

Chapter 6

Causative and passive high tone in Bantu: Spurious or proto?

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In this study I address Meeussen's (1967: 92) tentative proposal to reconstruct a H tone on the Proto-Bantu causative **-i* and passive **-v* suffixes, contrasting with all other Proto-Bantu extensions, which are reconstructed as toneless (Meeussen 1961; 1967). After surveying the phenomenon, I conclude that the causative-passive H (CPH) is almost exclusively limited to certain of the interlacustrine Bantu languages (JD40-60 and JE10-40) and should not be reconstructed. I exemplify the CPH tone effects in several of these languages and consider other cases of H tone extensions outside of the interlacustrine area which I argue to be unrelated. Although still requiring further investigation, I conclude by considering different morphological and phonological scenarios by which the CPH effects might have evolved.

1 Introduction

The purpose of this study is to survey and evaluate the tonal effects of the two Bantu vocalic verb extensions **-i* 'causative' and **-v* 'passive' in order to determine whether they carried a H in Proto-Bantu (PB), as Meeussen (1967: 92) considers in his *Bantu Grammatical Reconstructions* (BGR): "The high tone of (the Proto-Bantu) suffixes *-i-* and *-ú-* is set up tentatively, and in any case its manifestations seem to have been very much limited." Meeussen was quite clearly concerned about this issue which he referred to in work both prior and subsequent to BGR:

Dans quelques langues, les extensions vocaliques remontant à -i- (caus.) et -u- (passif) ont un ton haut dans certaines formes verbales à finale basse. Ce



phénomène est manifestement archaïque, mais il faudra plus de matériaux avant de pouvoir entamer une étude vraiment comparative sur ce point. (Meeussen 1961: 426)

In some languages, the vocalic extensions going back to -ɨ- (caus.) and -u- (passive) have a high tone in certain verbal forms with a low-toned final (vowel). This phenomenon is clearly archaic, but more data are needed before a truly comparative study can be initiated on this issue. (my translation)

Nothing is said (in Guthrie 1967–71) about the high tone of -u- and -ɨ- attested in some languages, e.g. Lega. (Meeussen 1973: 11)

Examples of current-day causative-passive high tone (CPH) from West Nyala JE18 are seen in (1), where H(igh) tone is marked with an acute accent and L(ow) tone is unmarked.

- (1) West Nyala JE18 (Ebarb & Marlo 2010: 3, 9)
si-βa-mú-βek-a ‘they are not shaving him’
s-aa-mú-βek-í-a ‘he is not making him shave’
 H (causative)
xw-áa-βek-a ‘we shaved’ (remote past)
y-áa-βek-ú-a ‘he was shaved’
 H (passive)

In the first example of each pair the verb stem βek-a ‘shave’ ends L-L. In the second example of each pair, there is a H tone on causative -í- and passive -ú-. If reconstructed to PB the CPH would be quite exceptional, since Meeussen otherwise considered post-radical vowels, including all other verb extensions, to be toneless, subject to a regressive assimilation of the contrastive *H or *L (or first tone of *HL and *LH) reconstructed on the final vowel (FV):

[...] dans un thème verbal, c’est-à-dire la partie du verbe qui commence par le radical, les syllabes comprises entre la première et la finale ont le même ton que la finale. (Meeussen 1961: 425)

[...] in a verbal stem, i.e. the part of the verb that starts with the root, the syllables between the first and last syllable have the same tone as the last. (my translation)

He cites the Ombo C76 examples in (2).

(2) Ombo C76 (Meeussen 1961: 425)

folot ‘pull’ *kóngɔl* ‘gather’

- | | | | | | |
|----|-----------------|------------------|-------------------|----------------------------|-----------|
| a. | <i>to-/tɔ-</i> | <i>folotak-a</i> | <i>kóngɔlak-a</i> | ‘we pull/gather’ | (PRS.HAB) |
| | <i>tá-</i> | <i>folotak-i</i> | <i>kóngɔlak-i</i> | ‘we used to pull/gather’ | (PST.HAB) |
| b. | <i>tátándá-</i> | <i>folót-á</i> | <i>kóngól-á</i> | ‘we are pulling/gathering’ | (PRS) |
| | <i>to-/tɔ-</i> | <i>folót-í</i> | <i>kóngól-í</i> | ‘we pulled/gathered’ | (HOD.PST) |

As seen, the post-radical vowels are L before the L final vowel (FV) in (2a), but H before the high FV in (2b), which I will refer to as an inflectional suffixal H (ISH). The general case of no tonal contrast on verb extensions continues in most Bantu languages, sometimes violated only by CPH, as in Fuliiru JD63: “Verbal extensions are all toneless with the exception of Passive (PS), Causative (CS) and CS+PS, any of which contributes a single floating H tone.” (Van Otterloo 2014: 386)

Unravelling the tonal properties of **-i* and **-ɔ* thus potentially requires an understanding of the relation between the FV and inflectional stem (aka melodic) tones—in fact, even beyond tone, as we will see. There are two logical explanations for the exceptional CPH: (i) CPH occurred in PB; (ii) CPH was innovated subsequent to PB. Of the two hypotheses, the first is the easy way out. All instances of CPH would be from PB. Where not attested, the CPH has been lost. If adopting the second hypothesis, we have the more difficult task of explaining how CPH came into being, i.e. why would only **-i* and **-ɔ* acquire a H tone—and, as it turns out, only in certain inflectional contexts?

In what follows I will first present arguments in §2 that CPH was innovated (cf. Hyman & Katamba 1990). Then, in §3 I present other cases of H tone extensions which are unrelated to CPH. I conclude in §4 by considering morphological and phonological scenarios by which **-i* and **-ɔ* might have acquired H tone.

2 Arguments in favour of the innovation of CPH

In this section I outline six facts about CPH that would seem best to be explained if we assumed that the H tone was not originally a property of the causative and passive extensions themselves.

2.1 Limited geographical distribution

The first argument is that CPH is found on both *-i* and *-ɔ* only in (some) inter-lacustrine (JD, JE) languages. Those that have been so identified to show H tone

effects from both extensions are listed in (3) along with their revised Guthrie referential classification (Maho 2009).¹

(3)	a. Nande	JD42	(Mutaka 1994)	HTA
	b. Shi	JD53	(Polak-Bynon 1975)	HTA (+HTI)
	c. Tembo	JD531	(Shigeki Kaji, p.c.)	HTA (+HTI)
	d. Fuliiru	JD63	(Van Otterloo 2011)	HTI
	e. Ganda	JE15	(Hyman & Katamba 1990)	HTA
	f. Soga	JE16	(Hyman, personal notes)	HTA (+HTI)
	g. West Nyala	JE18	(Marlo 2007, Ebarb & Marlo 2010)	
	h. Wanga	JE32a	(Christopher Green, p.c.)	HTI
	i. Marama	JE32C	(Kristopher J. Ebarb, p.c.)	HTI (?)
	j. Kabarasi	JE32E	(Ebarb 2016: e136)	HTA
	k. Marachi	JE342	(Marlo 2007)	
	l. Idakho	JE411	(Ebarb 2014)	HTA
	m. Isukha	JE412	(Kristopher J. Ebarb, p.c.)	
	n. Tiriki	JE413	(Marlo 2013: 182)	HTA

While CPH is widespread in zone J, it is not present in all interlacustrine languages. Thus, CPH is absent in Rwanda-Rundi JD61-62, Nkore-Kiga JE13/14, Lamogi (misclassified under Soga JE16) and presumably mutually intelligible Gwere JE17, the Haya-Jita group JE20, Bukusu JE31c and Logooli JE41. While not a knock-out argument, it would seem more likely that CPH was innovated in this area rather than inherited from PB and lost multiple times everywhere else.

The above-cited zone J languages are those that have H tone on both causative and passive extensions. Although non-interlacustrine Holoholo D28, Lega D25, and Herero R30 have been cited in this context, these do not show the same CPH phenomena. Coupez' (1955: 30) brief discussion of *-y* and *-w* concerns Holoholo

¹Also indicated are languages which have H tone anticipation (HTA) and can be analysed with H tone inversion (HTI), changing the original *H to /L/. I return to this below. Thanks to Michael R. Marlo for help in identifying the Luyia languages and providing additional information concerning their CPH, HTA and HTI properties. Although Michael R. Marlo has provided additional suggestions that HTA or HTI appear in more of the above (and other) Luyia variants, my own characterisation is quite restrictive: HTA in (3) is intended to indicate which languages have a regular process of realising Proto-Bantu *H tone on the preceding mora, e.g. Soga **bón* 'see' (BLR 266, Bastin et al. 2002) > *ò-kú-bòn-à* 'to see', realised *ò-kú-bòn-á* with a final H% boundary tone. He also adds: "Tiriki does not have H associated with causative *-its-*, just with passive *-w-*" (p.c.). See also Marlo (2008; 2009) for tonal analyses of Tura JE32G and Khayo JE341, respectively, which he says do not appear to have CPH effects.

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infinitives, where H tone shifts one mora to the right, then spreads an additional mora, forming a HL contour on the FV, as shown in (4).²

- (4) Holoholo D28 (Coupez 1955)
- | | underlying | H tone shift | H tone spreading | |
|----|----------------|----------------|------------------|------------------------|
| a. | /kù-kálik-à/ | → kù-kàlik-à | → kù-kàlik-â | ‘cut oneself’ (p. 72) |
| | /kù-tégelel-à/ | → kù-tègélel-à | → kù-tègélel-â | ‘hear’ (p. 24) |
| b. | /kù-món-à/ | → kù-mòn-à | | ‘see’ (p. 22) |
| | /kù-món-i-à/ | → kù-mòn-i-à | → kù-mòn-y-â | ‘make see’ (p. 74) |
| c. | /kù-kúat-à/ | → kù-kúát-à | → kù-kwát-â | ‘hold’ (p. 24, 30, 32) |
| | /kù-kúat-i-à/ | → kù-kúát-i-à | → kù-kwát-y-â | ‘make hold’ (p. 30) |

Since the above tonal differences are not specifically tracked in the different tense-aspects, I conducted a search through all of the examples in Coupez (1955) and did not find CPH in any of his 18 ‘*tiroirs*’ (i.e. tense/aspect/mood constructions). Regarding Lega, Meeussen (1971: 21, 25, 27) only mentions that certain tenses with a final H are instead realised with final HL in the presence of *-i-* or *-u-*. If this is all, then H on final CVV is realised HL, which Meeussen writes either *-í-ê* or *-y-ê* as in (5), e.g. *ku-lí-â ~ ku-ly-â* ‘to eat’ (p. 3).

- (5) Lega D25 (Meeussen 1971)
- | | | | | |
|----|-----|-----------------------|------------------|---------|
| a. | i. | <i>tw-â-kúbúl-é</i> | ‘we will pour’ | |
| | ii. | <i>tw-â-súbán-i-ê</i> | ‘we will return’ | (p. 21) |
| b. | i. | <i>tú-kubul-é</i> | ‘let us pour’ | |
| | ii. | <i>tú-suban-y-ê</i> | ‘let us return’ | (p. 23) |

What Meeussen apparently had in mind was that the FV H shifts onto the *-V* extension:

Les suffixes vocaliques -i- (caus.) et -u- (pass.) ont, à l'imminent, au subjonctif et à l'impératif, un ton haut comptant comme ton de finale et suivi de ton bas.
Meeussen (1971: 27)

The vocalic suffixes *-i-* (caus.) and *-u-* (pass.) have, in the near future, in the subjunctive and in the imperative, a high tone counting as tone of the final and followed by a low tone. (my translation)

²There is a regular tone absorption rule by which LH-H is simplified to L-H, as in (4c).

However, it is not enough to show that the presence of *-i* and *-v* cause a tonal difference, since this may simply be due to the extra tone-bearing unit (mora) they add. In Lungu M14, tenses which have H tone spreading to the penult realise the H on the FV if the word ends in CwV or CyV (Bickmore 2007: 165), as in (6). This however also applies if the final syllable is from a CV root + FV, as in (6c).

(6) Lungu M14 (Bickmore 2007)

- | | | | | | |
|----|--------------------|---|-----------------|--|----------|
| a. | /tú-ku-ful-a/ | → | tú-kú-fúl-a | ‘we are washing’ | (p. 150) |
| | /tú-ku-ful-il-a/ | → | tú-kú-fúl-íl-a | ‘we are washing for’ | |
| b. | /tú-ku-ful-u-a/ | → | tú-kú-fúl-w-á | ‘we are being washed’ | (p. 167) |
| | /tú-ku-ful-is-i-a/ | → | tú-kú-fúl-ísh-á | ‘we are washing a lot’ (< <i>-is-i-a</i>) | |
| c. | /tú-ku-lu-a/ | → | tú-kú-lw-á | ‘we are fighting’ | (p. 171) |
| | /tú-ku-zu-a/ | → | tú-kú-zw-á | ‘we are bleeding’ | |
| d. | /tú-ku-lu-il-a/ | → | tú-kú-lw-ííl-a | ‘we are fighting for’ | (p. 171) |
| | /tú-ku-zu-il-a/ | → | tú-kú-zw-ííl-a | ‘we are bleeding for’ | |

The contrast between H vs. L on the final syllable clearly correlates with final vowel shortening which converts the penultimate H assigned to Cwáa, Cyáa to Cwá, Cyá (Bickmore 2007: 232). Many other Bantu languages exhibit final CGV-conditioned tonal differences which have nothing to do with CPH, including Mwanga M22 (Bickmore 2000), Yao P21 (Hyman & Ngunga 1994), and Makonde P23 (Liphola & Odden 1999), among others. However, in order to be considered a case of CPH, there has to be a H present somewhere that can only be attributed to *-i* and *-v*, as was seen in West Nyala above in (1).

2.2 Absence of tone reversal

The second argument for innovation is that the CPH does not invert to L in languages which have inverted PB *H to L. This is seen in the Tembo JD531 examples in (7), where the H and L verb roots are reconstructed as **dimb* ‘catch’ (BLR 9693) and **kód* ‘work’ BLR 1875, respectively (Bastin et al. 2002).

(7) Tembo JD531 (Shigeki Kaji, p.c.)

- | | | | | |
|----|------------------|---|----------------|--|
| a. | /n-á-símb-a/ | → | n-á-símb-a | ‘I am catching (sth./s.o.)’ |
| | /n-á-símb-í-a/ | → | n-á-símb-y-á | ‘I am making (s.o.) catch (sth./s.o.)’ |
| | /n-á-símb-ú-a/ | → | n-á-símb-w-á | ‘I am being caught’ |
| b. | /n-á-kol-a/ | → | n-á-kol-a | ‘I am working’ |
| | /n-á-kos-í-a/ | → | n-á-kos-á | ‘I am making (s.o.) work’ |
| | /n-á-kol-el-ú-a/ | → | n-á-kol-el-w-á | ‘I am being worked for
(assisted in my work)’ |

As seen, despite the tonal inversion, the CPH is still realised on the FV. If the CPH had been present in PB (or an early branch of PB), we would have expected it to invert to L as well.

2.3 Restricted distribution in tense-aspect systems

The third argument for innovation is that CPH is typically (always?) restricted to certain tense-aspects which have an inflectional suffixal *H (ISH), known also as “melodic tone” in the literature (Odden & Bickmore 2014). This is seen in the Nande JD42 examples shown in (8), as realised phrase-internally.

(8) Nande JD42 (Mutaka 1994: 114–115)

- a. /*tu-kánda-mu-hum-ir-a*/ → *tu-kánda-mu-hum-ir-a* ...
 ‘we will hit for him’
 /*tu-kánda-mu-hum-is-ĩ-a*/ → *tu-kánda-mu-hum-is-y-a* ...
 ‘we will make him hit’
 /*tu-kánda-mu-hum-ir-u-a*/ → *tu-kánda-mu-hum-ir-w-a* ...
 ‘we will be hit for him’
- b. /*mó-tu-a-mu-hum-ir-a*/ → *mó-tw-a-mú-húm-ir-a* ...
 ‘we hit for him’
 /*mó-tu-a-mu-hum-is-ĩ-a*/ → *mó-tw-a-mú-húm-ís-y-a* ...
 ‘we made him hit’
 /*mó-tu-a-mu-hum-ir-u-a*/ → *mó-tw-a-mú-húm-ir-w-a* ...
 ‘we were hit for him’

In (8a) there is no ISH and the verb form ends all L, even in the presence of *-ĩ* and *-ú*. In (8b) the ISH is realised on *mú-húm* (object marker + root), and the H of *-ĩ* and *-ú* is anticipated onto the preceding vowel by a general rule in the language (see (9d) below). It cannot be an accident that CPH correlates with the ISH reconstructed as *H on the FV by Meeussen (1961). Of course, if the H remains on the FV, then the effect of the CPH may not be visible: “The basic generalisation is that if the FV is otherwise occupied, the H of the causative or passive suffix does not surface [in Marachi JE342].” (Marlo 2007: 255). In other words, CPH will not be realised if the verb does not have an ISH, and it may not be detectable if the ISH is realised on the final C-V-V syllable.³

³If the language simplifies /H-H/ sequences to H-L (or H-Ø), CPH may also not be detectable if there is a H tone on the penult: “The failure of H of the causative/passive to surface after H can be analyzed as the result of Meeussen’s Rule [in West Nyala JE18]” (Ebarb & Marlo 2010: 6).

2.4 Late insertion in seriation of tone rules

The fourth argument for innovation is that CPH sometimes needs to be inserted ‘late’ in a synchronic or diachronic derivation. It can be noted in (8b) that the suffixal H on *mú-húm* is realised to the left of the CPH, which is easier to explain if the introduction of the CPH post-dates suffixal H. Otherwise the question arises as to why CPH does not block migration of the melodic *H of the FV to the root and pre-root syllables. That CPH must often be inserted late in a synchronic derivation is also noted in Marachi JE342: “[...] it appears that the H of the causative or passive is linked by rule onto the FV after all other rules have applied, rather than being underlyingly linked to -y- or -w-” (Marlo 2007: 255).

To see why this is so, first consider the derivation in (9) of the non-CPH form from (8b) which mirrors the diachronic development in Nande.

(9) Nande JD42 (Hyman & Valinande 1985)

- a. **mó-tu-a-mu-hum-ir-a*
- b. H H *H on FV à la Meeussen
- c. H H H copying of H from FV to second stem mora
- d. H H H H H H tone anticipation (HTA)
- e. H H L L Meeussen’s Rule (MR): H-H → H-L
- f. H H H L L second HTA (doubling)

→ *mó-tw-a-mú-húm-ì:r-à* ‘we hit for him’

First the final H is copied onto the preceding syllable as per Meeussen (1961). Then H tone anticipation (HTA) spreads this H one more syllable to the left. At this point Meeussen’s Rule (MR) applies, lowering any H to L after a L. It is crucial that when FV *H undergoes MR, it must leave a L tone trace in order to block the assignment of phrasal %H declarative boundary tone. This phrasal H% can only be assigned if the FV is toneless, e.g. /*tu-kándi-mu-hum-ir-a*/ → *tu-kándi-mu-hum-ì:r-à* ‘we will hit for him’.⁴ In the derivation in (10), the H of the FV also has to reach the root and pre-root syllables despite there being a following CPH tone that is anticipated from causative *-ì* and passive *-u*. Recall the examples in (8b). As seen, the CPH is inserted late in the derivation, in (10f).

⁴In this example the phrase-final H% boundary tone is ‘pushed’ to penult by the L// declarative utterance boundary tone (Hyman 1990). The output in (9) also undergoes intonational phrase-final penultimate lengthening. For more streamlined synchronic accounts avoiding the above diachronic steps, see Mutaka (1994) and Jones (2014).

(10) Nande JD42 (Hyman & Valinande 1985)

- a. **mó-tu-a-mu-hum-ir-u-a*
 b. H H *H on FV à la Meeussen
 c. H HHH copying of H from FV to second stem mora
 d. H H HHH H tone anticipation (HTA)
 e. H H L L L Meeussen's Rule (MR): H-H → H-L
 f. H H L HL insertion of CPH
 g. H H H H(L L)⁵ second HTA (doubling)
 → *mó-tw-a-mú-húm-ír-w-à* ... 'we were hit for him ...'

The two questions are: (i) If the PB forms were H tone *-í and *-ú in PB, why do not they undergo MR? (ii) Failing to undergo MR, how did the H of the FV spread through the CPH? As seen in the next section, there are more anomalies concerning the FV.

2.5 Unexpected effects on the final vowel

The fifth argument concerns unexpected tonal and segmental effects on the FV. Continuing with Nande, I have put the final L-L in parentheses in (10g) because of an irregularity discovered by Mutaka (1994: 115–116). After H tone copying and anticipation in (10c,d), all but the first H becomes L by MR in (10e), exactly as in (9e). This L on the FV blocks the assignment of the phrase-final H% boundary tone, as seen in (11a).

(11) Nande JD42 (Hyman & Valinande 1985)

- a. /*mó-tu-a-mu-hum-ir-á*/ → *mó-tw-a-mú-húm-ì:r-à*
 'we hit for him'
 b. /*mó-tu-a-mu-hum-ir-u-a*/ → *mó-tw-a-mú-húm-í:r-w-â*
 'we were hit for him'
 c. /*mó-tu-a-mu-hum-is-i-a*/ → *mó-tw-a-mú-húm-í:s-y-â*
 H%L//
 'we caused him to be hit'

⁵The reason for putting the LL of the final syllable in parentheses is explained in the next section.

In (11b) and (11c), however, where the CPH is anticipated onto the preceding *-í:r* and *-í:s*, respectively, the FV fails to show the L derived from *H on the FV. Instead the phrase-final H% and declarative L// boundary tones are both realised on the last syllable. We know this from the fact that the final HL is lacking if something follows, e.g. *mó-tw-á-húm-ís-y-à Váliná:ndè* ‘we caused s.o. to hit Valinande’ (Mutaka 1994: 115). For further discussion, see Mutaka (1994: 115–116), who proposes a rule of final L tone deletion, as well as Jones (2014: 227–233).

While Nande only shows a tonal irregularity on the FV, both Ganda JE15 and Soga JE16 show additional effects of the CPH. First, the H tonal effects of the CPH are found only when there is an ISH (as in other languages), but also requires that the tense/aspect be marked by the perfect(ive) *-il-e* ending, realised post-consonantly as */-i-e/*, i.e. with deletion of the */l/*. Second, when co-occurring with the causative or passive, the FV is surprisingly realised with the FV *-a* instead of *-e* (Hyman & Katamba 1990: 145–146). This is seen in Soga in (12), which has undergone a diachronic process of HTA shift onto the preceding mora which is most visible in (12a) (cf. PB **-tí-* ‘fear’).

(12) Soga JE16 (Hyman 2018)

- a. *ò-kú-ty-à* ‘to fear’ (cf. Ganda *ò-kù-ty-â* < */-tí-a/*)
- b. *tù-tì-il-é* ‘we have feared’ (*-il-e* ending after a CV- root)
- c. *tù-tì-is-ííz-à* ‘we have caused to fear’ (< *-iiz-y-a* < *-iiz-i-a*)
- d. *tù-tì-il-ííb-w-à* ‘we have been feared’ (< *-iib-u*)
- e. *tù-tì-is-ííb-w-à* ‘we have been made to fear’

In (12b), the perfect(ive) ending *-il-e* is seen to occur after a CV verb. Since all the tone-bearing units were originally H, MR applies to all but the first, hence intermediate *tù-tì-il-é*, followed by the initial H undergoing HTA shift, and the FV receiving a H% tone. In (12b) and (12c), the CPH is anticipated from the mora of the *-i* and *-u* which glide (with the intermediate *-y* being absorbed into the preceding *z*). The CPH is realised all H on *-ííz-i* and *-ííb-w* rather than LH, since rising tones are prohibited in Soga (and Ganda). The long vowel itself is attributed to an extra ‘imbricated’ (fused) *-il* morph, and the *z* in (12c) due to the degree 1 **-i: -ilil-i-a* > *-iil-i-a* > *-iiz-i-a* > *-iiz-y-aa* (by gliding and compensatory lengthening) > *-iiz-a* (with absorption of the *-y* and final vowel shortening). While there are many cases in Bantu where the FV is different after a bare vs. extended root, e.g. ROOT-*i* or *-e* vs. ROOT-EXT-*a* (cf. Grégoire 1979), such variation of the FV on

perfective **-il-e* is (almost) unique to Ganda and Soga.⁶ Note in (12e) that the CAUS-PASS sequence introduces only one extra H. We would expect two H tones if **-i* and **-v* each carried an independent *H tone in PB.

2.6 Local realisation

The last argument for innovation is the fact that the CPH is always realised locally, either on the syllable with **-i* or **-v* or on its neighbour (e.g. when HTA has applied). If this H has been there from the days of PB, why has it not migrated or been subject to the major changes that the root and inflection stem tones have undergone (other than loss, of course)? It would only have to have been innovated before HTA shift in Nande and Soga. At least in the case of Soga, HTA shift is extremely recent, since the language is near-mutually intelligible with Ganda, which lacks HTA shift.

In fact, besides being closely tied to the **-i* or **-v*, the general assumption has been that the CPH always originates in the final syllable of the verb stem.

The causative *-y-* and passive *-w-* suffixes surface in pre-final position in Lumarachi, immediately before the FV. As a result, when the H of the causative or passive suffix surfaces, it surfaces on the FV. (Marlo 2007: 255)

[...] I propose that there is a morphologically conditioned rule that assigns a H on the causative or passive vowel in the penultimate position [in Nande]. (Mutaka 1994: 115)

However, there are two environments that allow **-i* and **-v* to occur earlier than the final syllable in the verb stem in some CPH languages, but have not been tonally scrutinised: (i) verb stem reduplication; (ii) sequences of **-i* or **-v* + reciprocal *-an/-agan* + FV. While variations in total vs. partial verb-stem reduplication and a widespread requirement that reciprocalised causatives be realised *-i-an-i* limit the interest of these two contexts in some CPH languages, they both potentially occur in Ganda and Soga. Let us begin with reduplication.

In languages that truncate and prepose the “frequentative” reduplicant, tone is usually not copied. Typically the root H is only in the reduplicant while an ISH

⁶Michael R. Marlo indicates that this is also found in Luyia. One intriguing similarity is Mwiini G412, which replaces the *-e* of **-il-e* with *-a* in the passive (Kisseberth & Abasheikh 1975: 251), but without *-u* appearing: *bush-il-e* ‘s/he hit’, *bush-il-a* ‘s/he was hit’ (Charles W. Kisseberth, p.c.).

is assigned to the whole reduplicated stem, as in Nande in (13), where the source moras of the H tones are underlined.⁷

(13) Nande JD42 (Mutaka & Hyman 1990; Philippe Mutaka, p.c.)

- a. *Ø FV (e-ri) hum-ir-an-a ... → (e-ri) hum-a+hum-ir-an-a ...
‘to hit for e.o.’
- b. *Ø FV (e-rí) tùm-ir-an-a ... → (e-rí) tùm-a+tum-ir-an-a ...
‘to send to e.o.’
- c. *H FV (mó-tw-a-mú-) húm-ir-à ... → (mó-tw-a-mú-) húm-a+hum-
‘we hit for him’ ir-à ...
- d. *H FV (mó-tw-á-mú-) túm-ír-à ... → (mó-tw-á-mú-) tùm-a+túm-
‘we sent to him’ ír-à ...
- e. *H FV (mó-tw-á-) húm-w-a ... → (mó-tw-á-) húm-w-a+húm-w-a ...
‘we were hit’
- f. *H FV (mó-tw-a-) túm-w-á ... → (mó-tw-a-) tùm-w-a+túm-w-á ...
‘we sent to him’

(13c) has the output of the derivation in (9). The root *túm* ‘send’ has an historical H, i.e. **tóm* ‘send’ (BLR 3055), which is anticipated onto the prefixes in (13b) and (13d), but deleted after the tense marker *a-* in (13f). (13e) crucially shows the suffixal *H shifting to *á-húm* plus another H on the second *húm* from passive *-w*. The CPH causes the FV *-a* to lose its L tone in (13e) (Mutaka 1994: 116), cf. (8b).

However, a different picture emerges from Soga in (14), which has full verb stem reduplication.⁸

(14) Soga JE16 (Hyman, personal notes)

- a. (ò-kú-) ty-à ‘to fear’
(ò-kú-) ty-àà-ty-á
- b. (tù-) tì-il-é ‘we have feared’
(tù-) tì-il-è-tì-il-é
- c. (tù-) tì-ìs-úíz-à ‘we have caused to fear’
(tù-) tì-ìs-úíz-à-tì-ìs-ìz-á

⁷For discussion of some of the tonal variation occurring in Bantu reduplication, see Downing (2003). This variation can depend on the type of reduplication even within the same language, as in Tonga N15 (Mkochi 2017).

⁸Again, the final H on the base form of (14b) and all of the reduplicated forms is from H%.

- d. (tù-) *tì-il-í**̀**w-à* ‘we have been feared’
 (tù-) *tì-il-í**̀**w-à-tì-il-ì**̀**w-á*
- e. (tù-) *tì-is-í**̀**w-à* ‘we have been made to fear’
 (tù-) *tì-is-í**̀**w-à-tì-is-ì**̀**w-á*

As seen, the CPH effect is on the first stem in reduplication. This would be expected if the /H/ were from the root—but is different from ISH which is calculated from the end. Thus, compare (14) with (15a) and its reduplication in (15b).

- (15) Soga JE16 (Hyman, personal notes)
- a. *è-bíí-ntú by-é tw-áá-sékwîl-é*
 ‘the things that we pounded’ (general past)
- b. *è-bíí-ntú by-é tw-áá-sékwîl-é-sékwîl-é*
 (-sèkul- + -il-e → -sekwiil-e)

In both cases the ISH is assigned to the penultimate mora of the full stem. The fact that the CPH is realised on the first stem in (14c, 14d) suggests that it is behaving similarly to the realisation of the root H in the first stem of the reduplication, or is at least assigned to the first stem.

The second potential non-final effect of CPH is found with reciprocal *-agan* in Ganda and Soga. In this case CPH is realised only when **-i* or **-u* locally ‘interfixes’ between perfect(ive) **-il* and the FV *-a*. In the following examples, the *-il* of *-il-a* imbricates within the second syllable of reciprocal *-agan*, i.e. /-agan-il-e/ → -again-e, as in (16a).

- (16) Ganda JE15 (Hyman, personal notes)
- a. no CPH *tù-lùm-y-àgàin-é* ‘we hurt e.o.’⁹
- b. CPH *tù-lùm-y-àgáin-y-à* (idem)
- c. no CPH *tù-bá-kùb-y-àgàin-é* ‘we made them hit e.o.’
- d. CPH *tù-bá-kùb-àgáin-y-à* (idem)

As seen in (16a) and (16c), if causative *-i* is separated from the perfect(ive) ending, there will be no CPH, and **-il-e* will be realised with final *-e*. On the other hand, in (16b,d), where *-i* is realised right after imbricated *-again*, there is a CPH and the form ends with *-a*. The same facts are found with passive *-u*. Although it is rare to get the reciprocal co-occurring with the passive, compare the following with *fumb-il-u* ‘marry’ (lit. ‘be cooked for’) in (17).

⁹In (16a) and (16b), ‘hurt’ has the underlying form *lùm-i*, literally ‘cause to bite’ from PB **dɔm* ‘bite’ (BLR 118, Bastin et al. 2002); *kùb-i* ‘make hit’ is transparently derived from PB **kɔb* ‘hit’ (BLR 1984, Bastin et al. 2002).

(17) Ganda JE15 (Hyman, personal notes)

- a. no CPH *bà-fúumb-il-w-àgàin-é* ‘they married e.o.’
- b. CPH *bà-fúumb-il-w-àgáin-w-à* (idem)

A lot of this has to do with an innovative reparsing of *-*agan* as *-a-gan* (Hyman et al. 2017), as seen in (18).

(18) Ganda JE15 (Hyman, personal notes)

- a. original *tù-ty-àgàin-é* < /tù-ti-agan-il-è/ ‘we feared e.o.’
- b. innovated *tù-ti-il-è-gàin-è* < /tù-ti-il-e+gan-il-è/ (idem)

While the inherited situation was one where *-*il-e* followed *-agan*, with which it imbricates, as in (18a), the alternate form in (18b) shows the inflectional ending being spelled out before and after the reciprocal, reparsed as *-gan*.¹⁰ The important thing that the above shows is that for there to be a CPH, the causative or passive extension must locally co-occur with perfect(ive) *-*il*, i.e. be combined, rather than being suffixed in separate positions within the verb stem. Be that as it may, the details found in Ganda, Soga or other languages likely modify and potentially obscure the possible origins of CPH. It is however unlikely that what we see in Soga, Nande, Fuliiru, etc. would have occurred as such in PB. We now turn to consider other cases of H tone extensions in the next section.

3 Other cases of H tone extensions

In the preceding section I enumerated six reasons why I think CPH was probably not a property of PB. A major reason in §2.1 was that CPH is found only in certain interlacustrine languages. Recall the reconstruction by Meeussen (1961; 1967) of all other extensions as *L or toneless. It would certainly be a strong argument in favour of reconstructing CPH in PB, or at least earlier than Proto-Interlacustrine, if CPH could be found outside the JD and JE zones. While most Bantu languages do not contrast tone on any verb extensions, three Bantu languages outside of zone J have been identified with contrastive H tone extensions. While I will argue

¹⁰Note in this context that besides the two forms in (17a) and (17b), *bà-fúumb-íil-w-àgàin-á* is also attested, suggesting that *gan-a* may be coming to be a constituent by itself, i.e. *bà-fúumb-íil-w-à+gàin-á*. In recent work on Ganda I found that *o-ku-láb-àgan-a* ‘to see e.o.’ can not only reduplicate as *o-ku-láb-agan-a+lab-agan-a* with expected full stem reduplication, but also as *o-ku-láb-àgan-a+gan-a*. I have not found any other verb extension that can reduplicate in this way.

that these H tones must have a different origin, I briefly consider each of these in turn.

The best known such case is Chewa N31b which shows the contrasts between toneless and H tone extensions seen in (19).

- (19) Chewa N31b (Mtenje 1986; Kanerva 1989; Hyman & Mtenje 1999a,b; Downing & Mtenje 2017)
- | | | | |
|----|-----------------------------------|------------------|---------------------------------------|
| a. | ∅ tone extensions applicative | <i>mat-il-a</i> | ‘plaster/glue for’ |
| | causative | <i>mat-its-a</i> | ‘cause to plaster/glue’ |
| | reciprocal | <i>mat-an-a</i> | ‘plaster/glue e.o.’ |
| | reversive tr. | <i>mat-ul-a</i> | ‘unplaster/unglue (tr.)’ |
| | <i>dial. (Ntcheu variety)</i> | passive | <i>mat-idw-a</i> ‘be plastered/glued’ |
| b. | H tone extensions stative | <i>mat-ik-á</i> | ‘be plasterable/gluable’ |
| | intensive | <i>mat-its-á</i> | ‘plaster/glue a lot/well’ |
| | reversive intr. | <i>mat-uk-á</i> | ‘become unplastered/unglued’ |
| | <i>dial. (Nkhotakota variety)</i> | passive | <i>mat-idw-á</i> ‘be plastered/glued’ |

As seen in (19a) both the verb root *mat* ‘plaster/glue’ and the indicated extensions are toneless. In (19b) the second set of verb extensions assigns a H tone to the verb stem which by general rule links to the FV. Note that intensive *-its-* assigns a H, while segmentally homophonous causative *-its-* does not. The tonal behaviour of the passive extension is different in the Ntcheu and Nkhotakota varieties of Chewa.

The second language is Tonga N15 which, based on personal communications from Lee S. Bickmore and Winifred Mkochi, also contrasts causative *-is* with intensive *-ís*. More intriguing is the segmentally homophonous toneless stative *-ik* vs. passive *-ík* exemplified in (20).¹¹

- (20) Tonga N15 (Lee S. Bickmore & Winifred Mkochi, p.c.)
- | | | | |
|--|----------------------------|---------------------|----------------|
| | medial | phrase-final | |
| | <i>kù-júl-à</i> | <i>kù-júùl-à</i> | ‘to open’ |
| | stative <i>kù-júl-ik-à</i> | <i>kù-júl-ìik-à</i> | ‘to be open’ |
| | passive <i>kù-júl-ik-á</i> | <i>kù-júl-ìik-à</i> | ‘to be opened’ |

¹¹Tonga passive *-ík*, although intriguingly H tone, is clearly not cognate with PB **-ɔ*.

As Lee S. Bickmore and Winifred Mkochi (p.c.) put it: “The H on the stem-initial TBU [Tone-Bearing Unit] in each case is a M[elodic]H, which in stems with toneless roots, lands on V1 [...]. In the Passive you see a second H, from the extension. We analyze the extension H as docking onto the FV, and then shifting one mora to the left when the verb is phrase-final.”

The third language is Herero R30, which is clearly more intricate. Although I had some trouble interpreting the effects in the two sources, I believe that Table 1 summarises the extension tone patterns (omitting the extra L of the FV which the authors cite with the extension tone).

Table 1: Herero Verb Extensions and their Tones

Köhler (1958: 101ff)			Möhlig & Kavari (2008: 146ff)		
causative	<i>-is</i>	L	causative I	<i>-iṣ</i>	L
causative	<i>-ek</i>	L	causative II	<i>-ek, -ik (-e)</i>	L
			causative III	<i>-z(a)</i>	L
applicative	<i>-ir, -er, -in, -en</i>	L	applicative	<i>-er, -ir, -en, -in</i>	L
iterative	<i>-or, -uk</i>	L	reversive-	<i>-or, -ur, -ok,</i>	L
inversive	<i>-orok, -oror</i>	L	intensive (tr. + intr.)	<i>-uk, -oror, -urur, -orok, -uruk</i>	
intransitive	<i>-ák</i>	(H)	intransitive	<i>-ak, -ek, -ok, -uk</i>	L
intransitive- medial	<i>-ík, -ók, -úk</i>	(H)	neutro- passive	<i>-ík, -ik</i>	HL
reciprocal	<i>-asan</i>	(H)	reciprocal	<i>-áṣan</i>	(H)
passive	<i>-u</i>	H	passive	<i>-w, -éw, -íw</i>	H

In Table 1, (H) indicates that the extension will be H if the root is H, otherwise L. Setting these aside, this leaves the passive as consistently H, as shown in (21).

(21) Herero R30 (Köhler 1958: 108)

a.	<i>rw-a</i>	‘fight’	→	<i>ru-w-á</i>	‘be fought’
	<i>hong-a</i>	‘teach’	→	<i>hong-w-á</i>	‘be taught’
	<i>haam-a</i>	‘sit’	→	<i>haám-w-á</i>	‘be sat’
	<i>hakurur-a</i>	‘make hungry’	→	<i>hakúrúr-w-á</i>	‘be made hungry’
b.	<i>nw-á</i>	‘drink’	→	<i>nú-w-á</i>	‘be drunk’
	<i>hír-a</i>	‘water’	→	<i>hír-w-á</i>	‘be watered’
	<i>hínd-á</i>	‘send’	→	<i>hínd-w-á</i>	‘be sent’
	<i>hépek-a</i>	‘make poor’	→	<i>hépék-w-á</i>	‘be made poor’
	<i>húkúr-a</i>	‘undress’	→	<i>húkúr-w-á</i>	‘be undressed’
	<i>hívírik-a</i>	‘praise’	→	<i>hívírik-w-á</i>	‘be praised’
	<i>játátúrur-a</i>	‘unstitch’	→	<i>játátúrúr-w-á</i>	‘be unstitched’

In (21a) the verb root is L, while in (21b) the verb root is H. As seen, the H induced by the passive extension begins with the second syllable much as an ISH would be realised according to Meeussen (1961).

Despite any similarity, I would argue for several reasons that the H tone effects in Chewa, Tonga and Herero are not related to CPH. First, the causative extension is consistently not H. Second, in Herero, the (H) effects might be interpretable as spreading of the root H, which in other cases is sensitive to whether the vowel of the H root was long or short in PB. Concerning the passive, could the H have come from the marker *í* which introduces the prepositional agent phrase following a passive verb? For instance, *etemba má'rí nan-éwá í ókasíno* ‘the car is pulled by the donkey’ (Möhlig & Kavari 2008: 148). Could something similar be behind the H tone passive *-ídw* in certain Chewa varieties and *-ík* in Tonga? Finally, the H tone extensions seem to correlate with intransitivity in all three languages. I doubt that this is an accident. Rather, it suggests that there could have been an earlier H% boundary tone that became associated with intransitive verbs, since they are more likely to occur clause-finally than transitive verbs. Unless passive **-v* could have analogised its H tone to causative **-i*, based on the exceptional V shape of the two extensions and the tendency for both to occur in the last syllable (see below), it is not likely that the above effects are related to CPH. Of course, the similarity between nearby Chewa N31b and Tonga N15 may not be coincidental, or even Herero R30, if Möhlig (2009) is correct in assuming an origin of the language in south-eastern Malawi. The differences and sporadicity convince me, however, that CPH likely had an independent source, to which I now turn in the final section. In any event, even if they were related, it would still be a late development that does not require reconstruction to PB

as these languages belong to a late branch of the Bantu language family tree (i.e. they are East and South-West Bantu, cf. Grollemund et al. 2015).

4 Possible sources of CPH

If CPH did not exist in PB, we are then left with the question of why it exists in the interlacustrine languages enumerated in (3)? Any solution must account first for why CPH is limited to **-i* and **-v* and second why CPH is dependent on there being an inflectional suffixal H (ISH) (Meeussen's **H FV*). There are potentially two types of explanations, one morphological, one phonological: (i) perhaps *-i* and *-v* had a different status or structure from other verb extensions; (ii) perhaps the V shape played a key role, since all other verb extensions have the shape VC. In my past work I have entertained two different morphological explanations: (i) **-i* and **-v* used to be voice suffixes only later acquiring a FV (Hyman 2007a: 161); (ii) **-i* and **-v* used to be enclitic with perfect(ive) *-il* and the FV *-a* (Hyman & Katamba 1990: 153).

According to the first idea, **-i* was originally a FV. The potential relation is often noted to the subject-oriented ("agentive") deverbal nominaliser **-i*, e.g. **dim* 'cultivate' (BLR 968) → **mv-dim-i* 'farmer' (BLR 5491) (Bastin et al. 2002), although this **-i* was toneless (or **L*) in PB. Within the verb system there is a FV *-i* in NW Bantu that often marks stative, but can also be impositive, e.g. in Eton A71 (Van de Velde 2008: 122–123, 132): *búg* 'break (tr.)' → *búg-i* 'break (intr.)' vs. *són-bô* 'squat', *són-i* 'make s.o. squat'.¹² The stative FV *-i* is H tone in Abo A42 and Basaa A43a vs. the L tone verb extensions. I have noted 80 Basaa examples of derived *-i* verbs in Lemb & de Gastines (1973), for instance *sɔp* 'pour' → *sob-i* 'be poured' (cf. Bitjaa Kody 1990: 423–424). Concerning the passive, it is tempting to compare **-v* to **-ú*, which derives stative adjectives from intransitive verbs in certain Bantu languages but has been reconstructed with a close back vowel of the first degree of aperture. I have found 142 Ganda examples in Snoxall (1967), for instance *gum* 'be firm, solid', *gum-ú* 'firm, solid'; *tamiir* 'get drunk', *tamúv-ú* 'drunken'. The only way this hypothesis could be helpful is if the two V-shaped verb extensions were originally **H* tone FVs, which goes against my basic contention that CPH is innovative. Moreover, the above comparisons involve differences in tone or vowel height, not to mention grammatical and semantic differences. Hence, this approach remains at best highly speculative.

¹²Koen Bostoen (p.c.) has suggested that this zone A *-i* suffix may instead derive from Proto-Bantu **-ik-* through loss of the final **k*. While stative and impositive suffixes of this shape do exist elsewhere in Bantu, generally with the degree 2 vowel **ɪ* (which can harmonise to [ɛ]), the *-i* suffix is degree 1 in zone A languages with seven vowels.

6 Causative and passive high tone in Bantu: Spurious or proto?

As a second morphological explanation based on Ganda, Hyman & Katamba (1990: 155) propose that to derive CPH, the perfective *-il* + FV *-a* originally formed an enclitic in the presence of *-i* and *-u*. The basic idea is that the ISH would be assigned twice, once to the base verb, once to the enclitic, much as one finds in West African serial verb tone.¹³ This is illustrated in (22) for both Ganda and Soga, both of which would have the same trace of this alleged earlier structure.

(22) Ganda JE15 and Soga JE16 (Hyman, personal notes)

	Input	Ganda	Soga
a.	expected: <i>tú-</i> [<i>lek-i-</i> + <i>il-e</i> + <i>H</i>]	* <i>tú-lés-iz-è</i>	* <i>tù-lés-iz-è</i>
b.	actual: <i>tú-</i> [[<i>lek-i-</i> + <i>el</i> + <i>H</i>] <i>il-a</i> + <i>H</i>]	<i>tú-lés-ézz-â</i>	<i>tù-lés-éiz-â</i> 'we have caused to leave'

As seen, the incorrect expected output is in (22a), where the spell-out of bi-morphemic **-il-e* surrounds the *-i* of the causativised root: *lek-i* 'make leave' → *les-i* → *les-il-i-e* → *les-iz-y-e* → **les-iz-e*. Instead, the Soga *lés-éiz-â* sequence observed in (22b) requires an even more complex 'cyclic' derivation of the sort discussed in Hyman (2003): *lek-i* → *les-i* → *les-el-i* → *les-ez-i* → *les-eiz-i-a* (imbrication), where *-el* is an extra morph known as a 'stabiliser' elsewhere in Bantu (cf. Cole 1955, Gowlett 1984). As also observed, *l* spirantises to *z*, causative *-i* glides to *y* and is absorbed by the preceding fricative, and the FV is *-a*.¹⁴ As shown, both the stem and the enclitic *-il-i-a* receive an ISH in (22b).

The bipartite structure in (22b) was designed to account not only for the double spell-out of the ISH, but also for the fact that CPH perfectives do not form a tone group (TG) with what follows (Hyman & Katamba 1990: 151). Subject to a number of conditions, a TG in Ganda consists of the verb + the first clitic or phonological word that follows. Within the TG, a sequence consisting of any number of Hs + Ls + Hs plateaus to all H across the two words, as may be seen from (23).

(23) Ganda JE15 (Hyman, personal notes)

- a. i. *y-á-tú-síb-idd-è* 's/he tied for us'
- ii. *y-á-tú-síb-idd-é =kí* 'what did s/he tie for us?'
- b. i. *y-á-tú-kúb-idd-ê* 's/he hit for us'
- ii. *y-á-tú-kúb-idd-é =kí* 'what did s/he hit for us?'

¹³This suggestion would make the most sense if **-il* were originally a verb, following Givón's (1971) general suggestion for Bantu verb suffixes. Although this remains to be confirmed, Voeltz (1977) suggests a pre-PB verb **gid* 'finish'.

¹⁴A full analysis would be more complex than this. It might also be tempting to view the second *e* of *les-eiz-i-a* as a FV, hence *les-e+iz-i-a*. Since a harmonising *-il/-el* 'stabiliser' is found elsewhere in the language, I believe this is the better interpretation.

However, H tone plateauing (HTP) is blocked by CPH as shown in (24).

(24) Ganda JE15 (Hyman, personal notes)

- a. *y-á-síb-ídd-w-â* ‘s/he was tied’
y-á-síb-ídd-w-ââ =*kí* ‘what was s/he tied by’
- b. *y-á-kúb-ídd-w-â* ‘s/he was hit’
y-á-kúb-ídd-w-ââ =*kí* ‘what was s/he hit by’

Note that the input tones are identical to those of the first line of (23b) which undergoes H tone plateauing, so it cannot be the final HL that blocks HTP. The fact that the final syllable is bimoraic in (24) is also irrelevant, since other final CVV syllables undergo HTP, for instance *y-à-ly-â* ‘s/he ate’ vs. *y-à-ly-ââ=kí* ‘what did s/he eat?’.

Importantly, blocking of TG-formation will take place only if the CPH occurs in the last syllable, and this only if *-i* or *-u* combines with **-il* plus the FV *-a*, as in (25a) involving the causative verb *som-es-i* ‘teach, cause to learn’.

(25) Ganda JE15 (Hyman, personal notes)

- a. *tú-sóm-és-ézz-â* ‘we have taught’
tú-sóm-és-ézz-ââ =*kí* ‘what have we taught?’
- b. *tú-sóm-és-è-gàñ-è* ‘we have taught e.o.’
tú-sóm-és-é-gá-é =*kí* ‘what have we taught e.o.?’

There is however no CPH in (25b), where *-i* appears not to be realised, hence HTP applies. It is likely that the verb stem has been reanalysed as *som-es-i-e+gan-i-e*, where the repeated *-i-e* is from **-il-e*. Note that unlike the above stem + enclitic, this bipartite structure appears to be a compound that does not block TG formation. Since only Ganda and Soga require the perfective *-il* to get CPH, and since they alone require the FV *-a*, I have my doubts about the enclitic explanation. It does however have the merit of attributing the CPH to the ISH, which Jones (2014) implements in a synchronic phonological analysis of Nande JD42: “[...] the Spurious tone is claimed to be nothing more than the second H tone assigned in Complex tone [...]” (Jones 2014: 232).

Turning then to possible phonological accounts, could the CPH derive from the unique phonological properties of the two extensions which are realised late in the verb stem/word, typically occurring in the last syllable? As the only V-shaped extensions, **-i* and **-v* usually form a CVV syllable with the FV. In (26) I consider what would be needed if we assume that CPH is from a single inflectional (‘melodic’) H that has two realisations.

(26) Ganda JE15 (Hyman, personal notes)

	no CPH	CPH
a. Input (\emptyset CVC root + extensions + FV)	CVC-VC-VC-V H	CVC-VC-VC- <u>V-V</u> H
b. HTA onto extensions	H H H	H H H
c. Final CVV becomes HL	H H H	H H H <u>L</u>
d. MR (R \rightarrow L)	H L L	H <u>L</u> H L

In the derivation on the left the input in (26a) consists of a CVC root followed by two VC-shaped extensions and the FV which receives the ISH. The derivation on the right has the same input except that $*-i$ or $*-\upsilon$ is present in the last syllable. In (26b) HTA applies from the FV up to the second mora, here the V of the first extension. In (26c) I have introduced a change in the final CVV from HH to HL, as happens in a lot of Bantu languages. The derivation on the left remains unchanged. Finally, MR applies in (26d) as expected in the derivation on the left, changing H-H-H to H-L-L. On the right, however, H-H-HL only changes to H-L-HL, i.e. it only affects a H, but not the final HL falling tone. As a result, the ISH is realised both on the second mora as well as on the $*-i$ or $*-\upsilon$. If correct, the impression of a PB H tone causative and passive extension would be ‘spurious’. In addition, by limiting the special bimoraic H > HL to word-final position, we correctly predict that internal $-i$ and $-\upsilon$ (e.g. $-i-an$) will not satisfy the condition for CPH.¹⁵ While final long H becoming HL is not surprising, the question is whether it is ‘natural’ to expect the resulting HL to resist the otherwise general MR? If MR had been a rule of L tone spreading, this effect would be less surprising. While it is natural for the L of L-H to spread onto the H, a more common restriction is for L tone spreading not to affect L-HL. If MR started at the left with the resultant L spreading onto following Hs, we could therefore expect L tone spreading not to affect the H of final HL. What this would have to mean is that MR started out as a bounded left-to-right process first changing, say, H-H-H-H to H-L-H-H and only later reapplying to subsequent Hs. In this way we could obtain the derivation H-H-H-HL \rightarrow H-L-H-HL \rightarrow H-L-L-HL, as needed. While MR has been reported to apply left-to-right (and phrasally) in the Shona cluster S10 (cf. e.g. Hyman & Mathangwane 1999), as well as bounded in Nande between root and FV (Hyman & Valinande 1985), it would be good to find more evidence for or against this strictly phonological account.

¹⁵Note that internal $-i$ and $-\upsilon$ also sometimes do not contribute an extra mora, e.g. Ganda $o-ku-lim-y-agan-y-aa =k\acute{o}$ ‘to make each other cultivate a little’.

Before concluding, I want to mention another logical source of evidence for the tone of extensions in PB: nominalisation. It would be significant if *-i and *-ɔ were to provide an extra H tone in nominalisations, especially if found in non-CPH languages. Although this has not been exhaustively researched, the data to date are mixed. As Van Otterloo (2011: 260) notes: “[...] the H tones of CS [Causative] and PS [Passive] are not always present in nominal form.” In the following Fuliiru JD63 examples, (27a) shows the transfer of CPH into the noun, while there is no CPH transfer in (27b).

(27) Fuliiru JD63 (Van Otterloo 2011)

- a. *kú-fúú-s-â* ‘to escape’ → *í=kí-fúús-ô* ‘means of escape’
kú-tyábí-rí-z-â ‘to thunder’ → *á=ká-tyábíríz-ô* ‘thunder’
- b. *kú-bút-ír-w-â* ‘to give birth’ → *ú=mú-bútír-wà* ‘native (of a place)’
kú-bùgú-z-â ‘to pay fee’ → *ú=mú-bùgù-zà* ‘tax collector’

Interestingly, of the 70+ nominalisations which Van Otterloo (2011: 288–292) provides, all end in L except for *í-shùvy-ô* ‘answer’, *kí-búúz-ô* ‘question’, and *ká-hùgw-ê* ‘loneliness’, all of which involve an input causative -i or passive -u.¹⁶

In Ganda, class 1 deverbal agentives are generally derived with -i, but with -á after the causative or passive extension. The nominalisations in (28) are from Ashton et al. (1954) and Snoxall (1967), which I cite without the augment.

(28) Ganda JE15 (Ashton et al. 1954; Snoxall 1967)

- a. *ku-lim-a* ‘to cultivate’ → *mu-lim-i* ‘farmer’
ku-kól-à ‘to work’ → *mu-kóz-i* ‘worker’
ku-lagír-a ‘to direct’ → *mu-lagír-i* ‘instructor’
ku-lábir-a ‘to supervise’ → *mu-lábir-i* ‘overseer’
- b. *ku-woóz-a* ‘to exact dues’ → *mu-wóóz-à* (*wool-i*) ‘tax-collector’
ku-liran-a ‘to be next to’ → *mu-liráàn-w-à* (*liraan-u*) ‘neighbour’
ku-záàl-is-a ‘to assist at childbirth’ → *mu-záális-à* (*záal-is-i*) ‘midwife’
ku-yígír-a ‘to teach’ → *mu-yígír-à* (*yígír-i*) ‘teacher’
- c. *ku-gob-a* ‘to drive’ → *mu-gób-â* ‘driver’
ku-sik-a ‘to inherit’ → *mu-sík-â* ‘heir’
ku-vubuk-a ‘to reach puberty’ → *mu-vúbúk-â* ‘adolescent’

¹⁶I also note that none of them ends with final -a.

As seen most clearly in the first two examples of (28b), the H of *-á* has the same realisation as the ISH, being realised as H on the second mora, followed by all Ls. This is obscured in the third and fourth examples, where the root is also H, hence causing the H of *-á* also to undergo MR. A final HL falling tone is found on the *-a* in (28c), although without a causative or passive morpheme.¹⁷ While the *-i* vs. *-a* nominaliser is attested beyond the CPH languages—and may be PB (Meeussen 1967: 93), it interestingly parallels the Ganda/Soga perfective *-e* vs. *-a* facts. As for the transfer of the CPH to nominalisations, my suspicion is that more transparent derivations or recent nominalisation may be more likely to parallel the tones of the input verb. In any case, a bigger corpus is needed from more languages.

5 Conclusion

To conclude, I repeat the position of Hyman & Katamba (1990) that the CPH was innovated in the interlacustrine area, and that it had to do with the presence of a ‘melodic’ tone, if not also the perfect(ive) suffix. In most of the interlacustrine CPH languages listed in (3), there is a noteworthy prevalence of HTA which ultimately leads to a H > L tone inversion. Since HTA is otherwise rather limited in Bantu (vs. perseverative tone spreading and tone shifting) this correlation should be borne in mind – even though it is not obvious whether or how it might feed into the CPH facts we have seen.¹⁸ In any case, the contrastive H tone extensions attested outside the interlacustrine area are likely a separate development, possibly having to do with marking intransitive verb finality or a H tone agentive preposition following the passive verb. It is also striking how many minimal pairs there are among the extensions.

(29) Chewa N31b and Tonga N15 (Hyman, personal notes), Herero R30
(Wilhelm J. G. Möhlig, p.c.)

- a. Chewa *-its* ‘causative’ vs. *-íts* ‘intensive’;
-ik ‘impositive’ vs. *-ík* ‘stative’
- b. Tonga *-is* ‘causative’ vs. *-ís* ‘intensive’;
-ik ‘stative’ vs. *-ík* ‘passive’

¹⁷The first three nouns in (28c) also have the regular variants *mu-gob-i* and *mu-sisi*, while the third has the variant *mu-vubúf-ù* derived via the deverbal adjectival suffix *-ù* mentioned above.

¹⁸Interestingly, many interlacustrine languages convert final H to HL and ultimately anticipate the H off the FV and onto the penultimate syllable. In Hyman (2007b: 22) I hypothesised that this ‘push’ from the right edge sets more general HTA in motion. Perhaps the proposed change of final H tone C-V-V to HL could be the missing link between HTA and CPH.

- c. Herero *-ak* ‘stative’ vs. *-ák* ‘neutro-passive’;
e.g. *zúv-ak-a* ‘be heard’ vs. *zúv-ák-a* ‘be hearable’

Hopefully we will find more evidence that will lead with certainty to a solution for both groups of H tone extension languages. For now, perhaps the only definitive ‘moral’ we can draw from all of the above comes from the great A.E. Meeussen (1973: 18) himself: “As a general conclusion, one might suggest that future research in comparative Bantu should consist mainly in team work, in which all available evidence, examined critically, is taken into account.” Time to get back to (team) work!

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