible that (s)he was also holding multiple baskets. If so, *pát-ta-ar* would be equivalent to the (unattested) nom.-acc. pl. form **pád-da-a-ar* / **pát-ta-a-ar*, and not the nom.-acc. sg. form *pát-tar*. This would imply that the nom.-acc. sg. n. form of this word, which is attested 2× as *pa-at-tar* and 14× as *pát-tar*,⁶⁵ is consistently spelled with the sign *tar*.

All in all, it seems fair to say that all forms spelled *-ta-ar* / *-da-ar* belonging to neuter *r/n*-stems can be interpreted as plural forms, and thus show a spelling variant of the plene spelled sequences *-ta-a-ar* / *da-a-ar*.

⁶³ Translation: Hoffner – Melchert 2008, 425.

⁶⁴ Cf. HED H, 352.

⁶⁵ Cf. CHD P, 241.

4.2 Etymologies of words consistently spelled *tar*

When we look at the origins of the words that are consistently spelled *tar*, we find two main groups (note that only assuredly Hittite words with a secured Indo-European origin are relevant here).

1. The first group consists of words in which *tar* spells a syllable containing a vowel that is the result of a vocalization of **r* in an original zero-grade formation (reconstruction of ablaut grade on the basis of morphological expectations): *-ātar*, verbal abstract suffix (nom.-acc. sg. n.) < **-ó-tṛ*; *huitar* ‘wild animals, game’ (nom.-acc. sg.) < **h₂uéid-ṛ*; *ištar(k)*-^{zi} ‘to ail, afflict’ < **stṛK-* (weak stem forms); *ištarni(n)k*-^{zi} ‘to ail, to afflict’ < **stṛ-nen-K-*; *galaktar* ‘smoothing substance’ < *glog^h-tṛ*; *kalle/ištaruan-* ‘feast, party’ < **kelh₂s-tṛ-*; *nuntar-*, *nuttar-* ‘haste, swiftness’ < **num-tṛ-*; *pattar* ‘basket (nom.-acc. sg.)’ < **péth₂-ṛ*; *pattar* ‘wing (nom.-acc. sg.)’ < **péth₁-ṛ*; *tar-* ‘to speak’ < **tṛ-* (weak stem forms); *tarḫu*-^{zi} ‘to conquer’ < **tṛh₂u-* (weak stem forms); *tarku*-^{zi} ‘to dance’ < **tṛk^w-* (weak stem forms); *tarna*-ⁱ ‘to let go’ < **tṛk-ne-H-*; *tarš-* ‘to dry’ < **tṛs-* (weak stem forms); *uttar* ‘word, thing, case (nom.-acc. sg.)’ < **uth₂-ṛ*; *uātar* ‘water (nom.-acc. sg.)’ < **uód-ṛ*.

2. The second group consists of words in which the vowel of the syllable spelled *tar* reflects an original **e*-grade, which has been coloured in the sequence *eRC*: *tarra*-^{ta} ‘to can, to be able’ < **térh₂-o*; *tarḫu*-^{zi} ‘to conquer’ < **térh₂u-* (strong stem forms); *tarku*-^{zi} ‘to dance’ < **térk^w-* (strong stem forms).

There are two lexemes whose reconstruction is unclear. The first, *ištarna/i* ‘amidst, between, among’, can be reconstructed as either **stṛn-* or **storn-* (with the root **stern-* as in Gr. στήρνον ‘breast, heart’).⁶⁶ This word is therefore of no use in the present discussion. The second, *tarmā* ‘nail’ (with its derivative *tarmae*-^{zi} ‘to nail’), can likewise be reconstructed either as **tṛmo-* or as **tormo-*,⁶⁷ and therefore should be left out of the discussion.

We can thus conclude that the only secured sources for consistent spelling with the sign *tar* are the sequences **Tṛ* and **Ter[C]*.

4.3 Conclusions regarding *tar* vs. *ta-ar* / *da-ar*

We may thus conclude the following: a consistent spelling with *tar* correlates with the etymological sequences **Tṛ* and **Ter[C]*; a spelling that alternates between *ta-ar* and *tar* does occur, but not in words with an Indo-European origin; the spelling *ta-ar* / *da-ar* that alternates with the plene spelled sequence *ta-a-ar* / *da-a-ar* reflects PIE **Tór*.

Table 4. Etymological origins of the spellings *tar*, *t/da-ar*, and *t/da-a-ar*.

	PIE <i>*Tṛ</i>	PIE <i>*Tér[C]</i>	origin unclear	PIE <i>*Tór</i>
<i>CaR</i>	<i>tar</i>	<i>tar</i>	<i>tar</i>	--
<i>Ca-aR</i>	--	--	<i>ta-ar</i>	<i>t/da-ar</i>
<i>Ca-a-aR</i>	--	--	--	<i>t/da-a-ar</i>

⁶⁶ Kloekhorst 2008, 418.

⁶⁷ Kloekhorst 2008, 845.

5. Overall conclusions

If we combine the tables of the treatments above, and add Frotscher's findings regarding *kán* vs. *k/g/qa-an*, we get the following result:

Table 5. Etymological origins of the spellings *CaR*, *Ca-aR*, and *Ca-a-aR*.

	<i>*Cṛ</i>				<i>*CeR[C]</i>				<i>*CoR</i>				<i>*Cór, *CojóR</i>			
	<i>k_n</i>	<i>p_r</i>	<i>ḥ_l</i>	<i>t_r</i>	<i>k_n</i>	<i>p_r</i>	<i>ḥ_l</i>	<i>t_r</i>	<i>k_n</i>	<i>p_r</i>	<i>ḥ_l</i>	<i>t_r</i>	<i>k_n</i>	<i>p_r</i>	<i>ḥ_l</i>	<i>t_r</i>
<i>CaR</i>	?	X	X	X	X	X	?	X	X	X	X	?	--	?	?	--
<i>Ca-aR</i>	?	--	--	--	--	-- ¹	?	--	X	X	X	?	X	?	?	X
<i>Ca-a-aR</i>	?	--	--	--	--	--	?	--	X	X	--	?	X	?	?	X

¹ Only once: *iš-pa-ar-zi-zi* < **spérd^h-ti*.

Although the outcomes of some etymological sequences are unattested for some of the signs, the combined distributions show a clear pattern: the etymological sequences **Cṛ* and **CeR[C]* yield outcomes that are virtually consistently spelled with signs of the structure *CaR*; the etymological sequence **CoR* yields an outcome that is spelled with *CaR* signs as well as the sign combination *Ca-aR* (and with *Ca-a-aR* in Old Hittite when the **o* was accented); the etymological sequences **Cór* and **CojóR* yield an outcome that is primarily spelled *Ca-a-aR* but can be spelled *Ca-aR* as well. We are thus dealing with three different graphemes here, two non-plene spelled ones, which we may term <a₁> and <a₂>, and a plene spelled one, <ā>:

1. <a₁> is always spelled *CaR*, and reflects PIE **Cṛ* and **CeR[C]*;
2. <a₂> is spelled *CaR* and *Ca-aR*, and in principle always reflects PIE **CoR*;
3. <ā> is spelled *Ca-a-aR* and occasionally *Ca-aR*, and reflects **Cór* / **CojóR*.

6. Interpretation

It is widely acknowledged that the difference between the plene spelled grapheme <ā> and its non-plene spelled counterpart <a> (which, in fact, are now two, <a₁> and <a₂>) is a phonetic / phonological one: <ā> is generally interpreted as denoting a long /ā/, whose length is phonemic vis-à-vis non-plene spelled <a>, which is generally regarded to be a short vowel. The question now arises whether the difference between the two non-plene spelled graphemes, <a₁> and <a₂>, is phonetic / phonological as well, or is based on some other characteristic.

6.1 Frotscher's proposal: an orthographic relic

In his forthcoming article on the the difference between *kán* and *k/g/qa-an*, Frotscher explores the latter possibility.⁶⁸ He points out that PIE accented **ó* in Old Hittite in principle yields a long vowel, /ā/, which is spelled plene: e.g. **spónd-ei* > OH *iš-pa-a-an-ti* /ispánti/ 'he libates'. However, already within the Old Hittite period, this long /ā/ was shortened when standing in a non-final, closed syllable: early OH *iš-pa-a-an-ti* /ispánti/ > late OH / MH / NH *iš-pa-an-ti* /ispánti/. This means that in all words where we synchronically find a non-plene spelled *a* that etymologically reflects an accented PIE **ó*, we may assume that in earlier times these words contained a long /ā/. According to Frotscher, we may therefore assume that the spelling *k/g/qa-an* that is used for denoting etymological **-Kón-* is, in fact, an orthographic relic from the time when the vowel actually was long, and thus was spelled *k/g/qa-a-an*. In other words, the *k/g/qa-an* spelling arose as a defective spelling of *k/g/qa-a-an*, which was retained also when the vowel itself had undergone

⁶⁸ Frotscher [forthcoming](#).

shortening from /-Kán-/ to /-Kán-/. Synchronically, this spelling would thus be merely traditional: the spelling *k/g/qa-an*, which alternates with *kán*, (i.e., <a₂>) would not signify a vowel that is phonetically or phonologically distinct from the *a* that is consistently spelled *kán* (<a₁>): both represent a single vowel, i.e. short /a/.

Although this scenario may not be impossible, there are, to our minds, some unattractive sides to it. First, if we look beyond the case of *k/g/qa-an* vs. *kán*, the grapheme <a₂> need not only reflect a PIE accented **ó*, but may in some cases also reflect a PIE unaccented vowel. The most prominent such case is *ḫāḫhall-* ‘greenery’, where the OH plene spelling of the first *a* (*ḫa-a-aḫ-ḫa-al-l°*) unambiguously indicates that this word was accented on its initial syllable, /*ḫáḫal:-*/, and not on the syllable that contains the <a₂>: hence the reconstruction **Hé-HolH-*, with accent on the first syllable (see above). This means that this word thus contains an <a₂> that must reflect an earlier unaccented vowel, possibly **o*. Since it is commonly assumed that, in the prehistory of Hittite, PIE unaccented vowels in principle never underwent lengthening, there thus could never have existed an earlier spelling of this word where the *a* of the second syllable was spelled plene (no ***ḫa-a-aḫ-ḫa-a-al-l°*). The *Ca-aR* spelling of this vowel therefore cannot have been the result of an orthographic tradition going back to a defective spelling of an originally plene spelled sequence *Ca-a-aR*. This then implies that also in the cases where <a₂> spells an accented vowel the *Ca-aR* spelling need not have been the result of an orthographic tradition reflecting earlier **Ca-a-aR*.

Another reason for doubting Frotscher’s analysis is that it must assume that a historical spelling was retained as a spelling convention for centuries after the original phonetic difference that caused the spelling difference had ceased to exist (cf. the attestations of *Ca-aR* spellings in NH/ (L)NS texts). And although writing systems with historical spellings do exist, and synchronically unmotivated spelling conventions in such writing systems can be maintained for long periods of times, one would expect to find at least some spelling mistakes in Hittite texts (occasional *Ca-aR* spellings for <a₁>) if the distinction between <a₁> and <a₂> had no synchronic phonetic basis and was solely a conventional one.

6.2 An alternative proposal: two phonemically distinct vowels

We will therefore propose an alternative solution, namely that the spelling distinction between <a₁> and <a₂> was a phonetic / phonological one. There are several possible ways in which <a₁> and <a₂> could be phonetically / phonologically distinct. The first one is that they are distinct in a quantitative way, i.e. that the two vowels differed from each other in length. Since both <a₁> and <a₂> should be shorter than <*ā*>, we should then assume a triple length distinction, i.e. <a₁> = [a] vs. <a₂> = [a] vs. <*ā*> = [a]. Or perhaps <a₁> = [ä] vs. <a₂> = [a] vs. <*ā*> = [a]. However, this seems relatively unattractive to us: triple length distinctions are cross-linguistically rarely attested, and this interpretation may therefore not be a preferred option.

We therefore think it is better to explore the second possibility, i.e. that <a₁> and <a₂> are qualitatively distinct vowels. Since both vowels are spelled with signs that, at least in Akkadian, render the low vowel /a/, one option is to assume that both vowels are indeed low ones, but that one of them is the low front vowel, [a], and that the other is the low back vowel, [ɑ]. Since one of the etymological sources of <a₁> is the front vowel **e*, whereas <a₂> reflects the back vowel **o*, it would make sense to assume within this scenario that <a₁> is [a] vs. <a₂> is [ɑ]. Since <a₂> often is the shortened outcome of an earlier <*ā*>, it would then imply that this latter vowel = [ɑ]. Another option is to assume that both vowels are relatively low, but did show a difference in height, and that one of them represents the general low vowel [a], whereas the other is the near-low central vowel [ɐ]. Since one of the etymological sources of <a₁> is the vocalization outcomes of resonants, and since cross-linguistically such vowels are very often centralized ones, we may in this scenario assume that <a₁> = [ɐ] vs. <a₂> = [a] (which would imply that <*ā*> = [a]). A third option is that the outcome of the vocalized resonants was, in fact, a *schwa*, i.e. the mid central vowel [ə], as it

cross-linguistically often is, and that <a₁> is, in fact, [ə], contrasting with <a₂> = [a] (with <ā> being [aː]). The fact that this [ə] is written with *CaR*-signs containing the vowel *a* may then be compared to the fact that *a* (in *Ca*, *aC* and *CaC*-signs) is the preferred way by Hittite scribes to write dead vowels, which implies that *a* was viewed as the most “neutral” vowel.

To our mind, a scenario that assumes a qualitative distinction between <a₁> and <a₂> is clearly preferable over the scenario that they were distinct in quantity. However, it is not easy to determine which of the three discussed options of a qualitative distinction is the better one. At present we have a slight preference for the third one, i.e. <a₁> = [ə] vs. <a₂> = [a] (with <ā> being [aː]), and we will use this interpretation from now on.

Note that this interpretation of the distinction between <a₁> and <a₂> does not only have consequences for the interpretation of the Hittite sound system on a phonetic level. On the basis of near-minimal pairs like *pár-aš-zi* (with <a₁>) = [pərːstsi] ‘he flees’ < **b^hérs-ti* vs. *pa-ap-pa-ar-aš-zi* (with <a₂>) = [paparːstsi] ‘he sprinkles’ < (virtual) **pV-pórs-ti*,⁶⁹ we can conclude that the two vowels, <a₁> = [ə] and <a₂> = [a], were not only phonetically distinct, but also phonemically so: <a₁> = /ə/ vs. <a₂> = /a/.

This analysis implies that, for instance, *ḫa-a-ap-pár* ‘business’ should now be interpreted as /χápər/ (< **h₃ép-r*), *ḫal-za-i°* ‘to call’ as /χəltːsai-/ (< **h₂ltoi*), and *iš-tar-ni-in-k°* ‘to ail’ as /istərnink-/ (< **stṛ-nen-K*), all with PIE *ṛ* > Hitt. /əR/. Moreover, it implies that the development of PIE **eRC* to Hitt. *aRC* (including **enT* > *anT*), which yielded <a₁>, should no longer be viewed as a *lowering* of **e* to [a], but rather as a *centralization* of **e* to [ə]: e.g. *pár-ak-ta-ru* ‘he must rise’ = /pərktaru/ < **b^hérǵ^h-to(-)*; *tar-uk-zi* ‘he dances’ = /tərkwːtsi/ < **térk^w-ti*. A real short /a/ < PIE **o* can now be assumed for words like *pa-ap-pa-ar-ši* / *pa-ap-pár-ši* ‘he sprinkles’ = /papársi/ < **pV-pórs-ei*, *ḫa-a-aḫ-ḫa-al* / *ḫa-a-aḫ-ḫal* ‘greenery’ = /χāχal/ < **Hé-HolH*, and *te-eš-ḫa-al-li* ‘sleepy’ = /tesχali-/ < **d^heh₁sh₂ol°*.

6.3 Consequence: proof for a phonemic /ə/ in Hittite

Some of Kloekhorst’s earlier publications already worked with the assumption of an /ə/, spelled *a*, as the outcome of the vocalization of syllabic resonants in Hittite.⁷⁰ However, this assumption was never fully watertight: a phonemic distinction between /ə/ and /a/, both spelled *a*, could thus far not be orthographically proven. Yet, the present study of the difference between *CaR* signs and their corresponding *Ca-aR* spelling now does support the assumption of an /ə/ as the result of the vocalization of **ṛ* in Hittite and as a phoneme that is distinct from /a/. Moreover, an unexpected additional outcome of this study is the realization that whenever PIE **e* was in Hittite coloured by a following cluster of resonant + consonant(s) (**eRC*, including **enT*), its outcome was not /a/, but rather /ə/.⁷¹ This implies that such an /ə/ < **e* did not only occur in words treated in this article, like *tarḫu-* ‘to conquer’ = /tərχwː-/ < **térh₂u-*, or *parkui-* ‘pure’ = /pərkwːi-/ < **pérk^w-i-*, but must

⁶⁹ The NH form *pa-ap-pa-ar-aš-zi* is an inner-Hittite remodelling of earlier *pa-ap-pa-ar-ši* < **pV-pórs-ei*.

⁷⁰ Most explicitly in Kloekhorst 2014a, 249–250.

⁷¹ Note that this insight has in the meantime been fruitfully applied by our Leiden colleague Stefan Norbruis in his discussion of the prehistory of the Hittite *ḫi*-conjugation (Norbruis 2021, 151–171): he shows that originally *mi*-conjugating verbal stems in which a PIE **e* was coloured by an adjacent **h₃* or **h₂* to PANat. **o* and **a*, respectively, were transferred to the *ḫi*-conjugation (e.g. *dā-i* ‘to take’ < **deh₃-*; *ḫāt-i* ‘to dry up’ < **h₂ed-*), but not verbal stems in which **e* was coloured due to a following sequence **RC*: *mi*-conjugating verbs of the structure **CeRC-*, which yield Hittite *CaRC-*, all remained *mi*-conjugated. As Norbruis cogently argues, this can only be explained within the framework as presented in this article, namely that the outcome of the PIE sequence **eRC* in Hittite was not **/aRC/ but rather /əRC/. Moreover, Norbruis shows that the development **eRC* > /əRC/ overrules the colouring of PIE **h₂e* and **h₃e* to **Ha* and **Ho*, respectively: hence the fact that *ḫark-* ‘to have’ < **h₂erk-* and *ḫark-* ‘to perish’ < **h₃erg-* are *mi*-conjugated verbs, not *ḫi*-conjugated ones (see already Kloekhorst 2014a, 242 n. 872 for the idea that the colouring of **enT* overrules the colouring of **h₃e*).

also be assumed for other words, like *ašanzi* ‘they are’ = /əsántsi/ < **h₁sénti*, *karšzi* ‘he separates’ = /kárstsi/ < **kérsti*, *daššu* ‘strong’ = /t’ásu-/ < **dh₁éns-u-*, etc.

To what extent the difference between /ə/ and /a/ is expressed in other signs of the structure *CaC* vs. their corresponding *Ca-aC* spellings, is a matter to be addressed in future research.

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ON THE COVER:

An orthostat relief from Karatepe.

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