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Čop's Law in Luwian Revisited

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In 1970 Čop observed that, as a rule, Hittite *-eCV-* corresponds to CLuwian *-aCCV-*, rightly concluding that PIE accented short *é yields Luw. /a/ and that original lenis consonants that follow *é become geminated. Examples include PIE *néb^hes- > CLuw. *tappaš-* ‘heaven’ (vs. Hitt. *nēpiš*), PIE *mélit- > CLuw. *mallit-* ‘honey’ (vs. Hitt. *militt-*), PIE *pérom > CLuw. *parran* ‘in front’ (vs. Hitt. *pēran*), PIE *méd^hu- > CLuw. *maddu-* ‘wine’ (no known Hittite cognate). We can summarize these findings as *éCV > Luw. aCCV, a rule that is commonly known as Čop's Law.

It is remarkable that after a PIE accented short *ó, gemination does not occur: PIE *dóru- > CLuw. *tāru-* ‘wood’ (cf. Hitt. *tāru-*); PIE *pód(o)- > CLuw. *pāta/i-* ‘foot’ (cf. Hitt. *pāt(a)-*). The rationale behind the difference in effect of PIE *é and *ó has not yet been clarified. Melchert (1994b, 305)¹ states that “[o]ne 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”.

It is well known that in all Anatolian languages lenition can be observed: an original fortis consonant becomes lenis after an accented long vowel or diphthong and when standing between two unaccented vowels (first formulated by Eichner 1973, 79. 100 note 86; cf. also Melchert 1994a, 60–61 and Kimball 1999, 262–264). Examples of this lenition have been found in Hit-

¹ In this article, Melchert argues that a “limited version of Čop's Law” has taken place in “Common Anatolian”, namely *#éCV > #aCCV, explaining Hitt. *āššu-* ‘good’ from *ésu-, Hitt. *ammuk* ‘me’ from *ému and Hitt. *anna-* ‘former’ from *éno- and suggesting that the Hittite type *āki* / *akkanzi* can then be explained from *ógei / égnti. None of the former three examples can be regarded as probative (see Kloekhorst 2008, 223–225. 112–115. 173–174 for an extensive etymological treatment of these words) and the type *āki* / *akkanzi* is much better explained due to the leniting effect of PIE *ó: *Hókei / Hkénti (see also below). I therefore see no reason to assume any version of Čop's Law for Hittite or Proto-Anatolian.

tit, Palaic, Luwian as well as Lycian, cf. **h₁éih₂ou* > Hitt. *ehu* ‘come!'; **méih₂ur* > Hitt. *méhur* ‘period, time'; **CVC-h₂eh₂e* > Hitt. *-bhaha*, Lyc. *-χagā* (1sg. pres. midd. ending); **kéitor* > Pal. *kītar* ‘he lies'; etc.²

As I have argued in Kloekhorst 2008, 65. 98, there is also evidence for PIE short accented **ó* to cause lenition of a following fortis consonant: PIE **sók^wo-* > Hitt. *šákuya-*, CLuw. *tāya/i-*, Lyc. *tewe/i-* ‘eye'; PIE **nóh₂ei* > Hitt. *nāhi* ‘he fears'. Because of this leniting effect of PIE short **ó*, we must assume that already in Proto-Anatolian it had developed into a *long* vowel: **/ó/*. Moreover, I have argued in Kloekhorst 2008, 95, that on the basis of examples like Hitt. *ḥāppar* < **h₃épr*, where a PIE sequence **h₃é-* does not cause lenition, we must conclude that the PAnat. reflex of **h₃é-* was **/Hó/-*, with a *short* **/ó/* that is phonologically distinct from long **/ó/* < PIE **ó*.^{3,4}

An interesting case with regard to Čop's Law is the CLuwian word *harran(i)-* ‘an oracle-bird'. Starke (1990, 76) interprets it as the Luwian cognate of Hitt. *ḥāran-* ‘eagle' < **h₃éron-*, assuming that *-rr-* is due to Čop's Law. Melchert strongly speaks against this etymology because “[g]eminate -rr- after accented short *ó is impossible” (1994a, 235). Nevertheless, Starke's etymology is semantically as well as formally quite attractive and I therefore think that *harran(i)-* indeed goes back to PAnat. **/Hóron/-* < PIE **h₃éron-*, showing gemination of *-r* due to the preceding short accented **/ó/* as reconstructed for the Proto-Anatolian level.

If this example is correct, we must conclude that not only after PAnat. short accented **e* gemination took place, but after PAnat. short accented **o* as well. This means that the gemination of lenis consonants according to Čop's Law is not dependent on the *colour* of the preceding vowel, but only on its *length*. Čop's Law therefore can be reformulated as follows: after a PAnat. accented short vowel (**/é/* or **/ó/*)⁵ an original lenis consonant is

² Note that especially in Hittite many instances of lenition have been eliminated due to restoration of the fortis consonants in e.g. the verbal and nominal endings and throughout alternating paradigms.

³ This situation is reminiscent of Brugmann's Law in Sanskrit: PIE **o* yields Skt. long *-ā-* in open syllables, but **h₃e* does not, cf. Lubotsky 1990.

⁴ The long *-ā-* of Hitt. *ḥāppar* shows that after the lenition ceased to operate, PAnat. **/ó/* and **/ó/* merged in Hittite */á/*.

⁵ I have been unable to find unambiguous examples in favour of or against gemination due to PAnat. */á/* < **h₂é*. The CLuw. word *ḥāpa/i-* ‘river', which is generally reconstructed **h₂éb^h-o-* (e.g. Melchert 1994a, 230. 244), may in fact reflect **h₂ób^h-o-*, with restoration of initial **h₂-* (note that e.g. CLuw. *hant-* ‘forehead' or *happiš-* ‘limb, member', which surely must reflect **h₂ént-* and **h₂ép-is-*, respectively, never show

geminated. We can now distinguish three developments (-CC- is a fortis consonant, -C- a lenis consonant):

PIE	PAnat.	Luw.
<i>*CéCV</i>	>	<i>*CéCV</i> > <i>CáCCV</i>
<i>*h₃éCV</i>	>	<i>*HóCV</i> > <i>HáCCV</i>
<i>*CóCV</i>	>	<i>*CóCV</i> > <i>CáCV</i>

Since Čop's Law can now be shown to be determined by vowel-length and accentuation only, it must be regarded as an inherent part of the Luwian outcome of the Anatolian lenition rules. As argued in Kloekhorst 2008, 21–25, PAnat. fortis consonants in fact are long/geminated (e.g. */t/* = [t:]), whereas PAnat. lenis consonants are short/single (e.g. */d/* = [t]). We can now distinguish the following six situations (-CC- = a long/geminated consonant; -C- = a short/single consonant; -V- = an unaccented vowel):

PAnat.	Luw.
<i>*᷊CV</i>	> <i>᷊CCV</i>
<i>*᷊CCV</i>	= <i>᷊CCV</i>
<i>*᷊CV</i>	= <i>᷊CV</i>
<i>*᷊CCV</i>	> <i>᷊CV</i>
<i>*VCV</i>	= <i>VCV</i>
<i>*VCCV</i>	> <i>VCV</i>

Effectively, we see that the length of a consonant has become automatic in Luwian: after an accented short vowel all consonants become long; after an accented long vowel and in between two unaccented vowels⁶ all consonants become short:

PAnat.	Luw.
<i>*᷊C(C)V</i>	> <i>᷊CCV</i>
<i>*᷊C(C)V</i>	> <i>᷊CV</i>
<i>*VC(C)V</i>	> <i>VCV</i>

These findings imply that at a certain point in the (pre)history of Luwian the quantity of intervocalic consonants was fully governed by the place of the accent in the word and the quantity of the accented vowel. If we were to follow Adiego (2001) in interpreting unaccented vowels as morae with a low tone (᷊), accented short vowels as morae with a high tone (᷊), and accented long vowels and diphthongs as consisting of two morae of which the first has

plene spelling).

⁶ All certain examples are in posttonic position (cf. e.g. Melchert 1994a, 60). The absence of examples in pretonic position may be due to chance.

a high and the second a low tone ($\acute{V}\grave{V}$), we would be able to unite these lenition and fortition rules into one: all intervocalic consonants in Luwian become short, except when directly following a high tone (\acute{V}), where they become long.

If we regard these findings for Luwian in the light of the other Anatolian languages, we must set up the following scenario. For Proto-Anatolian we must reconstruct the following consonantal and vocalic phonemes:

long:	/p/	/t/	/k/	/kʷ/	/H/	/S/ ⁷	
short:	/b/	/d/	/g/	/gʷ/	/R/	/s/	
long:	/ē/	/ō/			/r/	/l/	
short:	/e/	/o/	/a/	/i/	/u/	/m/	/n/

Unaccented vowels must be regarded as having a low tone (\grave{V}), accented short vowels as having a high tone (\acute{V}) and accented long vowels and diphthongs as having a high-low tone ($\acute{V}\grave{V}$). In Proto-Anatolian, intervocalic consonants were automatically shortened when following a low tone (we may call this the weak position), but not when following a high tone (non-weak position). This was a purely phonetic phenomenon that had no phonological consequences yet. After the breaking up of Proto-Anatolian, due to the rise of new long consonants in weak position through assimilation of original clusters (e.g. */rH/ > /R/ [Palaic, Hittite, Luwian], */gH/ > /k/ [Hittite], etc.), the phonetic shortening of consonants in weak position was phonemicized in the separate Anatolian languages ("the Anatolian lenition rules"). In Luwian an additional lengthening of consonants in non-weak position took place ("Čop's Law").⁸

Since Proto-Anatolian had to a large extent preserved the PIE system of accentual mobility in nominal and verbal paradigms, the phonemicization of the consonantal weakening/lenition gave rise to a large-scale allomorphy in

⁷ PAnat. /S/ is the outcome of the assimilation of *-ms- and possibly *-ns-.

⁸ This is reminiscent of the situation in Saami. For Proto-Saami a phonetic weakening of consonants can be reconstructed in certain positions (weak positions) depending on the place of the accent and the fact whether an adjacent vowel stood in open syllable or not. This weakening was phonemicized in all Saami dialects, but in some North Saami dialects an additional strengthening of consonants in non-weak position took place, cf. Sammallahti 1998, 47–50. In these dialects this caused a three-way distinction in length, short : long : overlong (in weak positions old long and short consonants merged as short, whereas in non-weak position old short consonant became long and old long consonants overlong), but in Luwian there is only evidence for an opposition between short and long consonants.

stems as well as endings. The separate languages dealt with this allomorphy in different ways. For instance, in Hittite the strong variants of the verbal and nominal endings were generalized whereas in Luwian the allomorphy was retained.⁹ In both Hittite and Luwian the allomorphy in nominal stems was eliminated,¹⁰ whereas in Hittite the allomorphy in verbal stems of the type *ištāpi* / *ištappanzi*¹¹ has been retained.

Summing up, we see that Čop's Law in Luwian must in fact be viewed as an inherent part of the Luwian phonemicization of the Proto-Anatolian 'lenition rules'. Since the system set out above does not only deal with weakening/lenition of intervocalic consonants but also with strengthening/fortition, we may in the future want to use the more appropriate term "Anatolian consonant gradation" to describe these phenomena.¹²

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⁹ E.g. Hitt. 3sg. pres. act. /-t̪i/ vs. Luw. /-di/ besides /-ti/; Hitt. 1sg. pret. act. /-Hun/ vs. Luw. /-ha/ besides /-Ha/.

¹⁰ In Hittite, the only remnant of inner-paradigmatic alternation may be visible in OH gen.sg. *še-ep-pí-da-aš* 'a kind of grain' = /sépidas/ < *sépitōs, which already in the OH period was secondarily altered to *še-ep-pí-it-ta-aš* = /sépitas/ in analogy to nom.-acc. sg. *še-ep-pí-it* /sépit/ < *sépit. In Luwian, we find e.g. phonetically regular nom.-acc. sg. *ma-al-li* 'honey' = /máLi/ < *mélit besides secondary abl.-instr. *ma-al-li-ta-a-ti* = /maLidádi/, which must be an adaptation of either original *mélitōti > **/máLi-dadi/, spelled ***ma-al-li-ta-ti* (with generalization of the ending /-ādi/ < *-ōti), or original *mélitōti > **/malidádi/, spelled ***ma-li-ta-a-ti* (with generalization of the stem /maLid-/ < *mélit-).

¹¹ Reflecting *stópei / *stpéniti.

¹² To what extent consonant clusters were affected by this consonant gradation as well must be subject of future research. Examples like the Hitt. abl.-ending -(ā)z < *-(ō)tī where the postconsonantal unlenited variant was generalized (so replacing expected **/ādi/ < *-ōti (cf. Luw. /ādi/ < *-ōti) by */-āti/ which regularly yielded Hitt. /-āt̪/), on the basis of cases like *ne-e-pí-iš-za* /nébist̪/ < */nēbist̪/ < *nēb^hes-ti) seem to indicate that the second element of clusters in weak position was not lenited in Hittite. If CLuwian *parraja-* 'high' reflects *b^hérgh-*ei-o-* it would show that in Luwian the second element of clusters in non-weak position were not subject to fortition (a pre-Luw. */k/ would have been retained in Luwian, whereas /g/ regularly drops in this position), but that the first element may have been indeed (unless -rr- in this form is due to the loss of */g/ in the pre-Luwian cluster */-rg-/).

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