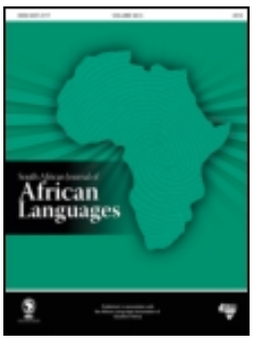

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Spurious high-tone extensions in Luganda

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A handful of mostly older descriptions of Bantu tone systems note an unexpected H tone effect on verb stems containing a causative *-j-* or passive *-u-* extension. Meeussen cites these effects as archaic and reconstructs H tone on these vocalic suffixes in Proto-Bantu. It has been difficult to evaluate this historical claim, since not all Bantu tone systems exhibit what we are calling 'spurious H-tone extensions', and still fewer of these have been described in detail. In this article we present a reasonably complete description of spurious H-tone effects in Luganda, demonstrating that spurious H can (and must) appear only when these extensions occur on a 'modified base' (<PB **-jd-e*) verb form in an inflectional frame that independently requires a H tone suffix. We suggest that the unexpected additional H tone is not underlyingly on the vocalic suffixes, but rather has the status of an enclitic in synchronic Luganda. We hypothesize that spurious H is a relic of an earlier stage of Bantu when the verb stem had not yet been completely forged into a single unit. This allows us to provide a diachronic account both of its present-day distribution and of two other effects its presence has on the verb: obligatory final *-a* instead of the more usual *-e* of the modified base, and blocking of tone-group formation when it would otherwise occur.

In 'n beperkte aantal ouere beskrywings van Bantoetoonsisteme word melding gemaak van 'n onverwagse hoogtooninvloed op werkwoordstamme waarin die kousatiewe ekstensie *-j-* of die passiewe ekstensie *-u-* voorkom. Meeussen beskou sodanige invloed as argaïes, en rekonstrueer gevolglik 'n hoogtoon op hierdie vokaliese ekstensies in Proto-Bantoe. Dit is om veral twee redes moeilik om die geldigheid van sodanige rekonstruksie te bewys. Eerstens kom dit waarna hier as 'skyn-hoogtonige ekstensies' verwys word nie in alle Bantoetoonsisteme voor nie. Tweedens is skyn-hoogtonige ekstensies in gevalle waar dit wel voorkom baie selde in detail beskryf. In hierdie artikel word 'n betreklik volledige uiteensetting gegee van die invloed wat die skyn-hoogtoon in Luganda het. Daar word aangetoon dat 'n skyn-hoogtoon slegs voorkom wanneer die betrokke werkwoordekstensies in werkwoordstrukture verskyn waarvan die basiese vorm gemodifiseer is (<PB **-jd-e*) en sodanige modifisering, oftewel fleksie, onafhanklik van ander faktore, in ieder geval 'n hoogtonige ekstensie sou vereis. Hieruit word afgelei dat die skyn-hoogtoon nie 'n inherente of onderliggende eienskap van die vokaliese ekstensies is nie, maar dat dit sinchronies beskou, in Luganda eerder enklities van aard is. Daar word geargumenteer dat die skyn-hoogtoon 'n vroeëre stadium in die ontwikkeling van Bantoe verteenwoordig toe die samestellende dele van die werkwoorstam nog nie tot 'n hegte eenheid saamgesmelt het nie. Sodanige interpretasie maak dit nie alleen moontlik om die sinchroniese distribusie van die skyn-hoogtoon te verantwoord nie, maar dit bied ook 'n verklaring vir die verpligte voorkoms van die uitgang *-a* in plaas van die meer gebruiklike *-e* in die werkwoordbasis; en die blokkering van toongroepvorming wat andersins sou voorkom.

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Introduction[1]

It is generally recognized in comparative Bantu studies that non-final verb suffixes or 'extensions' do not show an underlying tonal contrast. Diachronically, and in many synchronic analyses of individual Bantu languages, extensions are set up either with underlying L tone or as underlyingly toneless, their tones being determined by morphologically and/or phonologically conditioned rules. Therefore, it has long been observed that the tonal patterns of extensions are completely predictable in most present-day Bantu languages, and that this predictability should be incorporated into tonal reconstructions by assigning a single value to the relevant forms. Two important and undeniably related exceptions concern reflexes of causative **-j-* and passive **-u-*, the only verb extensions having the shape -V- (as opposed to -VC-). Therefore, Meeussen comments:

> '*Dans quelques langues,*[2] *les extensions vocaliques remontant à *-j- (caus.) et *-u- (passif) ont un ton haut dans certaines formes verbales à finale basse.*[3] *Ce phénomène est manifestement archaïque, mais il faudra plus de matériaux avant de pouvoir entamer une étude vraiment comparative sur ce point*' (1961:426).

Within a few years the same author included this 'archaic' H tone within his reconstructions:

> 'The high tone of [the Proto-Bantu] suffixes -í- and -ú- is set up tentatively, and in any case its manifestations seem to have been very much limited' (1967:92).

A few years later still, he criticizes Guthrie's (1967–71) four-volume *Comparative Bantu*, because 'nothing is said ... about the high tone of -u- and -i- attested in some languages, e.g. Lega' (1973:11).

If reference to the tonal complications brought on by *-j-* and *-u-* was sparse in the 1950s through mid-1970s, there has been even less notice of the problem in more recent theoretical and descriptive work on Bantu tone.

In part, this may be owing to the likelihood that the H tone induced by these extensions is totally lacking in many of the better known Bantu tone systems. On the other hand, since in the languages where it occurs, this H is restricted to certain verb tenses only, its effects may simply have been overlooked by researchers (or, if noticed, its analysis simply postponed). As a case in point, although the tone-marked 'reference table of monosyllabic verbs' in Ashton et al. (1954:469–70) and the tonal paradigms of Tucker (1967) clearly show the H-tone causative/passive effect, we cannot recall a special statement concerning *-ɨ-* and *-u-* in any of the numerous studies on Luganda tonology that have appeared over the past 20 years or so.

In this article we have two goals in mind. First, we would like to rectify this last-cited inadequacy by providing a detailed description of the H-tone effects of *-ɨ-* and *-u-* in Luganda tonology. Second, we would like to argue that attributing this H tone specifically to the antecedent Proto-Bantu (PB) extensions is premature, possibly wrong. We shall demonstrate that this H tone cannot be attributed underlyingly to *-ɨ-* and *-u-* in synchronic Luganda, but instead must be considered a second instance of the H-tone suffix characterizing specific tenses in the language. Evidence will be presented to show that this second H suffix may even be an enclitic. While we shall not pursue all of the implications of these findings for PB here,[4] we hope that the detailed description that follows will inspire other Bantuists to seek out comparable facts in their languages and share their findings with us.

We begin in Section 1 by presenting the basic tonology of verb stems in Luganda, and then introduce the tonal properties of *-ɨ-* and *-u-* in Section 2. In Section 3 we shall establish the three necessary conditions that must be met in order to obtain 'spurious H-tone extensions' in Luganda. In Section 4 we expand to show the effect of 'spurious H tone' on the formation of tone groups, while in Section 5 we summarize all of the shared properties of *-ɨ-* and *-u-* in Luganda and conclude with a hypothesis that we wish to explore in future research.

1. Tone in Luganda

In this section we present only the features of the Luganda tone system which must be understood in order to appreciate the tonal analysis of *-ɨ-* and *-u-*. For more information, the reader should consult Stevick (1969), Hyman (1982), Hyman, Katamba & Walusimbi (1987) and references cited therein. We consider first the basic system, then tone in the verb stem.

1.1 Basic system

As argued in Hyman (1982) and Hyman, Katamba & Walusimbi (1987), Luganda contrasts underlying H tone vs. ∅ on moras (syllabic units). All instances of L tone must therefore be obtained by rule. As seen in the following examples, a version of Meeussen's Rule (MR) is required to lower a H to L when it is immediately preceded by a H. The example in (1d) shows that MR is a right-to-left iterative rule:

(1a) *à-láb-à* 'he sees'
H

(1b) *à-lí-làb-à* 'he will see'
H H
↓
L

(1c) *bá-làb-à* 'they see'
H H
↓
L

(1d) *bá-lì-làb-à* 'they will see'
H H H
↓ ↓
L L

The examples in (2) show that any vowels that occur between H tones within a word themselves become H, even those that would be expected to become L by MR, for example [lí] in (2d).[5]

(2a) *à-tù-láb-à* 'he sees us'
H

(2b) *à-lí-tú-láb-à* 'he will see us'
H H

(2c) *bá-tú-láb-à* 'they see us'
H H

(2d) *bá-lí-tú-láb-à* 'they will see us'
H H H

In both (1) & (2) it is observed that any vowel that does not get a tone from another source (for example a tone rule, linking of a boundary tone, etc.) receives a default L tone, for example the class 1 subject marker *à-* 'he/she' in the examples.

With this established, we need only to demonstrate the need for recognizing a distinction between L (from MR) vs. ∅ (which, as stated, will receive a default L later, if it does not receive a tone from another prior source). Compare the negative forms in (3).

(3a) *tè-bá-làb-à* 'they do not see'
H H H
↓ ↓
L L

(3b) *tè-bá-lì-làb-à* 'they will not see'
H H H
↓ ↓
L L

In (3a) the final vowel (FV) morpheme *-a* of the present negative tense has a H that undergoes MR to become L, while in (3b), the FV of the general future negative tense is underlyingly toneless (receiving L tone by default). This difference between L from MR vs. L from default may be crucial, as seen in the following examples:

(4a) *tè-bá-làb-à mù-kázì* 'they do not see a(ny) woman'
H L L H

(4b) *tè-bá-lì-làb-á múkázì* 'they will not see a(ny) woman'
H L L H

In (4a) we see that the L on the FV *-à* remains when the noun *mùkázì* 'woman' is added, whereas in (4b) we see that

the H of the noun stem *-kázì* has spread leftwards onto its underlyingly toneless *mú-* prefix and onto the FV of the verb. The reason why this occurs is that the FV in (4b) is underlying toneless, whereas the FV in (4a) is not: The phrase-level rule in question spreads a H leftwards onto a toneless vowel of the preceding word, but not onto a vowel that has a lexical L tone (from MR). We therefore need a difference between L vs. ∅ in Luganda.[6]

1.2 Tone in verb stems

As in other Bantu languages, the Luganda verb stem consists of a verb root (normally of the shape -CVC-) followed by one or more extensions (non-final suffixes) and ending in a FV (usually *-a*, sometimes *-e*). The forms in (5) & (6), parallelling those in (1) & (2), show that Luganda contrasts toneless verb roots such as *-bal-* 'count' with H tone verb roots such as *-láb-* 'see':

(5a) *à-bàl-à*[7] 'he counts'

(5b) *à-lí-bàl-à* 'he will count'
H

(5c) *bá-bàl-à* 'they count'
H

(5d) *bá-lì-bàl-à* 'they will count'
H H
↓
L

(6a) *à-tù-bàl-à* 'he counts us'

(6b) *à-lí-tù-bàl-à* 'he will count us'
H

(6c) *bá-tù-bàl-à* 'they count us'
H

(6d) *bá-lì-tù-bàl-à* 'they will count us'
H H
↓
L

Further examples would verify that a H vs. ∅ opposition is possible in all positions of the verbal unit except for extensions, which are underlyingly toneless in Luganda.

We now turn to consider the assignment of tone to the verb stem, i.e. to that part of the verbal unit that begins with the verb root (for example *-bal-* 'count', *-láb-* 'see') and ends with the FV (for example *-a*). As was recognized by Meeussen (1965) and Stevick (1969), most Luganda verb stems acquire one of three basic tone patterns, whose surface realization is sensitive to whether their verb root is H or ∅, as seen in (7).[8]

(7a) with ∅ verb root: ∅ on all vowels of verb stem
with H verb root: H on the root vowel (RV), ∅ on all following vowels[9]

(7b) with ∅ verb root: H on the V2, L on all following vowels
with H verb root: H on the RV, L on all following vowels

(7c) with ∅ verb root: H on the V2, L on all following vowels
with H verb root: H on both the RV and the FV (intervening Vs are H)

The pattern in (7a) has already been illustrated in (1), (2), (5) & (6) and is illustrated in (8) with the longer verb stems *-gul-il-il-a* 'bribe' and *-láb-il-il-a* 'look after', which contain the verb roots *-gul-* 'buy' and *-láb-* 'see' combined with what Ashton et al. (1954:332) term the 'augmentative applied' extension *-il-il-*:

(8a) *à-gúl-íl-íl-á ó-mú-sáwò* 'he is bribing a doctor'
H

(8b) *à-láb-ìl-íl-á ó-mú-sáwò* 'he is looking after a doctor'
H H

As seen, the H of the noun stem *-sáwò* 'doctor' has spread leftwards onto the preceding verb (leaving one L tone in each case), thereby establishing that the affected vowels are underlyingly toneless.

The pattern in (7b) is obtained by positing a H tone verb suffix which spreads onto all toneless vowels from the V2 to the FV of the stem. For purposes of exposition, we shall place a separate H under each such affected vowel although we insist that the process is one of tone spreading (for more discussion, see Hyman & Pulleyblank,1988):

(9a) *à-bá-náá-gúl-íl-ìl-à ò-mù-sáwò* 'the ones who will bribe a doctor'
H H HH H H
↓ ↓
L L

(9b) *à-bá-náá-láb-ìl-ìl-à ò-mù-sáwò* 'the ones who will look after a doctor'
H H H HH H H
↓ ↓ ↓
L L L

As seen, the suffixal H required in the relative affirmative near future tense (marked also by *-náa-)* affects the whole sequence *-il-il-a* in both verb forms in (9). Two applications of MR are observed in (9a), three in (9b). The H of the noun stem *-sáwò* fails to spread onto the verb, since the latter ends in a L tone, not in a toneless vowel (compare Hyman,1982; 1988). As mentioned before, the stretches of H tones in *-bá-náá-gúl-íl-* in (9a) and *-bá-náá-láb-* in (9b) are owing to the process by which all vowels between Hs become H within a word in Luganda.[10]

Finally, there is what Goldsmith (1987) terms the 'complex' pattern in (7c), illustrated in (10).

(10a) *à-bá-gúl-íl-ìl-à ò-mù-sáwò* 'the ones who are bribing a doctor'
H HH H H
↓ ↓
L L

(10b) *à-bá-láb-íl-íl-á ò-mù-sáwò* 'the ones who are looking after a doctor'
H H H H

When the verb root is toneless, as in (10a), we see the same V2 H tone followed by L tones produced by MR. A difference between the suffixal H and the 'complex' pattern occurs when the verb root is H: Whereas in (9b) H was assigned to all of the post-radical vowels (and later lowered to L by MR), in (10b) the suffixal H is instead assigned only to the FV. The result is a plateauing of H from *-bá-* through to the FV *-á*.

As we shall now see, the tone pattern of the verb stem plays a crucial role in predicting the distribution of spurious

H-tone extensions in Luganda.

2. Spurious H-tone extensions

In this section we demonstrate that the causative extension *-ị-* and the passive extension *-u-* introduce a H tone that appears to violate the generalization that all extensions are toneless in Luganda (and PB). We shall first have to digress briefly to introduce the 'modified base' (Ashton et al.,1954; Mould,1972) of Luganda verb forms, since the MB is required to obtain causative and passive H tones.

2.1 Modified base

The perfective ending **-ịd-e* has been reconstructed for PB by Meeussen (1967), Bastin (1983) and others and has been shown to consist of two parts, as indicated. It is generally realized as *-il-e* or *-ir-e* in nearby closely related languages (compare Haya and Kinande, respectively), replacing the FV *-a* found in most other verb forms. In Luganda it is not quite accurate to refer to this ending as perfective, since it arbitrarily appears only in certain (perfective) tenses.[11] Depending on the shape of the preceding morpheme, **-ịd-e* may have diverse realizations, as seen in (11).

(11a) *-sib-* 'tie up' : *à-sìb-y-ê* 'he has tied up'
-sútam- 'squat' : *à-sútàm-y-è* 'he has squatted'
(11b) *-gul-* 'buy' : *à-gùz-ê* 'he has bought'
-lábuk- 'notice' : *à-lábùs-è* 'he has noticed'
(11c) *-sáal-* lead : *à-sâ-dd-è* 'he has led'
-lagil- 'command' : *à-làgî-dd-è* 'he has commanded'
(11d) *-gu-* 'fall' : *à-gú-dd-è* 'he has fallen'
-lí- 'eat' : *à-lî-dd-è* 'he has eaten'

In (11a) we see that the MB consists of an /-i-e/ ending, where the /i/ glides to [y]. The same is observed in (11b), except that non-labial oral consonants mutate to [s] or [z], into which the [y] is absorbed.[12] In (11c) we see that a [Vl] sequence corresponds to a MB with geminate [dd] (provided that the V is not the initial root vowel, as in *-gul-* in [11b]). Finally, (11d) shows that -CV- verb roots regularly have a geminate [dd] in their MB forms. While the [dd] in (11c) appears to represent the gemination (and hardening) of the [l] of the verb base, the [dd] in the forms in (11d) is from the **d* of **ịd-e*, i.e. **gu-ịd-e*, **lí-ịd-e*, etc.[13] In the next section we will see that the MB produces [dd] when a passive is involved (with the occasional variant [bb]), and also [zz] when a causative is involved.

2.2 Spurious H-tone passive *-u-*

Since its segmental realizations are more transparent than the *-ị-* causative, we shall first illustrate the spurious H-tone phenomenon with the passive extension *-u-*. The examples in Section 2.1 all involve the perfect tense, which is marked by a suffixal H tone (i.e. by the tone pattern in [7b]). The MB forms in (12) are therefore completely parallel to the non-MB forms seen in (9):

(12a) *à-gùl-íl-ì-dd-è ò-mù-sáwò* 'he has bribed a doctor'
H L L H
(12b) *à-láb-íl-ì-dd-è ò-mù-sáwò* 'he has looked after a doctor'
H L L L H

In (12a) the suffixal H is realized on the V2 of the stem, i.e. on the [i] of [í]. The suffixal H links also to the following three moras (one of which is the first part of the [dd] geminate), all of which become L by MR.[14] In (12b) the suffixal H again links to the four suffixal moras, this time with all four undergoing MR. The result is a H tone V2 in (12a), but L on all suffixes in (12b).

Now compare the corresponding passive sentences in (13).[15]

(13a) *à-gùl-íl-í-dd-w-á ò-mù-sáwò* 'he has been bribed by a doctor'
H *H* H
(13b) *à-láb-íl-í-dd-w-á ò-mù-sáwò* 'he has been looked after by a doctor'
H *H* H

In (13a), instead of getting a H only on [il], as in (12a), the whole verb is H tone from the V2 to the FV. In (13b), instead of getting all Ls on the suffixes, the verb is H from the RV to the FV. The reason for this is that there is an extra (underlined) H tone assigned in (13) to the FV (or perhaps to the *-u-* of the passive, which has glided to [w]). The corresponding verb forms without the postverbal passive agent are: *à-gùl-íl-í-dd-w-â* 'he has been bribed' and *à-láb-íl-í-dd-w-â* 'he has been looked after', i.e. identical to the non-final forms in (13), except for the HL falling tone acquired before pause.

Since we mentioned Ashton et al.'s (1954:469–70) reference table of monosyllabic verbs, let us cite some of their examples involving -CV- roots. In (14) we see the active forms of the MB of *-mo-* 'shave' and *-tá-* 'let go'.

(14a) *à-mw-é-d̀d-è ò-mù-sáwò* 'he has shaved a doctor'[16]
H L H
(14b) *à-tá-d̀d-è ò-mù-sáwò* 'he has let go (figuratively buried) a doctor'
HL L H

In (14a) the suffixal H links to the first and moraic [d] of the geminate [dd], which is the V2 and to the FV *-e*, which then becomes L by MR. In (14b) the suffixal H also links to the moraic [d] and the FV, both of which undergo MR. Since rising tone is disallowed in Luganda, the syllable [mw-é-d̀] in (14a) is pronounced with all H tone; on the other hand, the syllable [tá-d̀] in (14b) is pronounced with a HL falling tone, which is permitted.[17]

The corresponding passive MB forms are now seen in (15).

(15a) *à-mw-éél-é-dd-w-á ò-mù-sáwò* 'he has been shaved by a doctor'
H *H* H
(15b) *à-t-éél-é-dd-w-á ò-mù-sáwò* 'he has been let go by a doctor'
H *H* H

As seen, a -CV- root must be expanded by what looks like the applied extension *-il-/-el-*, and as in (14a), we are not certain of the source of the following [e] (see note 16). What is certain is that the passive again introduces a supplementary H tone, italicized in the examples. It is apparently such behaviour in other Bantu languages that prompted Meeussen's H-tone reconstruction for passive **-u-* in PB. For the moment, however, we are not sure if the H is

assigned to the *-u-* or to the FV of the MB which, with the passive, appears as *-a* instead of *-e*. We now turn to consider comparable data involving causative *-ɨ-*.

2.3 Spurious H-tone causative *-ɨ-*

In this section we show that the same additional H tone is observed in the perfect tense with verbs having the causative extension *-ɨ-*. We begin by considering simple causatives such as in (16).

(16a) *à-lìm-í-zz-á ò-mù-sáwò* 'he has caused a doctor to cultivate' (compare *à-lìm-y-ê* 'he has cultivated')
H H H

(16b) *à-tém-é-zz-á ò-mù-sáwò* 'he has caused a doctor to cut' (compare *à-tém-y-è* 'he has cut')
H H H

In (16), we observe that a causative MB ends *-zz-a*. The [zz] is the result of the mutation of [dd] before the causative extension *-ɨ-*. We therefore reconstruct the final sequences of the MB causative verbs in (16) as **-ɨd-ɨ-a* (again, with *-a*, instead of *-e*). While the simple MB forms of *-lim-* 'cultivate' and *-tém-* 'cut' (given in parentheses) show the expected tonal reflexes (and the FV *-e*), the corresponding causative forms show an additional H tone (italicized) within their final syllable. As in the case of the passives seen in Section 2.1, we cannot be sure if this H is initially assigned to the causative *-ɨ-* or to the FV *-a*.

Now compare the MB causatives in (17) with their plain MB counterparts in (12):

(17a) *à-gùl-íl-í-zz-á ò-mù-sáwò* 'he has caused a doctor to bribe (someone)'
H H H

(17b) *à-láb-íl-í-zz-á ò-mù-sáwò* 'he has caused a doctor to look after (someone/something)'
H H H

The same (italicized) extra H tone suffix is observed as in the passive MB forms in (13). It is clear that *-ɨ-* has the same tonal effects as *-u-*.

The additional H suffixal tone appears in the perfect whether *-ɨ-* alone is the mark of the causative or whether it co-occurs (sometimes obligatorily) with another extension. Whereas the passive is almost always productively added as a single morpheme, causative *-ɨ-* must, for example, always be present when the longer causative form *-is-/-es-* is chosen.[18] Therefore, the long causative forms corresponding to the short *-ɨ-* causatives in (16) are seen to have the same extra H tone in (18).

(18a) *à-lìm-ís-í-zz-á ò-mù-sáwò* 'he has caused a doctor to cultivate'
H H H

(18b) *à-tém-és-é-zz-á ò-mù-sáwò* 'he has caused a doctor to cut (something)'
H H H

The same is seen with -CV- roots, which obligatorily take the long causative *-is-ɨ-/-es-ɨ-*. Therefore, corresponding to the simple MB forms in (14) we have only the long causative forms in (19).

(19a) *à-mw-éés-é-zz-á ò-mù-sáwò* 'he has caused a doctor to shave'
H H H

(19b) *à-t-éés-é-zz-á ò-mù-sáwò* 'he has caused a doctor to let go'
H H H

With the same italicized extra H tone in the causatives in (19) as in the passives in (15), the parallel between *-u-* and *-ɨ-* is complete.

2.4 Causative + passive verb stems

For the sake of completeness, we briefly illustrate the spurious H-tone phenomenon in verb stems that contain both a causative and a passive extension. Consider first the passive infinite forms of the short causative verbs in (20).[19]

(20a) *ò-kù-sìb-y-à* 'to tie with'
ò-kù-sìb-ì-bw-à 'to be tied with'

(20b) *ò-kù-tém-y-à* 'to cut with'
ò-kù-tém-è-bw-à 'to be cut with'

As seen, causative *-ɨ-* precedes the passive extension which, after a vowel, has the shape *-bu-* (with variants *-ibu-* and *-ebu-*). When the causative and passive combine in the MB, the long form of the causative must be used, as seen in (21).[20]

(21a) *à-sìb-ís-í-dd-w-â* 'he has been tied with (something)'
H H

(21b) *à-tém-és-é-dd-w-â* 'he has been cut with (something)'
H H

Again, the superfluous H tone is observed. In the next section we make more precise the conditions under which it must occur.

3. Conditions for spurious H tone

In this section we demonstrate that in order to obtain the spurious H-tone phenomenon, the verb must meet three conditions: It must contain *-ɨ-* or *-u-*; it must be in the MB; and it must appear in a tense independently requiring a suffixal H tone. In the following subsections we establish these three conditions by varying them one at a time, while holding the other two constant.

3.1 Causative *-ɨ-* or passive *-u-*

We consider to have demonstrated in Section 2 that there can be no spurious H tone without one of the vocalic extensions *-ɨ-* or *-u-*. We give further examples involving *-ɨ-* in (22) and *-u-* in (23).[21]

(22a) *à-sòmós-è* 'he has crossed' (for example river, lake)
H L
(< *-somok-ɨ-e* < *-somok-ɨl-e*)
H H

(22b) *à-sòmós-é-zz-â* 'he has caused to cross'
(< *-somok-e-ɨl-ɨ-a*)[22]
H + H

(23a) *à-fúmìs-è* 'he has pierced'
H L L
(< *-fumit-j-e* < *-fumit-jl-e*)
H H H H

(23b) *à-fúmís-í-zz-â* 'he has caused to pierce'
H H
(< *fumit-i-jl-j-a*)
H H+H

The verb root -somok- 'cross' is underlyingly toneless in (22), while the verb root *-fúmit-* has an underlying H on its RV, as indicated. The tonal differences between the (a) and (b) forms are directly attributable to the spurious H tone, which again is italicized in the examples. Since the only morphological difference between the forms in (a) vs. those in (b) is the presence of *-j-* in the latter, we conclude again that the causative extension is crucially involved in conditioning spurious H.

The forms in (24) & (25) make the parallel claim for passive *-u-*:

(24a) *à-sàsû-dd-è* 'he has paid' (< *-sasu-jl-e* < *-sasul-jl-e*)
HL L H H

(24b) *à-sàsú-dd-w-â* 'he has been paid' (< *-sasul-jl-u-a*)
H H H+H

(25a) *à-wúlì-dd-è* 'he has heard'
HL L
(< *-wuli-jl-e* < *-wulil-jl-e*)
H H H H

(25b) *à-wúlíl-í-dd-w-â* 'he has been heard'
H H
(< *-wulil-i-jl-u-a*)
H H+H

A final H tone is found in the (b) forms which develops into a falling tone before pause and which is missing in the (a) forms, as we have seen before.

While *-j-* and *-u-* have been required in order to get spurious H, we have not demonstrated that it is specifically these morphemes, rather than their vocalic shape, that is responsible for this extra tone. A rule that would insert this H whenever the last syllable of the perfect ended in a CGV sequence would produce incorrect outputs, as seen in (26):

(26a) *à-yìnám-y-è* 'he bowed down'
H L
(< *-yinam-j-e* < *-yinam-jl-e*)
H H

(26b) *à-sésèm-y-è* 'he vomited'
HL L
(< *-sesem-j-e* < *-sesem-jl-e*)
H H H H

As seen, we do not obtain the final spurious H and surface forms **à-yìnám-y-ê* and **à-sésém-y-ê*, despite the CGV shape of the final syllable [mye].

A strictly phonological condition for spurious H is, however, still possible. Note that all MB forms that acquire spurious H end either with *-zza* or *-ddwa* (or the latter's rare variant *-bbwa*). Note also that *-zza* is derived from an intermediate representation such as *-dd-y-a* (where *-y-* is underlyingly *-j-*). We could therefore attempt an analysis whereby spurious H is inserted when the last syllable is CGV, but where the C of this syllable is geminate (*-zz-*, *-dd-* or *-bb-*). This too will fail, as seen in the examples in (27).

(27a) *à-zz-ê* 'he has come'
(compare *kù-jj-à* 'to come')
à-ss-ê 'he has descended'
(compare *kù-kk-à* 'to descend')

(27b) *á-bb-y-è* 'he has stolen'
(compare *kû-bb-à* 'to steal')[23]
à-ss-è[24] 'he has killed'
(compare *kû-tt-à* 'to kill')

The tonal representations of the forms in (27) are given in (28) as they appear with mapping of the suffixal H and application of MR (but without segmental adjustments):

(28a) *a-jj-j-e* *a-kk-j-e*
H L H L

(28b) *a-bb-j-e* *a-tt-j-e*
H L L H L L

The suffixal H of the perfect forms in (27a) surfaces on the V2, i.e. on the *-j-* of the MB in the representations *-jj-j-e* and *-kk-j-e*, since the first part of the geminate is moraic. In (27b), only the RV H surfaces, since the suffixal H, having linked to both *-j-* and *-e* becomes L by MR. As one can note, there is no evidence of a spurious H tone in these examples, despite the fact that they end in the requisite C_iC_iGV sequence.

It could be argued, however, that these forms are too short to show the spurious H effect. Longer verb forms ending in the C_iC_iGV sequence are available. Therefore, consider the longer bases in (29) whose final geminates are followed directly by the *-ye* of the MB:

(29a) *à-sàlábàss-è* 'he has roamed about'
(compare *kù-sàlàbàtt-à* 'to roam about')
à-sòlóss-è 'he has fallen'
(compare *kù-sòlòkk-à* 'to fall, drop')

(29b) *à-bábbàss-è* 'he has blundered'
(compare *kù-bâbbàttà* 'to blunder')
à-kóngòzz-è 'he has carried'
(compare *kù-kôngòjj-à* 'to carry on shoulder')
à-túndùzz-è 'he has throbbed'
(compare *kù-tûndùgg-à* 'to throb')

In (29a) the only H is on the V2, while in (29b) the only H is on the RV.[25] Therefore again there is no spurious H tone.

We conclude that spurious H tone cannot be predicted on phonological grounds alone. Instead, the evidence in favour of *-ɟ-* and *-u-* constituting a necessary condition for the appearance of spurious H tone is unambiguous.[26]

3.2 Modified base

The second condition that must be met is that the verb must be in the MB form. In order to see this, we turn to the present negative, which does not take the MB, but does take a H suffixal tone, such as the perfect. The 'plain' forms in (30) involve mostly verbs we have already seen.

(30a) *tè-bá-tú-síb-â* 'they are not tying us up'
H HL (literally NEG-they-us-tie-FV)
(*-sib-* 'tie up')
tè-bá-tú-láb-à 'they do not see us' (*-lab-* 'see')
H H L

(30b) *tè-bá-tú-lágíl-à* 'they are not commanding us'
H HL (*-lagil-* 'command')
tè-bá-tú-wúlìl-à 'they do not hear us'
H L HL
(*-wulil-* 'hear')
H

(30c) *tè-bá-tú-gúl-íl-ìl-à* 'they are not bribing/hiring us'
H HHL (*-gul-il-il-a* 'bribe/hire')
tè-bá-tú-láb-ìl-ìl-à 'they are not looking after us'
H H LL L
(*-lab-il-il-a* 'look after')
H

In the first example of each pair the verb is underlyingly toneless, and the suffixal H links onto the V2. All subsequent vowels are L by MR. In the second example of each pair the underlying H of the verb surfaces on its RV, but the suffixal H, mapped onto all of the following suffixes, is realized as a sequence of Ls, as per MR. Since there is no passive or causative extension, spurious H is not expected and does not occur.

Now consider the causative forms in (31) and the passive forms in (32), both sets of data still in the negative present:

(31a) *tè-bá-tú-síb-ís-à* 'they are not getting us tied up'
H H L (*-sib-is-ɟ-*)
tè-bá-tú-láb-ìs-à 'they are not causing us to be
H H L L seen'
(*-lab-is-ɟ-*)
H

(31b) *tè-bá-tú-gúl-íl-ìz-à* 'they are not getting us hired'
H HL L (*-gul-il-il-ɟ-*)
tè-bá-tú-láb-íl-ìz-à 'they are not causing us to look
H H LL L after'
(*-lab-il-il-ɟ-*)
H

(32a) *tè-bá-tú-síb-íl-w-à* 'they are not being tied up for
H H L us'[27] (*-sib-il-u-*)
tè-bá-tú-láb-ìl-w-à 'they are being seen for us'
H H L L
(*-lab-il-u-*)
H

(32b) *tè-bá-tú-gúl-íl-ìl-ìl-w-à* 'they are not being hired
H HLL L for us' (*-gul-il-il-il-u-*)
tè-bá-tú-láb-ìl-ìl-ìl-w-à 'they are not being looked
H H LLL L after
(*-lab-il-il-il-u-*)
H

In (31) causative *-ɟ-* mutates the preceding *-il-* extension to [iz] and then is absorbed into the preceding [z]. Despite the presence of *-ɟ-* in (31) and *-u-* in (32), there is no spurious H. The reason, we suggest, is that this tense does not use the MB.

In order for this to go through, we will examine some of the other tenses that take the MB. We need not go into the details of how the exact tone patterns are derived in each case, but only show that the spurious H tone appears within the last syllable as soon as one combines the causative or passive extension with the MB and places these within a tense that independently takes a H suffixal tone (see Section 3.3). In addition to the perfect, the near past (P1) and conditional (COND) tenses also use the MB. (We shall put off discussion of the 'perstitive' tense until Section 3.3.) We now turn to these tenses.

The forms in (33) contrast a plain, a causative and a passive form of the same verb in the P1 main clause affirmative:

(33a) *bá-á-tú-gúl-íl-ì-dd-è* 'they bribed us'
H HL L
bá-á-tú-láb-íl-í-dd-ê 'they looked after us'
H H H

(33b) *bá-á-tú-gúl-íl-í-zz-â* 'they got us bribed'
H H
bá-á-tú-láb-íl-í-zz-â 'they got us looked after'
H H

(33c) *bá-á-tú-gúl-íl-íl-í-dd-w-â* 'they were bribed for us'
H H
bá-á-tú-láb-íl-íl-í-dd-w-â 'they were looked after for
H H us'

In (33a) we see from the plain forms that the P1 takes the 'complex' tone pattern in (7c): When the verb root is toneless, as *-gul-* 'buy' is in the first example, the suffixal H surfaces on the V2 with all subsequent suffixes having L tone (by MR). On the other hand, when there is a H tone on the RV, as in the case of *-láb-* 'see' in the second example, the suffixal H is realized on the FV. By the regular process of H tone plateauing, all moras intervening between the H of the RV and the H of the FV are also H, as transcribed.

Since the complex pattern results in a H tone on the FV when the verb root is H, it should be clear that we cannot use H-tone verbs to determine whether spurious

H is present in such tenses.[28] The first examples in (33b) & (33c), however, demonstrate beyond question that spurious H is present when the verb root is toneless. Contrasting with the V2 H in (33a), these forms now show a H on the FV (and, in fact, H tones throughout the verb, obtained through H tone plateauing between Hs). Consequently, we italicize the H of the FV in these examples.[29]

The same complex tone pattern of (7c) is observed in the main clause affirmative conditional sentences in (34a).

(34a) *bá-ándí-tú-gúl-í l-ì-dd-è* 'they should have bribed us'
H H L L
bá-ándí-tú-láb-íl-í-dd-ê 'they should have looked
H H after us'
(34b) *bá-ándí-tú-gúl-íl-í-zz-â* 'they should have gotten us
H *H* bribed'
bá-ándí-tú-láb-íl-í-zz-â 'they should have gotten us
H *H* looked after'
(34c) *bá-ándí-tú-gúl-íl-íl-í-dd-w-â* 'they should have been
H *H* bribed for us'
bá-ándí-tú-láb-íl-íl-í-dd-w-â 'they should have been
H *H* looked after for us'

In the first examples of causative (34b) and passive (34c), the spurious H again is responsible for the final H occurring instead of the V2 in the first example of (34a). We therefore can draw two conclusions: First, spurious H does require the MB, and second, it co-occurs both with the suffixal H verb pattern in (7b) as well as the complex verb pattern in (7c). We now see that the verb in fact must have one of these tone patterns in order to obtain the spurious H tone.

3.3 Suffixal H tone

In this section we demonstrate that spurious H tone is found only with the verb tone patterns in (7b) & (7c). In order to arrive at this conclusion, it is necessary to explore verb forms that meet the first two conditions (causative *-i-* or passive *-u-* and the MB), but appear in verb tone pattern (7a), i.e. where there is no suffixal H tone of either the simplex or complex variety. There are exactly two contexts where we can find the relevant forms. The first involves the perstitive construction marked by *-kyáa-* in the tense-marker 'slot', illustrated first without the MB in (35).

(35a) *à-kyáà-tù-gùl-ìl-ìl-à* 'he is still bribing us'
H
(35b) *à-kyáá-tú-láb-ìl-ìl-à* 'they are still looking after us'
H H

In (35a), where the verb root *-gul-* is toneless, the only H tone is on the first vowel of *-kyáa-*, while in (35b), where the verb root *-láb-* is H, there is a plateauing from the H of *-kyáa-* to the H of *-láb-*. We safely conclude that this tense takes a ∅ tonal suffix, i.e. its stem tone pattern in (7a).

As seen now in (36), the perstitive occurs also with the MB, often to describe states rather than actions:

(36a) *à-kyáá-tû-dd-è* 'he is still seated'
H H (*kù-túùl-à* 'to sit')
(36b) *à-kyáá-yí-ìl-ì-dd-è* 'he is still standing'
H H (*kù-yím-ìl-ìl-à* 'to stand')

Ashton et al. (1954:230) give other examples where the stative reading of the MB is not as obvious:

(37a) *tè-bá-kyàà-lìm-y-è* 'they will not cultivate after
H L all'
(37b) *(sí-lóówóz-à ntì) ǹ-kyáá-mú-láb-y-è*
H H
'(I do not think) I am likely to see him'

What is important for our purposes is that whether the perstitive involves the MB or not, and whether it is affirmative or negative, it always takes stem tone pattern (7a), i.e. no suffixal H.

With this fact established, we have elicited the following forms:

(38a) *à-kyáá-tú-yím-ìl-ìz-à* 'he is still stopping us'
H H
(< *-yim-il-il-j-a)*
H
(38b) *à-kyáá-tú-yím-ìl-ì-zz-à* 'he is still making us stand'
H H
(< *-yim-il-il-jl-j-a)*
H
(38c) *tè-bá-kyàà-sìb-ìs-ì-zz-â* 'they will not cause to tie
H L
after all' (< *-sib-is-i(l?)-jl-j-a)*
(38d) *tè-bá-kyàà-sìb-ì-dd-w-à* 'they will not be tied
H L
after all' (< *-sib-i(l?)-jl-u-a)*

The base verb was seen already in (36b): *kù-yím-ìl-ìl-à* 'to stand'. The causative form *kù-yím-ìl-ìz-à (-yim-il-il-j-a)* means either 'to stop' or 'to cause (someone) to stand'. The first is an action, and is the meaning obtained in (38a). The sentence in (38b) describes a state that is obtained through causation. As seen from the geminate [zz], (38b) contains the causative extension *-i-* and the MB, but does not show any spurious H-tone effect. The reason is that the perstitive tense, as we have noted, always involves stem tone pattern (7a). This is seen also in the corresponding negative construction involving causative *-j-* in (38c) and passive *-u-* in (38d). That is, in order to get the spurious H, one needs not only one of the vocalic extensions as well as the MB, but also a suffixal H from the verb tense!

We have found another tucked away part of the tense system in Luganda which provides further support. Though not described by any of the grammars, as far as we know, we have discovered a tense that we call the 'yet' perfect which apparently occurs only with a WH-question marker, for example the enclitic *=kí* 'what'.

As seen in (39), this tense is formed with the prefix *-áa-* and along with the MB:[30]

(39a) *w-áà-síb-y-éé=kí* 'what have you tied up yet?'
H H
(39b) *w-áá-láb-y-èè=kí* 'what have you seen yet?'
H H H

As seen, there is no H suffix on the verb stem in this tense. In (39a) the surface H tones on *-síb-y-éé* result from leftward spreading of the H of the enclitic *=kí*, which can take place only if one L tone can be left behind (and hence cannot apply in (39b) to *-y-ee* which instead gets default L).[31]

As seen in (40), the same ∅ verb stem suffix is observed in the corresponding passivized sentences:

(40a) *w-áà-síb-í-dd-w-á=kí* 'what have you been tied up by
H H yet?'
(40b) *w-áá-láb-ì-dd-w-á=kí* 'what have you been seen by
H H H yet?'

Again, the tone of *=kí* has spread leftwards, accounting for the H tones on *-síb-í-dd-w-á* in (40a) and *-w-á* in (40b). There clearly is no spurious H tone in these forms, for if there had been one, then the L on *-áà-* in (40a) and on *-ì-* in (40b) would have had to be lost as a result of H tone plateauing. We of course already have the explanation: Spurious H does not occur since although two conditions are met (passive *-u-* and the MB), the third (suffixal H) is not. This conclusion is inescapable.

4. Further tonal effect of spurious H

In the preceding section, we saw that the following must be present in the verb stem in order to obtain the spurious H tone phenomenon: causative *-ị-* or passive *-u-*; the MB; and suffixal H tone. In this section we reveal an additional, rather unexpected side-effect of spurious H that must figure into the puzzle, namely, the fact that spurious H prevents its verb from forming a tone group (TG) with the word that follows it. In order to demonstrate this property, we must provide a few words about the TG. For more detailed information, one can consult Hyman, Katamba & Walusimbi (1987) and Hyman (1988).

In Luganda, each verb tense is assigned a plus or minus value for the diacritic feature [F]. This feature, a mnemonic for 'morphological focus' plays a role in determining whether a given verb form will combine with the word that follows it to form a TG. Within the TG a second application of H tone plateauing occurs such that the verb loses any L tone(s) it may have acquired from the lexical phonology. We provide examples involving the *=kí* 'what' enclitic in the present tense in (41).

(41a) *bá-síb-á=kí* 'what are they tying up?'
(*bá-sìb-à*)
bá-kúb-á=kí 'what are they striking?'
(*bá-kùb-à*)
(41b) *bá-tú-síb-íl-á=kí* 'what are they tying up for us?'
(*bá-tù-sìb-ìl-à*)
bá-tú-kúb-íl-á=kí 'what are they striking for us?'
(*bá-tú-kúb-ìl-à*)
(41c) *bá-tú-síb-y-áá=kí* 'what are they tying us up with?'
(*bá-tù-sìb-y-à*)
bá-tú-kúb-y-áá=kí 'what are they striking us with?'
(*bá-tú-kúb-y-à*)
(41d) *bá-síb-w-áá=kí* 'what are they being tied up by'
(*bá-sìb-w-à*)
bá-kúb-w-áá=kí 'what are they being struck by?'
(*bá-kùb-w-à*)

In (41) the two verb roots involved are *-sib-* 'tie up' and *-kúb-* 'strike, beat'. Unextended verbs appear in (41a), to which we have added the applied extension *-il-* in (41b), the causative *-ị-* extension in (41c) and the passive *-u-* extension in (41d).[32] The forms the verb would have taken without the enclitic *=kí* complement appear to the right in parentheses. It will be noted that all of these forms have a H to L pitch drop that is absent when *=kí* is present. That is, a H plateau is formed from the first H of the verb to the H of *=kí*. In addition, it will also be noted that final verb length is preserved before die enclitic in (41c & 41d) (compare Hyman & Katamba,1989a and references cited therein).

The corresponding negative sentences are now presented in (42).[33]

(42a) *tè-bá-sìb-áà=kí* 'what are they not tying up?'
tè-bá-kùb-à=kí 'what are they not striking?'
(42b) *tè-bá-tú-síb-íl-à=kí* 'what are they not tying up for us?'
tè-bá-tú-kúb-ìl-à=kí 'what are they not striking for us?'
(42c) *tè-bá-tú-síb-y-áà=kí* 'what are they not tying us up with?'
tè-bá-tú-kúb-y-àà=kí 'what are they not striking us with?'
(42d) *tè-bá-síb-w-áà=kí* 'what are they not tied up by?'
tè-bá-kúb-w-àà=kí 'what are they not struck by?'

This tense is marked by a suffixal H, which surfaces on the V2 in the first example of each pair in (42). In the second example of each pair the H maps onto all of the suffix vowels, which then all become L by MR. What is important for us is that H-tone plateauing does not occur between the verb and the WH enclitic. We account for this by saying that the negative present verb **blocks** TG-formation with the word that follows it. TG-group formation is blocked by all of the negative tenses. Such 'blockers' are identified by the feature [+F]. The perstitive 'still' is [+F] even in the affirmative, as seen in (43), where the L tones (in bold italics) are preserved as a result of blocking TG-formation:[34]

(43a) *bá-kyàà-tú-síb-íl-á=kí* 'what are they still tying up for us?'

(43b) *bá-kyáá-tú-kúb-ìl-á=kí* 'what are they still striking for us?'

In addition to negatives and the perstitive, TG-formation is blocked by the affirmative forms of the inceptive ('to have just X'ed'), the infinitive and the imperative. We can add also the 'yet' perfect, as was seen in (39) & (40). The remaining verb forms are [−F] and therefore, if other conditions are met, can join with the following word to form a TG.

What is surprising in this context is that whenever spurious H is present on within a verb form, this latter must be [+F] — **even if** the tense would have been [−F] without the spurious H! In (44) we cite forms in the perfect affirmative to establish this fact:

(44a) *à-sìb-y-éé=kí* 'what has he tied up?' *(à-sìb-y-ê)*

à-kúb-y-éé=kí 'what have they struck?' *(à-kúb-y-è)*

(44b) *à-tù-sìb-í-dd-é=kí* 'what have they tied up for us?' *(à-tù-sìb-î-dd-è)*

à-tù-kúb-í-dd-é=kí 'what have they struck for us?' *(à-tù-kúb-ì-dd-è)*

(44c) *à-tù-sìb-í-zz-áà=kí* 'what has he tied us up with?' *(à-tù-sìb-í-zz-â)*

à-tù-kúb-í-zz-áà=kí 'what has he struck us with?' *(à-tù-kúb-í-zz-â)*

(44d) *à-sìb-í-dd-w-áà=kí* 'what has he been tied up by?' *(à-sìb-í-dd-w-â)*

à-kúb-í-dd-w-áà=kí 'what has he been struck by?' *(à-kúb-í-dd-w-â)*

(44a) & (44b) establish that the perfect is [−F]: In these forms a single TG is formed between the verb and the enclitic *=kí* and H plateauing occurs (with a loss of the pitch drop that is indicated in the forms to the right in parentheses). In (44c), where the causative is added, and in (44d), where the passive is added, spurious H winds up on the last syllable, where it becomes a HL contour (see Hyman, Katamba & Walusimbi,1987). Since this HL contour is not affected by H-tone plateauing, TG-formation must have been blocked. It appears to be the spurious H, then, that assigns the [+F] that accomplishes the blocking.

There is another interpretation which we shall quickly dispose of: It could be argued that TG-formation is blocked by a H being assigned to the FV of a verb. In order to test this we turn to the corresponding P1 forms in (45).

(45a) *y-á-síb-y-éé=kí* 'what did he tie up?' *(y-á-síb-y-ê)*

y-á-kúb-y-áá=kí 'what did he strike?' *(y-á-kúb-y-ê)*

(45b) *y-á-tú-síb-í-dd-é=kí* 'what did he tie up for us?' *(y-á-tú-síb-î-dd-è)*

y-á-tú-kúb-í-dd-é=kí 'what did he strike for us?' *(y-á-tú-kúb-í-dd-ê)*

(45c) *y-á-tú-síb-í-zz-áà=kí* 'what did he tie us up with?' *(y-á-tú-síb-í-zz-â)*

y-á-tú-kúb-í-zz-áà=kí 'what did he strike us with?' *(y-á-tú-kúb-í-zz-â)*

(45d) *y-á-síb-í-dd-w-áà=kí* 'what was he tied up by?' *(y-á-síb-í-dd-w-â)*

y-á-kúb-í-dd-w-áà=kí 'what was he struck by?' *(y-á-kúb-í-dd-w-â)*

The comparison to make in these examples is between *y-á-tú-kúb-í-dd-ê* in (45b) with any of the examples in (45c) & (45d). Whereas the former joins in a TG with the enclitic *=kí*, the latter do not. It therefore cannot be the case that a H assigned to the FV will suffice to block TG-formation. The spurious H is unequivocally the cause of [+F] assignment, a conclusion that is not without consequence.

5. Conclusion

As can be recalled from our introduction, our interest in the spurious H-tone phenomenon is twofold. First, we are interested in achieving an adequate description of putative H tone *-į-* and *-u-* in Luganda. As we have seen, the situation is quite complex, though we now appear to have a handle on it. Interpreting what it all means is of course another matter. Which bring us to our second interest, the extrapolation from Luganda (and other languages where H tone effects *-į-* and *-u-* have been found) to a PB reconstruction from which the relevant facts may derive. While no-one has had the opportunity to study these H-tone effects in any depth, it is already clear to us that the details vary from language to language. Therefore, while we have found that both the MB and a suffixal H are required in order to get spurious H tones in Luganda, Mutaka (in preparation) has discovered that **all** tenses with suffixal H show causative/passive spurious H in Kinande, whether or not they involve the **-įd-e* perfective ending (our MB). Köhler's (1958:107–8) work on Herero shows an extra H-tone effect of the passive *-u-* on infinitives which in that language take a H suffixal tone! We therefore tentatively suggest the following generalization: **spurious H tones can occur with *-į-* and *-u-* only in tenses that independently take a suffixal H.** Whether this generalization will hold up against further data cannot be certain at this time, but if so, we not only have a descriptive problem for Luganda (and some of its relatives), but also possibly for PB itself. In what follows we attempt to provide an analysis of the Luganda version of spurious H-tone extensions from which the various conditions and effects follow. We begin by considering a rather obvious solution, namely, that the vocalic extensions are underlyingly H.

are underlyingly H.

5.1 Are -*i*- and -*u*- underlyingly H?

As mentioned in the introduction, Meeussen (1967) reconstructs PB -*i*- and -*u*- with H tone. It is therefore tempting to try such a solution for Luganda. We shall now evaluate this suggestion against the five questions that any analysis must account for:

Why are -i- and -u- H only when the suffixal tone is H?

The first question we face is why the claimed underlying H of the vocalic extensions does not surface on verb forms that take a ∅ tonal suffix. A rather clumsy account would be simply to delete the H of these extensions whenever the verb does not have a suffixal H. To make this account appear less stipulative, one might suggest that the ∅ suffix of such verb tenses is a pervasive constraint that cannot be violated, such that a newly introduced H tone (on a causative or passive extension) would automatically fail to surface.[35] A slightly more direct way to accomplish the same result would be to set up two allomorphs for each of the vocalic suffixes, one with H tone, one with ∅ tone. When adding -*i*- or -*u*- to a verb stem, the H-tone variant is chosen if the tense independently licenses a H-tone suffix; otherwise, the ∅-tone variant is chosen.

Since -*i*- and -*u*- are derivational suffixes, there is still another possibility. One could let the H tone and ∅ tone variants be assigned indifferently, and only when inserting the derived base into an inflectional frame would the form be checked for whether it contains a 'postradical H' tone, i.e. a H tone that occurs after the first root vowel (RV). Recall that in verb tenses that require a ∅ suffix, the only lexical H tone that will occur on the stem is that of a H-tone verb root, which can only occur on the first vowel of the form. Hence, it would be the same story with respect to both the simplex and complex suffixal H patterns in (7b) & (7c): Different inflectional frames require one of the patterns (7a)–(7c), which cannot be overridden by the H of -*i*- or -*u*-. If accepted, this argument accounts for why 'spurious H' does not get realized with the tone pattern in (7a).

Why do only these two extensions have H variants?

The next question we face concerns the question of arbitrariness: Is there any reason why -*i*- and -*u*- should be the only extensions to introduce H tones?[36] The obvious answer here is their similarity to the FV variants -*a* and -*e*. If we follow the Bantuist practice of identifying suffixal tones with the FV, then all we need to add is that **any** -V suffix, extension or FV, is capable of introducing a tone.[37] In effect, what this argument is claiming is that -*i*- and -*u*- **are** FVs,[38] a conclusion further supported by the fact that these vocalic suffixes occur last among the extensions in a Bantu verb.[39] Why only vowel suffixes should have the capability of harbouring a tonal contrast, if correct, is in need of explanation — specially in light of recent attempts to treat suffixal H's separately from the segmental morphology in autosegmental approaches to Bantu tone (see, for example, Mutaka, in preparation). Let us assume that this generalization concerning vocalic suffixes is correct and move on to three more questions.

Why is this H tone restricted to the MB?

This analysis seems to offer no reason why spurious H should be found only in the MB in Luganda. It seems arbitrary that other tenses taking a H-tone suffix should not be able to accept H-tone vocalic extensions, as they can in Kinande (where -*ir-e* is not required), but such has been seen to be the case. While this restriction may be a language-specific property of Luganda, its seems anything but accidental. We therefore seek a reason why the MB has this difference from other verb forms. The next question, equally baffling, seems somehow related.

Why do -i- and -u- require the MB to end in -a?

Whenever the causative or passive extension is present, the FV of the MB must be -*a* instead of -*e*, as we have seen in many of the examples cited. The vocalic extensions appear between historical *-*id*- and -*e* and can in this sense be seen as breaking the dependency between the two.[40] Since other languages in the area do not have this property, i.e. they allow -*ir-y-e* and -*ir-w-e*, we again are faced with the question of whether this is an arbitrary feature of Luganda. While it is not surprising in morphology to find one formative affecting the shape of a neighbouring formative, we seek an explanation for how this came about — especially if it has something to do with spurious H tone.

Why does the H of -i- and -u- assign [+F] to the verb?

The final question is why the so-called spurious H tone appears to assign [+F] to its verb, thereby blocking formation of a TG with the word that follows. There is nothing about the vocalic shape of these extensions, the MB, or the H tone that would seem to require such an effect. If -*i*- and -*u*- are underlyingly H, the [+F] would appear to be the result of having two H-tone suffixes (but see Section 5.2) on the same verb — but why should this block TG-formation? As we shall now see, there is a plausible account of at least this property of the vocalic suffixes and their H tones.

5.2 Hypothesis

In this concluding section we would like to outline a possible historical answer to these questions as well as a (partial) synchronic analysis for Luganda. The following suggestions should be taken as working hypotheses to be tested against further evidence.

5.2.1. Synchronic Luganda

We begin by addressing the question in Section 5.1.5: Why should the spurious H tone cause its verb to be [+F]? The answer, we suggest, is that the spurious H tone is not assigned directly to -*i*- or -*u*-, but rather in a separate 'tone word' (TW) from part or all of the rest of the verb. In (46) we reproduce the 'domain-juncture'

rule of L-tone deletion proposed by Hyman (1988:158):

(46) [... [H L]$_{TW}$ [H ...]$_{TW}$ ...]$_{TG}$
↓
∅

As seen, the L of a H–L contour is deleted from a TW which is followed by a H in the next TW, provided that the two TWs have been joined into a TG.[41] Subsequently, H-tone plateauing assures that all vowels occurring between the first and the last H of a TG will also be H. Up to now we have been suggesting that a TW containing a spurious H is [+F] and for this reason cannot join with the following TW to form a TG. An alternative is that the verb with spurious H is in fact a TG consisting of two TWs, one of which involves the causative or passive H. To see how this can be accommodated by the general properties of synchronic Luganda, consider the general past (P2) forms in (47).

(47a) *tw-áá-ly-à* 'we ate'
H L
(47b) *tw-áá-ly-áá=kô* 'we ate a little'
H ∅ HL
(47c) *tw-áá-ly-áá=kí* 'what did we eat?'
H ∅ H
(47d) *tw-áá-ly-áá=kóò =kí* 'what did we eat a little of?'
H ∅ HL H

In (47a) we see that the verb 'we ate' has a pitch drop from H to L on its two syllables. When an enclitic follows this verb, a single TG is formed, and the L of *tw-áá-ly-à* is deleted by the rule in (46). We see this with the class 17 locative/partitive enclitic *=kô* in (47b) and with the *=kí* WH enclitic in (47c). We also see that vowel length is preserved before a verbal enclitic (see Hyman & Katamba,1989a for a comprehensive description of this role of enclitics). Turning to (47d), we see the same verb followed by two enclitics. Again, the L of the verb has been deleted, but significantly, the L of *=kóò* has not been. This shows that a verb forms a TG only with the **first** TW to follow it, not with the second or any subsequent ones, as schematized in (48).

(48) *tw-áá-ly-áá =kóò =kí*
[[H ∅]$_{TW}$ [HL]$_{TW}$]$_{TG}$ [H]$_{TW}$
'what did we eat a little of?'

Suppose then, that spurious H is an enclitic, with the bracketing in (49).

(49) *à-gùl-íl-í-dd-w-â* 'he has been bribed'
[[H L L] $_{TW}$ [H]$_{TW}$]$_{TG}$
↓ ↓
∅ ∅

As seen, suffixal H is realized on the V2 of the verb (the first TW), with subsequent suffixal vowels having L tone (by MR). With the addition of the spurious H as a separate TW to the right, a single TG is formed, and L tone is deleted by (46).[42] Spurious H then links to the FV of the verb (by a general process of the language) and develops a H to L fall.[43] With this representation, we now can add the *=kí* enclitic to produce in (50) a representation that is exactly parallel to that in (46):

(50) *à-gùl-íl-í-dd-w-áà =kí*
[[H L L L]$_{TW}$ [H]$_{TW}$]$_{TG}$ [H]$_{TW}$
↓ ↓ ↓
∅ ∅ ∅
'what has he been bribed by?'

We shall adopt an enclitic analysis of spurious H in our synchronic account of Luganda (recalling that it will automatically develop into a HL falling tone, since it terminates a TW). The alternative, that spurious H assigns [+F] to a verb, is unmotivated, since the feature [+F] otherwise depends exclusively on the marked inflectional features [+neg], [+imper], etc. (see Hyman & Watters,1984 for general discussion of this African areal feature). There is no precedent elsewhere in Luganda (or in other languages we are familiar with) for either a specific phonological shape or specific derivational morphemes to assign a [+F] marking, and so we feel we are on solid ground in this decision.

A slight modification allows us successfully to address one other aspect of the problem: the question in Section 5.1.5 of why spurious H co-occurs with an *-a* FV, rather than the expected *-e* of the MB. The answer, we propose, is that the enclitic is not a floating H tone, as in (49) & (50), but rather has the shape *=á*. By the regular rules of vowel coalescence in Luganda, the */e/* of the MB deletes before another vowel.[44] For comparison, note that the final [e] in (51a) is deleted in (51b) when followed by the enclitic *=ání* 'who(m)' (with which it also forms a TG, as can be seen from the tones):

(51a) *à-gùl-íl-ìd-d-è* 'he has bribed (someone)'
(51b) *à-gùl-íl-íd-d-é=ání* 'whom has he bribed?'
[àgùlílídddáání]

5.2.2 Diachronic Luganda

Although we have dealt successfully with the last two questions of Section 5.1, we still have the other three to resolve. We rephrase these questions and ask why *=á* occurs only when a verb combines 1) suffixal H, 2) *-i-* or *-u-* and 3) the MB form. With respect to suffixal H, we suggested in Section 5.1.1 that 'spurious H' might be blocked by verb forms that require a ∅ suffix as a kind of pervasive constraint. Now that we have established *=á* to be an enclitic, this argument dissipates, since verbs with a ∅ tonal suffix can co-occur with other H enclitics. Concerning the necessary co-occurrence of *-i-* or *-u-* with *=á*, the argument that all three might constitute a natural class of 'final vowels' is also in jeopardy, since *=á* is now an enclitic. Finally, we have no explanation as to why *=á* should have to interface with the MB in Luganda, as it clearly has to.

In order to resolve these difficulties, we believe it

necessary to return to the diachronic domain, where we offer the following hypothesis: Despite the synchronic appeal of the *=á* analysis, we do not believe this is what happened historically. The H tone reflex of *-ɟ-* and *-u-* is, as Meeussen (1961:426) noted, an archaism. But rather than being an archaism of a H tone that would have been carried by these — and perhaps only these — extensions, it is an archaism dating from a time before the Bantu verb stem had become a single entity. Since a separate paper is being prepared by the first author on this subject (see Note 4), we give only the broad outlines of the hypothesis, as follows.

First, the vocalic causative and passive extensions required that the verb stem be in two parts: a first part with the 'main verb', a second part with the 'auxiliary verb', which included causation, passivization or both. At this stage, instead of the verb stem consisting of a single root followed by any number of suffixes, the causative and passive functioned as quasi-separate units. It is widely held that the Bantu extensions had a verbal origin (Givón,1971; Voeltz,1977). The passive, which contains a labial, may be related to the PB verb root *-bá-* 'be'; the source of causative *-ɟ-* is less clear (see Bastin,1986 for comparative treatment of both the vocalic causative and its longer *-is-/-es-* counterpart). If necessary, the [ya] and [wa] (<*[bwa]?)can be identified as enclitic — for our hypothesis the only important point is that they were separate from the main verb, within which they only later were incorporated.[45]

Second, the causative and passive entities, themselves being verbal, took the same tonal pattern as the main verb, determined by the inflectional categories, as in present-day Bantu languages. Therefore, when a given tense or construction required a suffixal H, this H was placed both on the main verb **and** on the [ya] or [wa] element, and similarly for PB suffixal *L. However, since PB *L is reinterpreted as ∅ (absence of tone) in many Bantu languages, these will not show any reflex of the two L tone suffixes that may have been present.

Finally, the extent to which Bantu languages retain remnants of this earlier two-part stage of the proto verb stem may vary. In Luganda, the effect is seen only with the MB, while in Kinande, the 'spurious H' tone effect is obtained whenever the other two conditions (vocalic suffix, suffixal H) are met. Other Bantu languages have no remnants.

This hypothetical reconstruction now permits a complete explanation of all five of the questions raised in Section 5.1:

1. The reason why *-ɟ-* and *-u-* can contribute spurious H tone only when the suffixal tone of the verb is H is that spurious H is in fact a historical **double** of the suffixal H.[46]
2. The reason why only *-ɟ-* and *-u-* contribute spurious H is that they alone could impose a separate verbal 'enclitic' at the relevant stage in the development of the Bantu verb stem.
3. The reason why spurious H requires the MB in Luganda is that in this language [ya] and [wa] had already been successfully incorporated into the verb stem, **except** when the MB was present (compare later on).
4. The reason why *-ɟ-* and *-u-* require the MB to end in *-a* in Luganda is that the perfective ending *-e* was suffixed to the main verb, not to the causative or passive element, which instead took the more usual *-a* FV (again, compare later on).
5. Finally, the reason why spurious H blocks the verb from combining with a postverbal TW to form a single TG is that these complex verb 'stems' already consist of two TWs, as we demonstrated in (45) with respect to the enclitic hypothesis.[47]

The main issue that we must comment on here is the special role of the MB in this reconstruction. We suggest that in the absence of the MB, causative *-ɟ-* and passive *-u-* were already incorporated into the verb stem, and that only one H suffix was therefore assigned. At the same historical stage, when the MB was present, *-ɟ-* and *-u-* combined with it, and together they constituted a TW separate from the rest of the verb. Hence, two H suffixes had to be assigned. Although the two TWs later became integrated, the two suffixal H tones remained as a relic of the earlier structure. The question is why the MB should alone among extensions have this property.

We believe it has to do with its source. We note Voeltz's (1977) suggestion that **-ɟid-e* traces back to a verb root **-gɟd-* 'finish' followed by the perfective ending *-e*. Semantically, a verb 'finish' is the most likely to 'grammaticalize' as a perfective marker, a process which has recurred with some frequency in Africa (Givón,1971; Heine & Reh,1984). We wonder, for example, whether perfective *-e* was originally on 'finish' or on the 'main verb'? Using the verb root *-tém-* 'cut', the regular phonological developments in Luganda lead us to expect the following plain, causative, and passive reflexes with the MB:

(52a) **a-te m-ɟid -e* > *à-tém-y-è* 'he has cut'
H H

(52b) **a-te m-ɟid-i -e* > *(à-tém-ìz-è)* 'he has caused to cut'
H **H**

(52c) **a-te m-ɟid-u -e* > *(à-tém-ìl-w-è)* 'he has been cut'
H **H**

The verb root is H and the perfect takes a **H** suffixal tone, as we saw earlier. The plain form comes out correctly in (52a), but the passive and causative forms in parentheses are incorrect (though analogues to them can be found in nearby Haya, etc.). The correct forms are *à-tém-é-zz-â* and *à-tém-é-dd-w-â*, respectively, which require the immediate prior inputs in (53) to be derived from the regular phonology of the language:

(53a) *a-te m-e-ɟil-ɟ-a* → *à-tém-é-zz-â* 'he has caused
H **H**+ *H* to cut'

(53b) *a-tem -e-ɟl-u-a* → *à-tém-é-dd-w-â* 'he has been
H **H**+ *H* cut'

In the inputs we see first the additional 'spurious H' (italicized). We also see that the FV is *-a*, not *-e*. But where does the *-e-* (in bold italics) come from that immediately precedes the MB morpheme *-ɟil-*? As a final hypothetical move, we ask whether it might not be the same perfective *-e* that occurs finally in (52a). In this case we would divide the verb

hypothetical move, we ask whether it might not be the same perfective *-e* that occurs finally in (52a). In this case we would divide the verb into two parts, as in (54).

(54a) [*a-tem-e*] [*il-i-a*]
H H H

(54b) [*a-tem-e*] [*i l-u-a*]
H H H

As per our hypothesis, there are now two suffixal H's, one on the first component of the verb, another on the second component. Since perfective *-e* is only on the first component, our interpretation is that these reconstruct grammatically as 'he caused finish be cut' and 'he was finished be cut', where *-e* indicates the state that results from the action.[48] If this is correct, then we derive additional support for our view that the spurious H-tone phenomenon is owing to an earlier two-part verb, each such part receiving a separate suffixal H, as in (52). Only further research can reinforce (or refute) this conclusion.[49]

Notes

1. Research on the prosodic structure of Luganda was supported in part by National Science Foundation grant no. BNS89-96111.
2. In a footnote, Meeussen cites references to Holoholo (Coupez,1955) and Herero (Köhler,1958). In Meeussen (1973:11) he cites Lega, though in his descriptive work on that language (Meeussen,1971:21,25,27) it appears that the presence of *i-* or *-u-* causes what would have otherwise been a final H tone to be realized as HL. To this list, we can add Shi (Polak-Bynon,1975:166), Kinande (Mutaka, in preparation) and, in this article, Luganda, all of which show restricted (and differing) H-tone effects of *-i-* and *-u-*.
3. As we shall see this is not the case in Luganda, where what we shall term 'spurious H' can appear only in tenses that have what Meeussen would have called a H-tone final. Kinande (Mutaka, in preparation) shows the same constraint, suggesting that Meeussen's statement needs revision. In Shi (Polak-Bynon, 1975), the proto tones are generally inverted, and indeed the H of *-i-* and *-u-* appear when the final is L (*H). Why the spurious H is not itself inverted is not at all clear to us.
4. For further discussion of this subject, see Hyman's paper, 'Conceptual problems in the reconstruction of the Bantu verb stem', to appear in *Proceedings of the 21st Annual Conference on African Linguistics*, Athens, Georgia.
5. Hyman, Katamba & Walusimbi (1987) propose that [lí] first becomes L by MR and then becomes H again by a rule of L-tone deletion (between Hs). The same result can be obtained if MR is restricted to applying to the last sequence of H tones within a word.
6. This rule should not be confused with the H-tone plateau rule that makes all vowels H between Hs within the phonological word and within the 'tone group'. These domains are clearly laid out in Hyman (1988).
7. Here and elsewhere in the examples there is an alternative assignment of a final H% phrasal boundary, which in this case would produce *à-bál-á* 'he counts'.
8. Meeussen's account actually sets up H vs. L, while Stevick applies the determinant/neutral opposition inspired by other work of Meeussen, for example on Tonga (Meeussen,1963). This latter opposition is equivalent in all relevant respects to the asterisk notation introduced into autosegmental phonology by Goldsmith (1976) and further developed, also for Tonga, by Goldsmith (1984). Hyman (1982) presents and ultimately disfavours an asterisk approach to Luganda, which forces a rather strange 'initial tone association rule' (compare Haraguchi,1977; Clements & Ford,1979). For arguments against the use of such diacritic asterisks in Bantu tone systems, see Hyman & Byarushengo (1984) and Pulleyblank (1986).
9. Stevick (1969) proposes that when the first vowel of the root (or RV) is 'tonic' (our H), the V2 (second stem vowel) is also tonic. For us this would mean that both the RV and the V2 form a H–H sequence which comes out H–L after the application of Meeussen's Rule. We have found the V2 H to be at best optional, as seen in the following example:

bá-làb-ìl íl-á ó-mú-ká zì/bá-làb-ílíl-á ó-mú-ká zì
H H H H H H H
↓ ↓ ↓
L L L
'they are looking after a woman'

Both forms involve the H-tone verb root *-láb-* 'see', here occurring with the 'augmentative applied' extension *-ilil-* (the stem having the resulting meaning 'look after'). A V2 H tone has been assigned in the form on the left, but not in the form on the right. As seen, this results in two applications of MR on the left, but only one on the right. When the H of the noun stem *-kázi-* 'woman' spreads leftwards to the toneless vowels (in bold italics) of the preceding word (by the process already illustrated in [4b]), the L of the V2 in the first form is not affected. Although we have sporadically obtained this doubling of the root H onto the following V2 in our elicitations, we have found no case where it appears to be obligatory. For our purposes, we therefore will let the statement in (7a) stand.
10. As in the case of (2d) discussed earlier, it is for our purposes irrelevant whether the H of the first vowel of *-náa-* undergoes MR and then becomes H by the H-tone plateauing effect, as in Hyman, Katamba & Walusimbi (1987), or whether MR is blocked from applying to this H.
11. This point is even more clear in languages such as Haya (Hyman & Byarushengo,1984) and Kinande (Valinande, 1984), where the appearance of **-id-e* within the same tense may depend on whether the verb is in a main vs. relative clause or is negative vs. affirmative. Clearly there is considerable arbitrariness in the distribution of the MB in Luganda as well.
12. This much of the realization of **-id-e* is shared by Kirundi (Meeussen,1959) and Kinyarwanda (Kimenyi,1979; Coupez,1980).
13. As pointed out by Meeussen (1955), Tucker (1962), Clement (1986) and others, geminate consonants in Luganda

correspond to [ɟC] sequences in nearby languages. Therefore, compare Haya *à-gú-íl-è* 'he fell' (yesterday past tense), which is cognate with Luganda *à-gúd-d-è* 'he has fallen'. The historical development of [dd] in (11c) is slightly more complicated. Immediate prior forms such as **sáal-ɟl-e* and **lagil-ɟl-e* first undergo 'imbrication' (Bastin,1983), to become **saɟl-e* and **lagiɟl-e*, which then convert the [ɟl] sequences to [dd].

14. For typographical clarity, we do not always supply an additional L specification for the first [d] of [dd].
15. We will comment on the change of the FV from *-e* to *-a* later on.
16. We cannot be certain of the source of the [e] following the root *mw-*, except to note that it is exactly the form one would expect if *-mo-* were first expanded by the applied extension to become *-mo-el-*. The [l] of the applied would then delete by 'imbrication'. Curiously, this [e] appears only when the root vowel of -CV- is */o/;* compare *à-gú-dd-è* 'he has fallen', *à-lî-dd-è* 'he has eaten'.
17. We shall henceforth follow the practice of not indicating tone on geminate consonants. These may be taken to carry the same tone as that indicated on the preceding vowel. A verb form such as in (14b) will be transcribed [à-tâ-dd-è], where the L of the falling tone is attributable to the first part of the geminate.
18. We will not go through all of the arguments for this, but can refer the reader to Trithart (1977), who carefully documented the long causative form as *-is-ɟ-/-es-ɟ-* in closely related Haya, or to Bastin (1986), who provides extensive discussion of proto forms such as **-icɟ-* for the causative, but who does not go as far as to see **-ic-* (usually realized with [s]) as a separate formative from *-ɟ-*.
19. Both the short and the long causative forms are regularly used for instruments in Luganda, as in these examples.
20. Ashton et al. (1954:335) report these forms as ending *-bbwa* rather than *-ddwa*, though we have encountered the latter shape much more readily.
21. The H (in bold) represents the normal suffixal H of the perfect. Owing to technical problems, a circled H cannot be used.
22. From this representation it would appear that the [k] of the *-somok-* should not mutate, since it is only **ɟ* that causes such consonant alterations. In a study in preparation we show how such 'overapplications' of consonant mutation can be derived.
23. By a regular rule, the H of the verb roots *ku-bb-a* 'to steal' and *ku-tt-a* 'to kill' is retracted onto the infinitive prefix *ku-* to produce a falling tone on the syllables [kûb] and [kût].
24. All of these forms can be verified from Ashton et al. (1954:470). Snoxall (1967:315) enters 'he has killed' as *ássê*, which we assume is a transcriptional error.
25. A general constraint in the language blocks the realization of a falling tone on the first syllable of the perfect forms in (29b), i.e. **à-bâbbàss-è*, etc.
26. We have not considered the possibility that it is the FV *-a* in conjunction with the C_iC_iGV sequence that requires spurious H. This account can also be shown to be inadequate, but in any case is hardly an improvement, since the very presence of *-a* in these forms is directly conditioned by the causative and passive extensions combined with the MB.
27. Since *tè-bá-síb-w-â* 'they are not being tied up' and *tè-bá-làb-w-à* 'they are not being seen' cannot take an object marker, we have added the applied extension *-il-* to the verbs in (32a).
28. For reasons which will become apparent in §4, we consider spurious H to be present even when it has no apparent effect. Recall that when a H-verb root occurs in a tense taking the 'complex' tone pattern a suffixal H will be assigned to the FV. Spurious H will therefore not affect the tonal realization of such a verb in isolation. However, as pointed out in Section 4, spurious H blocks TG-formation and hence is distinct from a suffixal H on the FV, which does not.
29. As before, we have added an *-il-* applied extension to the forms in (33c), so that we can get an object marker in these sentences.
30. Interestingly, this is the very form of the regular perfect tense in Haya (Hyman & Byarushengo,1984).
31. Note that H-tone plateauing does not occur between the verb and the enclitic *=kí*, since this particular tense blocks the formation of a 'tone group' (compare Hyman, Katamba & Walusimbi,1987).
32. The enclitic *=kí* functions in (41c) as an instrument introduced by the causative extension, while it represents the passive agent in (41d), which is not marked by a preposition in Luganda.
33. Since it is not entirely natural in Luganda to ask negative WH questions, these sentences may best be taken as echo questions, for example 'they are not tying up what?'. We keep these forms for simplicity sake, rather than introducing additional complications such as the role of the augment in TG-formation (compare Hyman & Katamba, 1989b).
34. As in other examples, the H of *=kí* has nonetheless spread leftwards onto the verb. This H-tone spreading process is a phrase-level rule (Hyman,1988) and not a property of TGs.
35. Perhaps one might try somehow to relate this pervasive constraint to another recurrent pattern, namely, the failure of the H of a verb root to copy in verb reduplication in various Bantu languages, for example Haya (Hyman & Byarushengo,1984); Kinande (Mutaka & Hyman,1990), etc.
36. There appear to be sporadic cases of other extensions introducing H tone, for example the intensive *-its-* in Chichewa (Mtenje,1986), which is otherwise identical in form to the causative in that language. We have not carefully studied such cases, but note that in Herero, at least, the extensions that Köhler (1958:102–4) sets up as H seem mostly to get their H tone from rightward tone spreading, while those that he sets up as L fail to get this H. Perhaps the analysis he mentions in his Note 20 applies here too: The so-called L-tone extensions originally had long vowels, the first part of which did receive a spread H tone from the left. When the length was lost (conceptualized as the loss of the first V of the VV), so was the H tone.
37. The longer forms *-ib-u-/-eb-u-* and *is-ɟ-/-es-ɟ-* need not worry us, since the vocalic suffix is clearly separable from

the -VC- part.

38. The question arises as to whether a verb stem with the causative and the passive has therefore **three** FVs? Since this will generally surface as *-i-dd-w-a* (more rarely, *-i-bb-w-a)*, only the passive *-u-* is in the 'FV slot', i.e. last syllable of the word. Since there is no evidence of **two** spurious H tones within a single verb stem, the point is moot.
39. On the position of vocalic extensions, compare Meeussen's statement concerning Kirundi:
    '... les séquences de suffixes sont soumises à des règles portant sur l'ordre dans lequel les suffixes sont représentés, et qu'on peut pour l'essentiel ramener à la règle générale que voici: un suffixe monophone -y- ou -w- tend à être représenté après tout autre suffixe' (1959:58).
40. It is hard to see this dependency as phonological: If the vowel [i] of **-id-* raises the FV *-a* to [e], perhaps by spreading its [+ATR] specification, then why can the causative which has even greater proximity to the FV, not do the same?
41. This L may be multiply linked, in which case more than one L TBU will be affected. It should be recalled in this regard that for expository reasons we have transcribed separate H and L tones under each appropriate vowel, when the proper analysis calls instead for multiply linked tones.
42. Recall that although we have indicated two L features, there is in reality a single L linked to *-i-dd-u-a* at this stage of the derivation.
43. It is possible to order these statements differently, but we shall not go into the alternatives here.
44. And the resulting vowel would be a long [Cwaa], whose length is realized whenever it is followed by another enclitic.
45. We cite [ya] and [wa] as they would appear with an *-a* FV, assuming that the FV had come into being by this time.
46. This position potentially impacts on Goldsmith's (1987) suggested reconstruction for the 'complex' H-tone pattern in (7c). Goldsmith proposes that (7c) reconstructs as two H suffixes in sequence, assigned cyclically to the verb stem (with interspersing of MR). First, we have not been able to get this reconstruction to work specifically for Luganda. Second, we share with Meeussen (1967) the view that the tenses that most commonly have this pattern reconstruct not with *HH, but with *LH. These include the relative constructions that have a variable H-tone suffix (depending on the noun class of the subject prefix): If the subject prefix is L, then so is the suffix; if the subject prefix is H, then the complex pattern is obtained, suggesting that the latter is obtained from the former by adding a H suffix to an already present L suffix. The same conclusion must be drawn also from Haya data schematized in Appendix II in Hyman & Byarushengo (1984:101). There it can be seen that whenever a subject relative tense takes a L suffix (∅ in synchronic Haya), the corresponding object relative tense takes the 'complex' pattern (a stable H suffix in Haya). Again, the latter is obtained from the former by adding a H suffix to an already L (∅) one.
47. The perstitive and yet-perfect, in which the MB takes a ∅ tonal suffix, are already [+F], and we therefore cannot attribute the blocking of TG-formation to the vocalic extension, when present.
48. Luganda is full of adjectives that derive from verbs in just such a manner, for example *-sìb-* 'lock', *-sìb-ê* 'locked'; *-lónd-* 'choose', *-lônd-è* 'chosen'; *-ól-* 'carve', *-ól-è* 'carved', etc.
49. We recognize that there is an alternative interpretation of the *-e-* (in bold italics) in (53a) & (53b). When the causative or passive co-occur with the MB, perhaps an applied *-il-/-el-* must be added. By the regular process of 'imbrication', the inputs *a-tem-el-il-i-a* and *a-tem-el-il-u-a* would lose the [l] (in bold italics) of the applied *-el-* and become identical to the inputs in (53a) & (53b). We are not concerned that this extra vowel shows the same *i/e* height harmony of the applied extension, since this harmony is quite pervasive within the verb stem. We do, however, take note of the fact that -CV- roots have an unexplained *-el-e-* or *-il-i-* sequence in the same environment (compare the examples in [15], also a similar observation made for Shi by Polak-Bynon,1975:176 and the general statements of Bastin,1983:87,157). Of course, in these examples, the *-el-* could be the applied, with the following *-e-* still being the historical perfective suffix. We shall keep our eyes open for future disambiguating evidence.

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