In honorem Holger Pedersen.
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'Čop's law' in Common Anatolian*

There are a number of cases in Hittite of alternation of *e* and *a* or of unexpected *a* for **e*: *wātar/wetenaš* 'water', *ēszi/ašanzi* 'is/are', *šēšzi/šašanzi* 'sleep', *wēḫzi/waḫḫandu* 'turn', *wēšš-/waššе/a-* 'wear; clothe', *šēr/šarā* 'above; up', *ammug* 'me', *āššu* 'good; dear'.

In order to account for these cases, Pedersen, *Hitt.* 167, was led to formulate an umlaut rule, by which **ĕ* becomes *a* before a back vowel in the following syllable. Well aware that examples like *pēran* 'before' or *gēnu* 'knee' preclude such a general statement, Pedersen must put severe restrictions on the rule: "Der Assimilation scheint nur ein *e* **in ursprünglich offener Silbe** zu unterliegen, und zwar nur, wenn es **im absoluten Anlaut** oder nach gewissen bestimmten anlautenden Konsonanten (u.a. wohl *w-* und *s-*) steht" (emphasis mine – HCM).

We now know that the examples of alternation of *e/a* cited above are all genuine reflexes of PIE ablaut – something Pedersen justifiably doubted in 1938. When we remove these cases, we are left with a small but significant residue: *ammug* and *āššu-*, where by the generally accepted etymologies we must begin with **ĕ-*. As already noted by Čop, *Linguistica* 6 (1964) 50f, these two words not only show an unexpected *a*-vocalism, but also an unexplained geminate consonant.[1] This is a crucial point to which we shall return.

I am aware of two recent attempts to explain the attested shape of *ammug* 'me'. The first is that of Eichner, *Sprache* 23 (1986) 12[8], who equates Hittite *ammug* with Lydian *amu* and derives both from a CA **Vmú* (for the place of the accent see Eichner's presentation in the article cited). He attributes the geminate *-mm-* in the Hittite to an alleged rule by which continuants (especially sonorants) are geminated pretonically (see Eichner, *MSS* 31 (1973) 100[88], et aliter).

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* For bibliographical abbreviations see Hans G. Güterbock and Harry A. Hoffner, The Hittite Dictionary of the Oriental Institute of the University of Chicago (1980ff).

[1] For Čop this is part of a larger phenomenon, but his only persuasive examples are in fact precisely *ammug* and *āššu-*. A **general** rule geminating single consonants in Hittite after an accented short vowel in open syllable is patently false: cf. *tāru-* 'wood' < **dóru-*, adjective suffix *-āla-* < **-ó-lo-*, and others.

This gemination rule is false, at least for **m*: cf. Old Hittite *tumēni* 'we take' < **duméni* < **duwéni*, as already cited by Oettinger, *Gs Kronasser* (1982) 166f. A further counterexample with original **m* is *šumanza(n)-* 'cord, sinew' < **su(h₁)mén+s* (= Greek ὑμήν), always spelled with single *-m-* in OH manuscripts (see Melchert, *Sprache* 29 (1983) 9f). Eichner does not make explicit what vowel he assumes for the initial syllable. If it is **ĕ-*, we would also by his account expect initial ***i-*, not *a-*: cf. *idālu-* 'evil' < **(h₁)edwól+* and see Melchert, *Phon.* (1984) 106, for pretonic **ĕ* > Hittite *i*.

Beekes, *Sprache* 33 (1987) 9ff, has offered an alternative account of *ammug*, arguing for a preform **h₁mé-* with initial first laryngeal. His non-Anatolian evidence for initial **h₁-* rather than **e-* seems to me less than compelling, but I will focus here on the problems for Hittite. First of all, there is **no** solid evidence for "vocalization" of initial **h₁-* before consonant in Hittite. Indeed, before sonorant we have the likely counterexamples of *li(n)k-* 'swear' < **h₁leng^h-* (= ἐλέγχω 'reproach, blame')[2] and *lāman* 'name' < **h₁néh₃mn̥* (the dissimilation of the first nasal is unlikely to have affected the treatment of the initial laryngeal). The alternation of the type *ēš-/aš-* 'be' may be analogical to *TeT* roots like *šeš-/šaš-* 'sleep': see among others Kimball, *Gs Cowgill* (1987) 160ff. In the absence of **any** other positive examples for **h₁RV-* > Hittite **aRV-*, Beekes' assumption of a different treatment before **m* versus the other sonorants seems to me egregiously ad hoc.

Beekes' derivation of *ammug* also leaves the geminate *-mm-* of Hittite unexplained. He dismisses this as an inner-Hittite problem, but this is not true. As demonstrated by Eichner, *Sprache* 32 (1986) 3ff (see esp. p. 12 with note), Lydian *ēm(i)-* 'my' vs. *amu* 'I, me' demands CA **VmV* for the first versus **VmV́* for the second. Furthermore, Lydian *ēm-* with the vowel *ē* requires a **closed** syllable: cf. *ēt-* 'into' < *éndo*, anim. acc. sg./nt. nom.-acc. sg. *-ēv* < **-óm*, and *ēna-* 'mother' < **ánna-* (cf. Hittite *anna-*). An accented short vowel in an **open** syllable before a nasal leads consistently to Lydian *ã*: contrast *kāna-* 'woman; wife' < **g^wónā-*. See for this rule Melchert, *IF* 97 (1992) 36f. In the case of *ēm(i)-* the closed syllable can hardly be anything but **Vmm-*. Thus not only Hittite *ammug* but also Lydian *ēm(i)-* demands a CA preform with geminate **-mm-*.

[2] This etymology has been objected to on semantic grounds, but the phraseology of the "soldier's oath" (edited by Oettinger, *StBoT* 22) shows that swearing an oath in Hittite consisted of a self-curse (to be fulfilled if the oath were not kept). This practice provides the motivation for the shift from 'blame, reproach' (oneself) to 'swear an oath'

Any solution for Hittite *ammug* must thus also take into account the Lydian facts. As already pointed out, the latter require a CA oblique stem with two different accentual patterns. This does not seem to me problematic. Before the characteristic Anatolian development of *u*-vocalism in the second syllable of the oblique form, we may assume a subject form **égĥ₂* vs. an oblique **mé-*. Spread of the initial **e-* of the subject form to the oblique would be a trivial development: cf. Greek ἐμέ.[3] Notice, however, that this generalization could take place in two forms. One could spread merely the initial **e-*, leaving the original accent of the oblique stem intact: hence **emé-*. But one could carry the leveling further and generalize accented **é-*, whence **éme-*.

Available evidence suggests that CA had both of these variants. HLuvian *(á)-mu* 'I, me' and *(á)-ma/i-* 'my', both with frequent aphaeresis, surely show generalization of the form with final accent. As set forth above, Lydian *amu* 'I, me' must also reflect **Vmú*, while *ēm(i)-* 'my', continues **VmmV-*[4]. We have already seen that Hittite *ammug* with geminate *-mm-* cannot be explained from **VmV́-*. Given the matching geminate, I propose rather that we should equate Hittite *ammu(g)* with Lycian *ēm(i)-* from **VmmV-*.[5] Hittite generalized the variant with initial accent, versus Luvian, while Lydian assigned one variant to the possessive adjective and the other to the pronominal paradigm.[6]

Hittite *ammug* and Lydian *ēm(i)-* thus both demand a CA preform

[3] I leave entirely open whether the spread of the **e-* in Hittite, Greek and elsewhere is a common PIE dialectal feature or a series of parallel but independent developments: cf. G. Schmidt, *Personalpronomina* (1987) 48f. I personally find the leveling so trivial as to make the latter possibility more likely.

[4] The facts in Lycian, which shows *amu/ēmu* 'I, me' and *ẽm(i)-* 'my', are unclear, but the alternation of *a* and nasalized *ẽ* could reflect differing accent as in Lydian (H. Eichner, pers. comm.). In that case, Lycian would also demand two different CA preforms.

[5] As is well-known, the final *-g* in Hittite is a specifically Hittite accretion (again from the subject form *ūg*). This cannot be proven from Luvian and Lycian, which lose final stops, but is shown by Lydian *amu*, since Lydian preserves final stops (cf. *qid* 'what').

[6] As J. Schindler reminds me, one need not view the *e-* of the possessive forms in various languages as analogical to the subject form. If one interprets the *e-* vocalism of the possessive adjective as due to ablaut in a derived stem, then it may have been regularly accented on the first syllable (**éme/o-*), as opposed to oblique **emé-*, with *e-* spread from the subject form but with preserved final accent. The distribution in Lydian would then be original, while Hittite leveled in one direction and Luvian in the other. Hittite shows no direct trace of an orthotonic possessive adjective **éme/o-*, but this may be accidental. It is quite possible that the attested enclitic possessive adjective *-mi/a-* represents a cliticized form of **éme/o-*.

**ÝmmV-*. The Hittite word suggests specifically **ámmV-*. We have an apparent change of initial accented short **é* in an originally open syllable to *a-* with concomitant gemination of the following consonant (for the conditioning see Pedersen's original formulation of the umlaut rule cited above).

We already have an established diachronic rule in Anatolian strikingly similar to the putative change just formulated: "Čop's Law". As demonstrated by Čop, IF 75 (1970) 85ff, in Luvian **any** accented short **é* followed by a prehistoric single consonant (thus in an open syllable – HCM) becomes *a* plus geminate consonant: e.g. **mélid-* 'honey; mead' > CLuv. *mallit-*, **néb$^{(h)}$es-* 'heaven' > CLuv. *tappaš-*, **pérVm* 'before' > CLuv. *parran*, etc.[7]

I therefore propose that a version of this rule already existed in CA, limited to **absolute** word-initial position. The broader rule in Luvian would then reflect an unsurprising generalization of the originally highly restricted change. By this rule a pre-CA **éme-* (or already **ému*) would become regularly **ámme* (resp. **ámmu*), whence Hittite *ammug* etc. and Lydian *ẽm(i)-*. I believe that this rule can account for at least two further problematic cases of initial *aCC-* in Hittite and perhaps a third.

The first of these is *āššu-* 'good, dear'. Before spelling out my solution, I must first discuss in some detail a very different alternate derivation of this word by Puhvel, *KZ* 94 (1980) 65-69. Puhvel rejects the commonly accepted comparison of *āššu-* with Greek ἐΰς and the implied derivation from **(h$_1$)ésu-*. He offers three arguments: morphological, semantic and phonological.

First, he argues that *āššu-* is not an old *u*-stem adjective, but an innovative Hittite secondary derivative from the verb *āšš-* (sic!) 'be dear, good'. Second, he objects that while Greek ἐΰς and cognates mean 'good' in a moral sense, Hittite *āššu-* means essentially 'beneficial, advantageous', as well as 'dear, favored'. He therefore supposes that *āššu-* has, in his terminology, "passive diathesis" and originally meant 'dear', as opposed to CLuvian *wāšu-* and related forms, which have always meant 'good', with "active diathesis". Finally, he points out the problem with which we began this discussion: both the *a-* vocalism and geminate *-šš-* of *āššu-* are unexpected if it represents **h$_1$esu-*. He proposes instead derivation from a virtual **ansu-*, which in his view explains the phonology, relating *āššu-* 'dear' with the root

[7] My formulation differs in some respects from that of Čop: see the penultimate paragraph below for details.

of Gothic *ansts* 'favor, grace'.[8]

Puhvel's morphological analysis is erroneous. He ignores totally the fundamental relationship between the Hittite noun *āššu-* 'good(s)' (gen. sg. *āššuwaš*!) and the adjective *āššu-* 'good' (gen. sg. *āššawaš*!). As elucidated most explicitly by Watkins, *Gs Kronasser* (1982) 261, this pair reflects a PIE system whereby acrostatic *u*-stem nouns serve as the base for derived proterokinetic *u*-stem adjectives (details below). It cannot be accidental that this pattern survives directly in Hittite only in this one case, probably because the noun has become lexicalized in the meaning 'goods, property'. The derivational relationship of noun and adjective is clearly an archaism, and an innovation is not credible. This analysis is supported by traces of the same pattern in the family of CLuvian *wāšu-* 'good', *waššā-* 'be favorable', which is cognate with Vedic *vásu-* 'good' (with gen. sg. of noun *vásvas* vs. gen. sg. of adjective *vásos*, directly equatable to the Hittite pattern cited above).

There are indeed cases of deverbative *u*-stem adjectives in Hittite, as claimed by Puhvel, following Weitenberg, *U-Stämme* (1984) 78ff, but the genuine examples are from active root presents (e.g. *ḫatku-* 'narrow'). The non-ablauting **medium tantum** *āššā-* (sic!) 'be dear, favorable' is rather secondary from the adjective *āššu-*, pace Puhvel and Weitenberg – likewise *āššiya-*. The deletion of the *-u-* of the base again reflects an archaic pattern: cf. *āš(ša)nu-* 'set aright, carry out' < *āššu-*, as per Puhvel himself, *HED* 1/2.205, and to *parku-* 'high' the derivatives *parkešš-* 'become high', *parganu-* 'make high' and *parkiya-* 'raise'.

Puhvel's semantic argument is by no means compelling. The fact that the Hittites define 'good' and 'bad' in subjective terms in no way precludes deriving *āššu-* from **h$_1$esu-* 'existing' > 'true' > 'right' > 'good'. For Puhvel, the root **h$_1$wes-* of Luvian *wāsu-* etc. has "active diathesis" and does mean 'good', not 'dear'. Yet he admits that HLuvian /wassarahit-/ means 'favor' of the gods and equates functionally to Hittite *āššiyawar*. Note also HLuvian /was(s)ama/i-/ 'dear, beloved', which falsifies Puhvel's claim that reflexes of **h$_1$wes-* never mean 'favored, dear'. If we must assume a shift in the direction 'good' > 'favorable' > 'dear' for **h$_1$wes-*, then it is equally possible for **h$_1$es-*, based precisely on the Hittites' egocentric view of 'good/bad':

[8] As indicated by Puhvel, the root **ans-* had already been proposed as the source of *ašš(iya)-* 'be dear, beloved' by Juquois, *RHA* 22 (1964) 89-91. I do agree with Puhvel on one point: that *āššā-*, *āššiya-* and *āššu-* must all be derived from the same source. However, as I will argue below, the long *ā-* of all three words requires derivation from **h$_1$e/osu-*, not **ans-*.

that which is good is that which is beneficial, which in turn is thus dear.

Finally, while Puhvel's derivation does explain directly the geminate *-šš-* (with regular assimilation of **-ns-*), it does not in fact adequately explain the vocalism. As I have recently argued,[9] there is clear evidence that accented short **a* does **not** lengthen in Hittite in **closed** syllables: cf. *alpa-* 'cloud' < **álb$^{(h)}$o-*, *atta-* 'father' < **átta-*, *alpu-* 'blunt' < **álpu-*, etc. contrasting with long *ā* from **ó* in *āppa* 'back(ward)' < **ópV*, *ārḫi-* 'I arrive' < **órh$_2$ei* and so on. From Puhvel's **ánsu-* we would expect only **aššu-*, with no possible source for the attested long *ā-* of *āššu-*.

The morphological relationship of the noun and adjective *āššu-* demands that we return to the well-established word-equation with Grk. ἐΰς. Armed with our new limited form of "Čop's Law", we can now account for the attested shape, although the close relationship of noun and adjective has complicated matters. For PIE we may assume an acrostatic noun 'good' with nom.-acc. sg. **h$_1$ós-u* and weak stem **h$_1$és-u-* and a derived proterokinetic adjective with strong stem **h$_1$és-u-* and weak **h$_1$s-éw-*.[10]

After loss of initial **h$_1$-* in CA (which may be assumed to be quite early), application of limited "Čop's Law" would have led to a noun paradigm **ósu-/*ássu-* and adjective **ássu-/*séw-*. We know that Hittite generalizes accented full-grade of the root in this type of *u*-stem adjective: cf. *tēpu-/tēpaw-* 'few'. Whether this leveling is CA or not, we may at least suppose for pre-Hittite an adjective **ássu-/*ássew-*. Following a suggestion of W. Cowgill, I now assume that posttonic short **ĕ* in **open** syllable becomes Hittite *a*, whence weak **ássaw-*. As per Kimball, *Diss.* 849 et passim,[11] and Eichner, in *Lautgeschichte und Etymologie* (1980) 144[65] et aliter, all accented short vowels in **open** syllable are lengthened in Hittite. The strong stem of the noun **ósu* would thus become **ā́su-*.

We arrive by the developments above (all independently motivated) at a pre-Hittite noun paradigm **ā́su-/ássu-* and adjective **ássu-/ássaw-*. The attested paradigms of both have combined the long vowel of **ā́su-* with the geminate *-ss-* of the remaining forms. The need to assume such a contamination is admittedly unattractive, but there are parallels in Hittite: cf. the verb *zinni-* 'leave off', which likewise combines the vocalism of the old strong stem **si-né-h$_1$-* with the geminate consonant of the weak stem **si-n-h$_1$-* (Melchert, *Phon.* 114, after Oettinger). I emphasize again that both accented *o*-grade and *e*-grade of the root are required on morphological grounds. The former by regular rule provides the source for the long *ā-*, and our limited form of "Čop's Law" for CA now furnishes the allomorph with geminate *-ss-* (but short *a*!). One would expect leveling of some kind in this situation. The attested Hittite points to a blend rather than the thinkable alternative of choosing one allomorph or the other.

[9] See 'Hittite vocalism', in O. Carruba, *Per una grammatica ittita* (*Studia mediterranea* 7). Pavia: 1992, p. 186.

[10] My reconstruction of the paradigm differs slightly from that of Watkins, loc. cit.. See for the terminology and definitions Schindler, *BSL* 70 (1975) 4ff, among others.

[11] Sara Kimball, *Hittite plene writing*, Univ. of Pennsylvania Ph.D. dissertation. Philadelphia: 1983.

Our CA "Čop's Law" limited to word-initial position can thus solve the long-standing problem of *ammug* and *āššu-*. If the rule is valid, we would expect it to apply also in other cases, although the restricted domain would preclude their being very numerous. I believe there is at least one more certain example: Hitt. *anna-* 'that; yonder' = Lyd. *ẽna-* 'that'.

Direct attestation of Hitt. *anna-* 'that' is sparse: only the hapax anim. nom. sg. *anniš* (*i*-stem!) in a lexical text. However, the word is assured by the frequent adverbs *annaz* and *annišan* 'formerly' and the adjective *annalla/i-* 'former, old'. The basic etymology of the word was already clear to Hrozný, *SH* 135, who compared OCS *onŭ* etc. < PIE **óno-*. However, as Puhvel, *HED* 1/2.55 points out, the consistent geminate *-nn-* would be unexplained by this derivation.

I suggest rather a preform **éno-* with *e*-grade, which would give regularly CA **ánno-* by our rule and Hittite *anna-*. As is well established, this pronominal stem originally had anaphoric force, with no particular fixed deixis. The *o*-grade **óno-* is indeed attested in Hittite in its expected shape, in the famous hapax *ani-šiwat* 'today' < 'on this day', with single *-n-* (!) and contrasting nearer deixis. Hittite thus inherited both **éno-* and **óno-* and exploited the difference to produce two opposing deictic adjectives.

I have established elsewhere that Lydian has two matching deictic adjectives *ẽna-* and *ãna-*: see *Kadmos* 30 (1991) 137ff. As per the phonological rules cited above, these must reflect respectively preforms **Vnno-* and **Vno-*. Given the perfect formal match with Hittite *anna-* and *ana-*, I see no reason not to equate the Lydian forms with the Hittite as 'that' and 'this' respectively. I readily concede that our limited understanding of the Lydian contexts makes independent demonstration of the specific deixis less than certain. If this equation is correct, then the split just proposed obviously is CA, not just Hittite.

"Čop's Law" in Luvian also affects single stops (i.e. prehistoric voiced and voiced aspirate stops). I thus raise the possibility that the word-initial form of the rule in CA may account for the problematic alternation of Hittite *aki/akkanzi* 'die'. I follow Jasanoff, *Heth. u. Idg.* (1979) 79ff, in deriving a substantial core of the Hittite "*ḫi*-conjugation" from a PIE athematic present type with acrostatic inflection. This means that for 'die' we could posit a paradigm **ógei/égn̥ti*. The singular would lead to attested *aki* (/a:gi/) by regular development, and by our new rule the plural to CA **ágg̊n̥ti* whence Hitt. *akkanzi* (/aggantsi/). As a tentative etymon, I suggest the root **eg-* 'lack' of Latin *egeō*. For the semantic development 'lack' > 'languish' > 'die' compare Skt. *das-* 'lack', but also 'be extinguished' and 'languish'.

Finally, I believe that our new CA rule may also explain the otherwise problematic relationship between Hitt. *ašiwant-* 'poor' and CLuw. *āššiwant(i)-* 'idem' (better attested in the derivative *āššiwantattar* 'poverty'). The meaning of the CLuvian words and their relationship to the Hittite have now been demonstrated by Starke, *StBoT* 31 (1990) 448ff, who also shows the impossibility of deriving either the Hittite or the Luvian from an alleged **n̥-di(e)w-ant-* (Puhvel, *HED* 1/2.212, following Jucquois).

We must return to the proposal of Laroche, *RHA* 11 (1950) 42f, who derives Hitt. *aši-want-* from *aši* 'the aforementioned'. I would differ from Laroche in interpreting *-want-* not as strictly possessive, but as merely adjective-forming with a pronominal base, thus 'of that sort' etc.). For the shift from *'of that sort' to 'low-class, plebeian' (whence 'poor' as often), compare the pejorative use of Grk. τοιόσδε or τοιοῦτος. As per Pedersen, *Hitt.* 59ff, and Laroche, *Heth. u. Idg.* (1979) 147ff, Hitt. *aši* is the frozen anim. nom. singular **ós* plus a deictic particle. The attested *aši* is perfectly regular from **ósi*.[12] However, the CLuvian base **āšši-* with its geminate *-šš-* cannot be derived from **ósi*: cf. CLuv. *wāšu-* 'good' < **wósu-*, with single *-s-* and regular lengthening of the accented vowel in an open syllable. We need rather an accented *e*-grade and "Čop's Law": **ési* > **aššī-* just like **wes-* > *waššš-* 'good, favorable' in CLuv. *waššā-* 'be favorable'. That there was once an anim. nom. sg. **és* beside **ós* is assured by OLat. *em* 'him', the matching animate accusative singular. The attested long *ā-* of

[12] The short *-i* of *aši* precludes its being accented, so the direct comparison by Pedersen, *Hitt.* 59-60, with Greek *-ῑ* in οὗτοσῑ or Old Irish *int-í* is not possible. One may think rather of the "hic et nunc" particle **-i* (cf. Melchert, *Phon.* 102). An elemental connection with the other forms cited remains likely.

āšši(want)- is due to a specific Luvian development by which **all** accented short vowels in word-initial position become lengthened: cf. CLuv. *ānta* 'into' vs. Hitt. *anda* < **éndo*.

Obviously, the Luvian example just cited could be attributed to the generalized Luvian form of "Čop's Law". However, given the non-Luvian examples described above, I would naturally now attribute most word-initial examples to the period of CA. This includes the example of CLuv. *ādduwa-* 'evil' < **(h₁)édwo-* and its extended set of derivatives.[13]

Before concluding, let me make explicit two points concerning the relative chronology of "Čop's Law" according to my formulation. First, as already stated above, it is obvious that the loss of word-initial prevocalic **h₁-* must have preceded the limited form of "Čop's Law" in CA: only after the loss of the laryngeal is the **ĕ* word-initial in **assu-* 'good' < **h₁ésu-*. On the other hand, the fact that the rule does **not** apply to Hitt. *ega-* 'ice' < **yĕ́go-* and *ewa-* 'barley' < **yĕ́wo-* shows that word-initial "Čop's Law" in CA must apply **before** loss of initial **y-* before **e*. I know of no facts which would contradict this assumed chronology . Note that our rule would not have applied to the CA preform **(y)ekt-* of CLuv. *aggat(i)-* 'hunting net' and Hitt. *ēkt-* in any case, since the vowel was not in an open syllable in CA. The attested shape of the CLuvian word is perfectly regular without "Čop's Law".

The example of CLuvian *ādduwa-* 'evil' (and others) requires some modification of Čop's original formulation of the phonetic conditioning for the rule, in both its CA and Luvian forms. First, the rule applies to original voiced stops, as well as to voiced aspirates. Second, the crucial factor is that the accented short **ĕ́* be in an **open** syllable, not necessarily between vowels: thus **é.dwo-* > *ādduwa-*.

One aspect of the phonetics of "Čop's Law" remains puzzling: why are the changes in coloring of the vowel and the gemination of the following consonant (both unremarkable per se) inextricably bound together in this case? I have no answer to this question. Nevertheless, evidence for the general rule in Luvian is overwhelming and undeniable. I also believe that the restricted word-initial form just proposed for CA is the only plausible means to account for the attested

[13] Contra Starke, *StBoT* 31.62 et passim, the stem must be *ādduwa-*, not ***addu(i)-*, as shown by the nt. nom.-acc. sg. *ādduwan=za*. While the discovery of the shorter adjectival stem *ādduwa-* requires some modification of the morphological details, the derivation of *ādduwal-* etc. given by Watkins, *Gs Kronasser* 261, remains valid in its essentials.

shape of Hittite *āššu-*, *ammug* and *anna-* 'that'. This account of the Hittite words is strongly supported in the last two cases by the independent evidence of the matching Lydian forms *ēm(i)-* and *ēna-*, which also seem to require an explanation in terms of a CA rule along the lines offered here.

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