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Hittite *ḫi*-Verbs of the Type *-āC$_1$i*, *-aC$_1$C$_1$anzi* *

Abstract: No fully satisfactory account of the subtype of the Hittite ḫi-conjugation with the pattern Pres3Sg *-āC$_1$i*, Pres3Pl *-aC$_1$C$_1$anzi* (e.g., *aki*, *akkanzi* 'die(s)') has yet been presented. Efforts to explain it in terms of the established Proto-Anatolian "lenition" rule face incontrovertible counterexamples, and alternatives such as a lengthened-grade perfect have their own obstacles. Building on a crucial observation by Kloekhorst (2008), I will defend the proposal of Kimball (1999) that there was a separate "lenition" of just **h$_2$* after accented **ó* in pre-Hittite, motivating it phonetically in terms of the already established "stronger" or "longer" quality of PIE phonemic */o/ vs. */e/ and */a/, as reflected in "Brugmann's Law" in Sanskrit and "Čop's Law" in Luvian.

Keywords: Brugmann's Law, Čop's Law, *ḫi*-conjugation, Hittite *aki*/*akkanzi*, lenition

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Of the many still unresolved problems regarding the Hittite *ḫi*-conjugation, one of the most recalcitrant is the class of verbs showing a pattern of Pres3Sg in *-āC$_1$i* vs. Pres3Pl in *-aC$_1$C$_1$anzi*. For all of its notoriety the class is a small one: *aki*, *akkanzi* 'die(s)'; *ḫāši*, *ḫaššanzi* 'beget(s); give(s) birth'; *ḫāši*, *ḫaššanzi* 'open(s)'; *ištāpi*, *ištappanzi* 'block(s), stop(s) up'; *nāḫi*, **naḫḫanzi* (ptc. *naḫḫant-*) 'frighten(s); take(s) fright'; *pāši*, *pašanzi* 'swallow(s)'; *wāki*, *wakkanzi* 'bite(s)'; *zāḫi*, **zaḫḫanzi* (Pres1Pl *zaḫḫueni*) 'strike(s), beat(s)'. There is also general agreement that we should include *šāḫi*, **šaḫḫanzi* 'clog(s), fill(s) up', although in this verb the strong stem has been generalized (see Oettinger 1979: 512 and Kloekhorst 2008: 690–691). One should note that there is a general tendency to spread the strong stem to positions where we would expect the weak:

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see also Pres3Pl *paša*[*nzi*], *zaḫanzi*, VblNoun *nāḫuwaš*, etc. On a possible motivation for generalization of *šāḫ-* in particular see below.

For most verbs of this class the derivatives argue that the stem with the geminate consonant is basic: *akkātar* 'death', *ḫāšša-* 'offspring, progeny' and *ḫaššatar* 'birth; family', *ištappeššar* 'dam' and *ištappulli-* 'lid, stopper', ^{UZU}*pap(p)aššala/i-* 'esophagus' (or 'gullet'), *zaḫḫ(a)i-* 'fight, battle' (for 'frighten' one may adduce CLuvian *naḫḫuwa-* 'be an object of concern for'). As noted, *šāḫ-* has generalized the strong stem, whence *šaḫeššar* 'fortification' (based on the well-established Hittite use of the "Kastenmauer" type of construction, on which see now De Vincenzi 2008). The one exception is *wāg-* 'bite', where the derivatives ^{NINDA}*wageššar* 'bread morsel' (or sim.), ^{NINDA}*wagāta-* (likewise a kind of bread) show that the single stop is basic.[1]

One factor that has made an account of this class particularly difficult is that many of the verbs lack a sure etymology. However, the few etymologies that are clear confirm that the geminate consonant is original for most, but not for *wāg-* 'bite'. The verb *naḫḫ-* 'to frighten; take fright' reflects PIE **neh$_2$-* seen also in OIr. *nár* 'noble, modest; grievous' < **neh$_2$s-ro-* 'fearsome, awesome' (also the base of Hitt. *naḫšaratt-* 'fear'): see Kloekhorst 2008: 592 and Puhvel 2007: 13 with reference to Pedersen. As per Kloekhorst (2008: 691), *šāḫ-* continues PIE **seh$_2$-* 'to fill up', seen in the derived sense 'to satiate' in Latin *satis* 'enough', Grk. ἄμεναι 'to satiate oneself' etc. Hitt. *pašš-* 'to swallow' represents **peh$_3$-s-*, an "*s*-present" or "*s*-enlarged" form of **peh$_3$-*, continued in "Core Indo-European" as 'to drink' (Kloekhorst 2008: 649 with refs. *pace* Puhvel 2011: 183–184). Finally, whether one favors a preform **h$_2$ens-* (Melchert 1994a: 164) or **h$_2$ems-* (Kloekhorst 2008: 319–321) and whatever the ultimate etymology, it is certain that *ḫašš-* with a geminate is the primary form of 'to beget; give birth', resulting from assimilation of a nasal plus **s*. On the other hand, *wāg-* 'to bite' is a reflex of a PIE verb 'to break', either **weh$_2$ĝ-* (thus Kimball 1988: 245; LIV^2: 664; Kloekhorst 2008: 940, and adopted here) or **waĝ-* (Jasanoff 2003: 150).

1 Contra Rieken (1999: 196) and Kloekhorst (2008: 939) the form *wagăt/daš* occurring in OH texts in the context of lists does not prove an *s*-stem, but reflects merely the common use of the nominative as the "default" case in lists (see Hoffner & Melchert 2008: 243, § 16.9).

The fact that for most of the class the geminate consonant (NB in all cases an obstruent) is primary has naturally led to attempts to explain the single consonant of the strong stem (which appears after a synchronically long vowel) as the result of "lenition" (or voicing). That is, one would like to attribute the alternation to the well-established Proto-Anatolian rule by which voiceless stops and $*h_2$ were lenited/voiced after a preceding accented long vowel (Eichner 1973: 79ff.; Morpurgo Davies 1982/83; Adiego Lajara 2001). Oettinger (1979: 447–50) posits a sound change by which a sequence of accented short vowel in an open syllable followed by short syllable lengthens the first, in time to "lenite" the following obstruent. Kloekhorst (2006a: 132 and 2008: 65 and 98) has attempted to revive this rule for accented short **ó* (without the specification of a following short syllable, but with restriction to initial and final syllables).

Unfortunately, the rule as stated by Oettinger and Kloekhorst cannot be correct, since there are incontrovertible counterexamples: Hitt. *ḫuwappi* 'throws, hurls' reflects **h₂wópei* (with initial *ḫ-* retained against the "Saussure-Hirt effect" after the weak stem *ḫupp-*). Contra Kloekhorst (2008: 369), one cannot in this case arbitrarily invent a root-final first laryngeal $*h_1$ to explain this example away, since the oldest participle of the Sanskrit cognate *vap-* is *uptá-*, showing that the root is aniṭ (thus correctly LIV²: 684, but without recognition of the Hittite evidence for the initial laryngeal). It is also methodologically illicit (effectively circular) to posit a final $*h_1$ on the root **deĥ-* of Hitt. *dakk-* 'match, resemble' purely in order to avoid the counterexample to the supposed lenition rule (again LIV²: 109 correctly reconstructs an aniṭ root). Since the two verbs cited do have ablauting paradigms, one could try to explain the geminate in the strong stem as taken from the weak, but then one would need to explain why this did not happen in the case of the *aki*, *akkanzi* type.

Kloekhorst (2006a: 132 and 2008: 95) claims that *ḫāppar* 'business; transaction' reflects $*h_3ép\text{-}r̥$ and that the *[o] resulting from $*h_3e$ did not fall together with apophonic **o* and therefore did not "lenite" the following **p*. But the vowel of the word clearly *is* long, so he must in ad hoc fashion assume that only after the lenition rule ceased to operate the short **o* did finally lengthen. On the contrary, the Hittite word shows that the accented **ó* did in fact lengthen, but did not lenite the following voiceless stop. There are two possibilities. First, one could assume an original acrostatic *r/n*-stem $*h_3óp\text{-}r̥/h_3ép\text{-}n$-, whose weak stem was then modi-

fied to *$h_3$ep-én- (cf. Hitt. *widen-* 'water' < *wed-én-). The original weak stem is reflected in the derivative *ḫappena-* 'rich' etc., while the base noun generalized the strong stem (contra Kloekhorst, loc. cit. and Pinault 2012: 418, who uneconomically reconstructs an *r*-stem and and *n*-stem). By this derivation, it was apophonic **ó* that failed to lenite the following stop. Second, one could instead reconstruct a proterokinetic paradigm *$h_3$ép-r̥/h_3p-én-, but also in this case the Hittite word *ḫāppar* shows that the *[ó] lengthened, but failed to lenite the following stop. Once again, one could appeal in this case to paradigm leveling, assuming that the unlenited /p/ comes from the original weak stem.

Paradigm leveling will not explain other counterexamples. Hitt. *āppa* 'back' reflects a remade **āppi* (reflected in the derived verb *āppai*, *āppianzi* 'be finished; step back' and the HLuvian cognate *á-pi*; Melchert 2009: 335–336). The preform is clearly **(h_1)ópi* matching Grk. ὄπι (Puhvel 1984: 93–94). The analysis of Kloekhorst (2008: 193–194) starting from **$h_2$op-o* is quite impossible, including the false claim that Hittite local adverbs are inherently unaccented, contradicted by *p(a)rā* 'out, forth' with long vowel < **pró* (see Kloekhorst 2008: 630!).[2] Hitt. *wappu-* 'river-bank' reflects **(h_2)wópu-*, cognate with Skt. *vápra-* 'mound; rampart; high river-bank' < *vap-* 'throw, strew' (thus with Catsanicos 1985: 125). Here, with generalization of the *o*-grade strong stem, the "Saussure-Hirt effect" was not undone.[3] In sum, accented short **ó* manifestly did not "lenite" a following voiceless labial or velar stop (compelling examples for dental stops are lacking, but they surely behaved the same). We thus cannot explain *aki* etc. as being the product of the Proto-Anatolian "lenition" rule after accented *long* vowel, which clearly did affect following stops: **dhéh$_1$-ti* > **dǽdi* > Lyc. *tadi* 'puts', **wḗ$\hat{k}$-m̥* > Hitt. *wēkun* 'I demanded', etc.

2 Kloekhorst (2008: 730) likewise derives Hitt. *š(a)rā* from accented **sr-ó*. Anatolian **āppi* and Grk. ὄπι cannot, pace Kloekhorst, be separated from Grk. ἔπι, so if the word had an initial laryngeal, it must have been **h_1*. I also reject the claim of Kloekhorst (2006b: 83–84) that initial **h_2o-* merges with **h_1o-* in Hittite. None of his putative examples are compelling, and the development is contradicted by examples such as *ḫāšš-* 'ash; soap' < **$h_2$óh$_{1/3}$s-* (see Rieken 1999: 22, with reference to Melchert 1994a: 147f.).

3 The word would have originally referred to walls/embankments resulting from throwing down/piling up of earth and was then extended to natural formations of similar shape.

Other attempts to account for the *aki*, *akkanzi* type must likewise be rejected. Whatever the status of "long-vowel" perfects in PIE (see for a brief review Jasanoff 2003: 31), they cannot help solve the current problem. The only verb of the class that might reflect such a category is *wāg-* 'bite'. But even if one accepts the view of Jasanoff (2003: 150) that the root is **waĝ-* instead of **weh2ĝ-*, and the further assumption (which he does not) that the *ḫi*-verb might reflect a perfect, a preform **(we)wāĝ-* would produce only a consistent *wāg-*. It could not possibly have been the starting point for the alternation *-āCi*, *-aCCanzi*. The account of Melchert (1994a: 81) was based on the false premise of a single verb *išpar(r)-* 'to spread out (with the foot)'. Kloekhorst (2008: 406–410) has demolished the entire basis for that scenario. The derivation of *aki*, *akkanzi* < **ógei*, *égn̥ti*, (Melchert 1994b, 304) is contradicted by the fact that derivatives like *akkātar* 'death' show that it is the allomorph *akk-* with geminate stop that is basic.

Although his rule of lenition after accented short **ó* will not work as stated, Kloekhorst makes a crucial new observation (2008: 164), which can serve as the basis for a solution: he points out that factitives in **-eh2* (phonetically **[aħ]*) appear as Hittite *ḫi*-verbs with Pres3Sg *-aḫḫi*, never showing lenition of **h2* in direct contrast to *nāḫi* 'affrights' and *šāḫi* 'fills up, clogs', which by any analysis must continue *o*-grade **nóh2ei* and **sóh2ei*. This striking difference cannot be coincidental, and I see no way to avoid concluding that accented short **ó* did in fact "lenite" a following **h2*. Such a restricted "lenition" of just **h2* after accented short **ó* was in fact proposed by Kimball (1999: 397). She made no explicit contrast with *-aḫḫi* < **-éh2ei* in the factitives, nor did she try to motivate the change phonetically, and in Melchert (2011: 128) I dimissed the claim as ad hoc. The direct contrast cited by Kloekhorst between unlenited *-aḫḫi* < **-éh2ei* vs. lenited *-āḫi* < *-óh2ei* compels a reconsideration.

Before turning to the phonetic motivation for the change, I must deal with the putative counterexample I cited (2011: 128): Hitt. *lāḫḫa-* 'campaign', which appears to be an action noun of the τόμος-type reflecting a preform **lóh2o-*. Kloekhorst (2008: 510–511) argues for an original root noun instead, which would avoid the problem, since an ablauting paradigm **lóh2-/léh2-* could have generalized unlenited *-ḫḫ* from the regular weak stem *laḫḫ-* < **léh2-*. Unfortunately, Kloekhorst's argument in favor of a root noun is not entirely compelling: namely, that the de-

nominative verb *laḫḫiya-* 'to campaign' can hardly be derived from an *a*-stem. However, as I argued in Melchert (2004: 376), Hieroglyphic Luvian *hasi(ya)-* means 'to satiate' (with reflexive particle 'to satiate oneself, enjoy to the fullest'), derived from the noun (LINGERE)*hasa-* 'satiety, abundance' (itself formed from the root seen in Palaic *ḫaš-* 'be satiated').[4] So we cannot totally exclude *laḫḫiya-* < *lāḫḫa-*. An alternative account is that *lāḫḫa-* was only formed after the rule leniting $*h_2$ after **ó* ceased to operate. We know that the formation of deverbative action/result nouns remained very productive in Hittite, since some do not show the inherited *o*-grade of the τόμος-type: e. g., *gul(a)šša-* 'fate' < *gulš-* 'to draw, sketch, plan' or *kuera-* 'field' (section of land) < *kuer-* 'to cut'. It is thus likely that some examples like *ḫāšša-* 'offspring' that *could* show old *o*-vocalism are likewise recent creations based directly on the synchronic verb (*ḫāšš-* 'to give birth'). We are permitted to suppose a similar origin for *lāḫḫa-*, even if the base verb is missing, replaced by *laḫḫiya-*.

As to the phonetic motivation for "lenition" of $*h_2$ after **ó*, we must first review the status of the better-known "lenition" process of Anatolian. According to the original conception, Proto-Anatolian had two separate "lenition" (or voicing) rules, affecting stops and $*h_2$: one occurred after a preceding accented long vowel (including long vowels resulting from loss of tautosyllabic laryngeals) and the other between unaccented vowels (Eichner 1973: 79ff. and 100[86]; Morpurgo Davies 1982/83). However, as shown by Adiego Lajara (2001), Proto-Anatolian "lenition" (or voicing) was actually a single rule which affected voiceless stops and $*h_2$ between unaccented *morae*, *V̄́V̄ being equal to *V́V. Thus Lyc. *tadi* 'puts' < **dǽædi* < **dǽæti* entirely parallel to Lyc. *esbedi* 'with horse' < **ék̂wodi* < **ék̂woti*. Adiego also adduces cross-linguistic evidence for the effect being due to the low pitch of the surrounding unaccented vowels.

Since obstruents after an *accented* short **ó* are not between unaccented morae, any lenition or voicing in this environment must be attributed to an entirely different factor, *which need not affect the same range of tar-*

4 This interpretation is now supported by an occurrence in Hittite context, KBo 20.107+ iii 22, where we find the figura etymologica *ḫāšiyamiš ḫāšiya* 'As a satiated one, satiate!' (for the text see Bawanypeck 2005: 112). Just how this derivational pattern came about is a separate issue. One possibility is the existence in at least one case of an intervening adjective in **-iyo-*, which served as the basis for the derived verb. As always, we need not and should not assume such a link in every case. The pattern of forming a verb in *-iya-* from *a*-stem nouns may have become moderately productive.

get sounds. I suggest that the different factor that lenited *h_2 was the well-known "stronger" or "longer" quality of what we call phonological "short" */o/ in PIE, on which see most recently Kümmel (2012: 308–309) and Keydana (2012). The most famous effect of this phonetic quality of PIE *o is of course "Brugmann's Law", by which PIE *o in open syllables yielded long *ā* in Sanskrit, while other PIE short vowels did not. Since I retain the traditional conception of "Čop's Law" in Luvian (contra Kloekhorst 2006a), it likewise suggests that phonological "short" *o was in fact longer than phonological "short" *e. At some point Luvian disallowed accented light syllables. The "solution" in the case of accented short *ó was to lengthen the vowel: *dó.ru > tā.ru 'wood'. But in the case of accented short *e, the following consonant was geminated, producing a coda consonant for the accented syllable: *pé.rVm/n > par.ran 'in front'.

I therefore see no difficulty in assuming that due to this quality of the "short" *o in Hittite a sequence *ó.h_2V resulted in *ó̄.ħV > ā.ḫV, while *ó.pV led to *óp.pV (see Melchert 1994a: 18) and *é.h_2V (really [a.ħV]) became *aħ.ħV > aḫ.ḫV. I assume then that the "lenition" was phonetically regular only in the roots ending in *-h_2: *nóh$_2$ei > nāḫi, *sóh$_2$ei > šāḫi.[5] If these roots followed the productive ḫi-conjugation pattern of *ó/zero ablaut (whether this is viewed as original or secondary), the weak stems would have been respectively *nh_2- and *sh_2-. The first followed the pattern of *lógh- 'incline': phonetically regular, but paradigmatically aberrant *alg- < *l̥gh- was renewed as *$l_e$gh- > lag- beside strong lāg-. Likewise then *anḫ- < *n̥h_2 gave way to *$n_e h_2$- > naḫḫ-. However, as per Kloekhorst (2008: 691), *sh_2-énti would have led to Hittite *išḫanzi, and here the aberrant allomorphy was solved by generalizing the strong stem šāḫ-.

Unsurprisingly, the pattern -āḫi : -aḫḫanzi was extended analogically to roots with fixed *a*-vocalism and the other voiceless fricative *s*: hence also ḫāši, ḫaššanzi (for *ḫāšši, ḫaššanzi) 'beget; give birth' and 'open' and pāši, paššanzi 'swallow'. It was also extended to just three roots with fixed *a*-vocalism and a geminate stop. Notably, it was not extended to dākki,

5 Whether zāḫi 'strikes' is phonologically regular or analogical after the other two verbs depends on its etymology. By the suggestion of Schindler apud Oettinger (1979: 447) that zaḫḫ- reflects *ds-eh$_2$- < *das- seen Grk. δαΐ 'in battle', one would assume the latter, but this etymology is not entirely assured (cf. Kloekhorst 2008: 1020).

dakkanzi 'match, resemble'. It would be desirable if we could account for this difference. The contrast of *dākki*, *dakkanzi* and *wāki*, *wakkanzi*, whose etymologies are known, suggests a reason. The former, whose immediate preforms were **dóḱei*, **dₑḱénti*, was easily fitted into the dominant **ó*/zero ablaut pattern, but **wóh₂ĝei*, **uh₂ĝénti* would have led to *wāki*, **ūganzi*. In the face of this very aberrant ablaut, the verb was remodeled after the existing *-āCi*, *-aCCanzi* type.[6]

We are thus led to suspect that 'block, stop up' and 'die' also joined this type because their historically regular paradigms (i.e., in phonological terms) resulted in very irregular allomorphy. I believe that a case can in fact be made that this applied to both verbs. For 'block, stop up' Kloekhorst (2008: 416) reasonably compares the Germanic family of English 'stuff', German *stopfen*, etc., but concedes that these point to Proto-Germanic **stup-*, which cannot be easily reconciled with the Hittite. I suggest (see already the discussion by Puhvel 1984: 474) rather PIE **stembhH-* (LIV^2: 595), reflected in Skt. *stabhnā́ti* 'prop, fasten, fix (in place)', from which it is a short step to 'block, stop up'.[7] A paradigm **stómbhHei*, *stm̥bhHénti* would result in **ištāmpi*, *ištappanzi*. Compare for the strong stem Hitt. *dampu-* 'blunt', cognate with OCS *tǫpъ* 'blunt' (Kloekhorst 2008: 826 with refs.) and for the weak Hitt. *kappi-* 'small' < **km̥b(h)i-*, cognate with Av. *kamna-* 'small', *kambišta-* 'least' (Kloekhorst 2008: 439, following Szemerényi, contra Puhvel 1997: 63).[8] It is important to note with Kloekhorst, loc. cit. that the geminate *-pp-* of *kappi-* shows that **-m̥b(h)-* results in *-app-*, with loss of the nasal, but fortition of

6 Kloekhorst (2008: 940) assumes that pretonic vowel + *h₂g* results in assimilation to *-kk-* rather than loss of the laryngeal and compensatory lengthening and that **ūkk-* was avoided by anaptyxis, but there is no support for the first assumption, and his alleged examples of anaptyxis in a similar environment are false: there is no evidence for anything except /e/ in *wek-* 'demand', and *witen-* in the paradigm of 'water' results from **wetén-*.

7 LIV^2 sets up the PIE root with inherent **m* and final laryngeal, but concedes that there are also aniṭ forms and that separating reflexes of **stembhH-* from those of **stebh-* (LIV^2: 588) is difficult. One could also suppose (as does Puhvel, loc. cit.) a single root **stebh-* and a nasal infix verb which was renewed in Sanskrit by a nasal suffix. The Hittite verb could just as easily reflect **stómbhei*, *stm̥bhénti*. Since the question of one or two roots is not decisive for our present purposes, I leave the matter open here.

8 The western Anatolian word for '(grand)child' attested in Greek inscriptions as καμβειν, κομβος, etc. supports this derivation (Neumann 1961: 61).

the stop. Likewise, then, in our verb there would have been an allomorphy between **ištāmpi* with nasal and *lenis* stop and *ištappanzi* without nasal and *fortis* stop. I believe that this discrepancy blocked the more expected "repair" of the radical allomorphy by restoration of the nasal in the plural, since this would still not have resulted in the normal pattern of *išpānti*, *išpandanzi* 'libate(s)', where the stops matched in manner of articulation (/ispa:ndi/, /ispandantsi/). Instead, the irregular **ištāmpi*, *ištappanzi* was assimilated to the pattern of *nāḫi*, *naḫḫanzi*, which also had the contrast of lenis vs. fortis in the strong and weak stems.

We come finally to *aki*, *akkanzi* 'die(s)'. I believe it is fair to say that none of the etymologies suggested for this verb have been remotely convincing. See for a summary of attempts Tischler (1983: 8–9). Puhvel (1984: 22–3) and Kloekhorst (2008: 168) justifiably do not even bother to mention all of the proposals. I suggest that as a "thought experiment" we start with a PIE root that could be the source for 'die': **neḱ-* reflected in TochB *näk-* (act.) 'destroy', Lat. *nex* 'death', Av. *nasu-* 'corpse', Grk. νέκῡς 'dead; corpse', OIr. *éc* 'death', etc. If we reconstruct forward a *ḫi*-verb **nóḱei*, **n̥ḱénti*, what would be the expected result by normal phonological changes? The third singular would lead to **nākki* (for lack of "lenition" see above). The outcome of the third plural is the vital question: what was the regular reflex of a syllabic nasal before homorganic stop? Puhvel (1984: 22) explicitly rejects deriving *akk-* < **n̥ḱ-* (already Hrozný 1917: 176!), claiming that the result would be **ank-*.[9] I contend that current evidence in fact points rather to *akk-*. This requires a short excursus on the matter.

The example of *kappi-* < **km̥b(h)i-* suggests that the result was loss of nasalization in the case of a labial sequence (with fortition in the case of an original voiced stop). We cannot be certain where the accent was in this word, but *a priori* we would expect that it was on the suffix (the word is too sparsely attested to draw any conclusions from the lack of plene spellings).[10] Parallel treatment for the unaccented velar sequence *[ŋ̊k]

9 Hrozný did express serious reservations about his idea, presumably because he too already had reason to expect *ank* instead.

10 An anonymous reviewer points out that the spelling καμβειν cited above in footnote 8 with ει, representing a long and likely accented [i:], tends to support the idea of original oxytone accent in **km̥b(h)i-*.

as *akk-* seems entirely justified.[11] The only putative counterexample is merely apparent. The Hittite suffix *-anki*/**-ankiš* (for the latter see Hoffner & Melchert 2008: 168) in 1-*anki* and 1-*iš* 'once' etc. was compared already by Rosenkranz (1936: 249) with Greek -άκι(ς) in τετρά́κι(ς) 'four times', πολλά́κι(ς) 'many times', pointing to a preform **-ḭ̯ki(s)* (actually *[ḭ̯kis]).[12] Since many of the Greek forms show a syllable structure long-short-short, an original accent on the final syllable could have been retracted onto the penult by "Wheeler's Law". However, the lack of plene in the final syllable of the Hittite forms precludes accent there, so I believe that accent on the penult may be reasonably inferred.[13] Under the accent the nasalization was preserved, leading to *-anki(s)*.[14] I am unaware of any probative examples for unaccented *[n̥t/d].[15]

We may thus assume that the prehistoric paradigm of 'die' was **nākki*, *akkanzi*. It is hardly surprising that this very irregular allomorphy was eliminated, and as in the case of *wāki*, **ūganzi* 'bite(s)' and **ištāmpi*, *ištappanzi* 'stop(s) up', the "repair" chosen was assimilation to the class of *nāḫi*, *naḫḫanzi*. Depending on the relative chronology of the changes, it is possible that *wāki*, *wakkanzi* served as the model for *aki*, *akkanzi* or vice-versa.

In sum, due to a "Brugmann" effect that "lenited" **h*$_2$ after accented short **ó*, the pattern Pres3Sg in *-āC_1i* vs. Pres3Pl in *-aC_1C_1anzi* developed

11 I follow here what I believe is a long-standing and widespread view that PIE */n/ had an allophone [ŋ] before dorsal stops.

12 The statement by Kloekhorst (2008: 181) that Hitt. *-anki* occurs only with 1–3 is false: 7-*anki* KUB 33.105 i 5–8; 8-*anki* KBo 21.90 Ro 11, etc.

13 I am indebted to Michael Weiss for counsel on this point, but the interpretation offered here is my own, not his.

14 The weak stem *gank-* for 'hang' is not probative, since a paradigm *kānki*, **kakkanzi* < **ḱónkei*, **ḱn̥kénti* would certainly have been modified to the attested *kānki*, *kankanzi* after *išpānti*, *išpantanzi* (I emphasize that in the case of 'hang' the final stop would have been consistently fortis, contrary to the case of 'stop up' discussed above).

15 These facts are not contradicted by the apparently different treatment of sequences of *non*-homorganic syllabic nasal and following stop, where we find no nasalization under the accent, but nasalization when unaccented: **n̥̍-mh$_2$yent-* > *amiyant-* 'immature' (see Kloekhorst 2008: 172 for this shape as the regular outcome), **ḱm̥̍ta* > *katta* 'down' (= Grk. κάτα and CLuvian *zanta*; Goedegebuure 2010), **km̥̍ta/ō* > *katta* 'with, beside' (the base must be **kom* cognate with Latin *cum* 'with' etc.), versus **m̥̍dhró-* > *antarā-* 'blue' (see Kloekhorst 2008: 186, contra Melchert 1994a: 125). As per above (with note 2), the two adverbs *katta* cannot be derived from unaccented forms (contra Kloekhorst 2008: 464).

regularly in the case of *naḫḫ-* 'to affright; fear' and **šaḫḫ-* 'to fill up'. It was analogically extended to *ḫi*-verbs in *-aššˇ-*: *ḫaššˇ-* 'to beget; give birth', *ḫaššˇ-* 'to open', and *paššˇ-* 'to swallow' (also to *zaḫḫ-* 'to strike' if it was not regular there). Finally, it also spread to verbs with final stop which for various reasons had developed very irregular allomorphy: *wāgi*, **ūganzi* 'bite(s)', **ištāmpi*, *ištappanzi* 'stop(s) up', and **nākki*, *akkanzi* 'die(s)'.[16]

Abbreviations

LIV[2] Helmut Rix (2001). *Lexikon der Indogermanischen Verben. Die Wurzeln und ihre Primärstammbildungen*. 2nd ed. Wiesbaden: Reichert.

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16 The contrast of *šāku(wa)-* 'eye' < **sók^{w}o-* (Melchert 1994a: 61, Kloekhorst 2008: 704) or more likely **sh$_3$ók^{w}-* (cf. Rieken 1999: 59–60 with refs.) with *nekku* 'nonne' suggests that "lenition" after short **ó* may also have affected the voiceless labiovelar **k^{w}*, in contradistinction to the other voiceless stops. However, to affirm this claim a full review of all the evidence is required, which cannot be undertaken here.

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