Chapter 5

Town Nyanja verbal tonology

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This paper describes and analyzes the verbal tonology of Town Nyanja, spoken in Lusaka, Zambia. While closely related to Malawian Chichewa and Eastern Province Nyanja, Town Nyanja is shown to be critically different in several respects. First, unlike Chichewa, which still exhibits a tone contrast in verb roots, Town Nyanja has lost that underlying contrast. Second, while Chichewa is one of the Bantu languages which has some High-toned verbal extensions, Town Nyanja does not. Finally, it is shown that tonologically all verbs fall into three patterns, dictated by two factors: 1) the tense/aspect/mood/polarity (TAMP), and 2) the presence (or absence) of an object marker. Depending on those two factors, a verb ends up with either one or two High tones in the macrostem. A melodic High tone is present in each verb, and all object markers have a floating H. It is shown that there are only 3 possible docking sites for these floating Hs: 1) the macrostem-initial TBU, 2) the stem-initial TBU, and 3) the penult. The TAMP determines whether there is one or two docking sites for the floating tone(s) present. Where two sites are designated, it is shown that these need to be ranked or prioritized to account for the complex array of surface tones.

1 Introduction

Nyanja is one of Zambia's seven national languages. It has a very close historical and typological relationship with Chichewa. Guthrie (1967–1971) classified both Nyanja and Chichewa as N.31. Maho (2003) lists Chichewa as N.31a and Nyanja as N.31b. Ethnologue lists Chewa-Nyanja (ISO:nya) as a single entry. While excellent research, both tonal and non-tonal, has been published on some of the varieties of Malawian Chichewa/Nyanja, unfortunately such is not the case with

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Figure 1: Linguistic Map of Zambia (Ethnologue)

either the Nyanja spoken in Zambia's Eastern Province (area 23 on the map below, which borders Malawi), nor the variety of Nyanja spoken in Zambia's capital, Lusaka, often referred to as "Town Nyanja," the subject of this paper.[1] With regard to its status as an independent linguistic variety, we note that while certainly serving as a lingua franca (as do a number of other regional languages in Zambia), a large number of people in Lusaka speak Town Nyanja as a first language.

The goal of this paper is to provide an overview of the verbal tonology of Town Nyanja (TN), contrasting it at different points with its better-known cousin,

[1]The only paper I am aware of on this subject, as yet unpublished, is James (in preparation) which describes and analyzes the tone patterns of a number of TAMs in Town Nyanja.

Chichewa. The data I'll be presenting were elicited in Albany, NY from Ms. Mwaka Mauro-Nachilongo, a 43 year old native speaker of Town Nyanja. All data were recorded and transcribed by the author.

The language has five contrastive vowels as seen below.

Table 1: Town Nyanja Vowels

i		u
e		o
	a	

There is no underlying vowel length contrast (as is also true for Chichewa). Rather we find penultimate vowel lengthening at the right edges of phrases.

(1) a. mùù-ntù
Cl-person
'person'

b. mù-ntù mù-kúùlù
c1-person c1-big
'big person'

The consonant system is as given in the table below:

Table 2: Town Nyanja Consonants

	Bilabial	Labio-dental	Alveolar	Alveo-palatal	Velar	Glottal
Stops	p b		t d		k g	
Affricates				ch j		
Fricatives		v f	z s	sh		h
Nasals	m		n	ny	ng'	
Laterals			l			
Rhotics			r			
Glides	w			y		

We follow TN orthographic conventions in the presentation of the data where <ch> = [tʃ], <j> = [dʒ], <sh> = [ʃ], <ny> = [ɲ], <y> = [j], <ng'> = [ŋ], <r> = [ɾ].

We note here that Town Nyanja does not have some of the consonants found in Chichewa, viz. contrastive aspirated voiceless plosives, as well as alveolar affricates.

Attested tone/syllable types are given in (2).

(2) Tone Syllable Types
  a. Short-Low Cà
  b. Short-High Cá
  c. Long-Low Càà
  d. Long-Falling Cáà

High tones (including Long-Falling) can also be downstepped, indicated by a raised exclamation point.

With regard to the verbal morphology, we assume the structure below, common to many Bantu languages, and discussed in more detail in §5. The INFL position contains negative prefixes, subject markers (SM) and Tense/Aspect/Mood (TAM) prefixes. The macrostem contains the stem plus any object markers, while the stem contains the root, any derivational extensions and the final vowel.

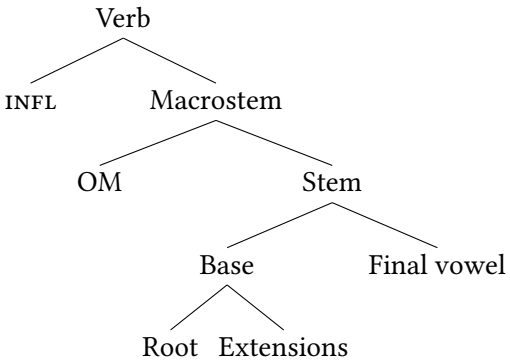


Figure 2: Morphological Structure of the Verb

2 Underlying tonal contrasts: comparison with Chichewa

Tone is underlyingly contrastive in Town Nyanja noun roots, as seen in the nominal minimal pairs in (3), where in each case one root has an underlying H on the initial Tone Bearing Unit (TBU) and the other is completely toneless.

(3) a. mù-téèngò 'tree' /téngo/
b. mù-tèèngò 'price' /tengo/
c. kà-léèzà 'razor' /léza/
d. kà-lèèzà 'lightning' /leza/

With regard to verb roots, while Chichewa has an underlying tonal contrast, Town Nyanja does not. This can be seen in the examples below (all Chichewa data are drawn from Downing & Mtenje 2017).

(4) Chichewa Infinitives
a. kù-témbénùùz-à
INF-turn.over-FV
'to turn over' Cf. Town Nyanja kù-témbénùùz-à
b. kù-támbálàál-á
INF-stretch.legs-FV
'to stretch legs' Cf. Town Nyanja kù-támbálààl-à

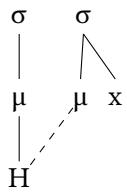
In the Chichewa infinitival forms above, a High tone sponsored by the /ku-/ prefix shifts onto the root-initial TBU and then undergoes a process of High tone Doubling. This is the only H in forms with toneless roots (4a). In forms with H-toned roots (4b), the root H ends up associating to the final syllable and retracting onto the penult (when the form is phrase-final). In Town Nyanja, however, there is but a single tone pattern in verbal infinitives, not two, and that pattern matches the one exhibited by verbs with toneless roots in Chichewa (4a). This is shown in the comparative forms in which the cognate roots of the Chichewa forms are found.

Tone Doubling, evident in the forms in (4) is a very productive process in Town Nyanja (as it is in Chichewa). Further evidence of this process can be seen in nouns when non-phrase final. While the underlying H on the penult will not undergo Tone Doubling in (3a,c) in phrase-final forms where the penult is long, it will double, as seen below in non-phrase-final forms where the target is a short vowel.

(5) a. mù-téngó ù-kúùlù 'big tree' /mu-téngo u-kúlu/
b. kà-lézá kà-kúùlù 'price' /ka-léza ka-kúlu/

A High tone doubles onto the following TBU when that following TBU is: 1) heteroyllabic, and the sole mora in its syllable. I.e. It fails to apply within a long vowel (accounting for the lack of Doubling in (3a,c) or onto a long vowel (to be illustrated further below)). This is formalized in (6).

(6) Tone Doubling



Let us now turn to verbal extensions. Chichewa is among those Bantu languages that have a tonal contrast in verbal extensions (Hyman & Mtenje 1999, Downing & Mtenje 2017). While most extensions are toneless, three are underlyingly High: intensive /-íts/, stative/passive /-ík/, reversive intransitive /-úk/.

All the Chichewa imperatives in (7) have toneless roots. The form in (7a) has a causative extension and the one in (7b) has a transitive extension, and each surfaces as all-Low. The forms in (7c) and (7d) with the same toneless roots contain the stative and reversive extensions respectively, which sponsor a High tone, ultimately being realized on the second TBU of the penult. In the infinitival forms in (8), one can see that the presence of the Intensive extension adds a second H tone to the form, also realized on the second mora of the penult.

(7) a. thàndìz-ìits-à
help-CAUS-FV
'cause to help'

b. kàn-ùùl-à
separate-TRS-FV
'separate'

c. thàndìz-ìík-à
help-STAT-FV
'be able to be helped'

d. kàn-ùúk-à
separate-REV-FV
'be separated'

(8) a. kù-fótókòòz-à
INF-explain-FV
'to explain'

b. kù-fótókòz-èéts-à
INF-explain-INT-FV
'to explain (intensive)'

A range of Town Nyanja infinitival forms with extensions are given below in (9)-(11).

(9) a. kù-ségúl-ììl-à ‘to open for’
b. kù-ségúl-ààn-à ‘to open e.o.’
c. kù-ségúl-ììs-à ‘to be opened’
d. kù-ségúl-ììs-à ‘to open (intensive), to cause to open’

(10) a. kù-chétékèl-ààn-à ‘to trust e.o.’
b. kù-chétékèl-èèk-à ‘to be trusted’
c. kù-chétékèl-èès-à ‘to trust (intensive), to cause to trust’

(11) a. kù-kán-ùùl-à ‘to separate’
b. kù-kán-ùùk-à ‘to be separated’
c. kù-nyám-ùùl-à ‘to carry’
d. kù-nyám-ùùk-à ‘to stand up, lift’
e. kù-pánd-ùùl-à ‘to crack open’
f. kù-pánd-ùùk-à ‘to be cracked open’

As noted above, all roots in the language are toneless. As is the case in Chichewa a High in the infinitive always appears on the stem-initial TBU and undergoes Doubling (cf. (8)). This is the only High tone that appears in all of the Town Nyanja infinitival forms, including those containing stative (9c), (10d), reversive (11b,d,f) or intensive (9d), (10c) extensions, the three extensions which contribute an additional High tone in Chichewa. In Chichewa, there are a number of tonal minimal pairs where one member contains the toneless Causative /-its/ extension and the other contains the H-toned Intensive /-íts/ extension, which surface as tonally distinct. In Town Nyanja, these pairs neutralize, surfacing as homophonous as all extensions are toneless (9c,d).

3 Tone in the TAM system

We now turn to describing and accounting for the attested tone patterns found in Town Nyanja verbs. Downing & Mtenje (2017) document 8 distinct tonal patterns in Chichewa main clause affirmative verbs. Main clause negative forms exhibit 4 patterns, and relatives exhibit 3 patterns. While the surface tone patterns are ultimately the result of a number of different factors, including the presence or absence of object markers and H-toned extensions, as well as multiple produc-

tive tonal rules, the main parameters which distinguish these 8 tonal patterns in Chichewa include the following:[2]

a. whether Subject Marker is H-toned or not

b. whether TAM prefix is: 1) toneless, 2) High, or 3) places a H on following TBU

c. Melodic High status: none, penult, fina

We will argue that Town Nyanja has 3 different patterns in main clause affirmative verbs. We define the patterns as being distinguished by where H tones are found within the macrostem, where the positions are confined to three locations (see Figure 2).[3]

(12) a. the macrostem-initial TBU
b. the stem-initial TBU
c. the penult

Given that all roots and extensions are toneless, we will argue below that there are only two sources of Hs within the TN macrostem: a) an Object Marker, and b) a Melodic High tone. While the H from an Object Marker is only present in forms with an Object Marker, we propose that a Melodic High is present in all verb forms. Thus, each verb will have either one or two Hs in the macrostem. We will see that the three Town Nyanja patterns differ according to where the tone or tones within the macrostem are realized, where again, possible docking sites are limited to the three positions listed in (12). We now exemplify each pattern.

3.1 Pattern 1

To illustrate the first pattern, we carefully examine verbal infinitives (a few of which were introduced above (9)-(11)). We consider verbs both with and without object markers. In (13), we present verbal infinitives without object markers, where the number of syllables in the stem varies from one to four. The left-hand column contains the phrase-final forms, exhibiting phrase-final lengthening (cf.

[2]The definition of and justification for the "Melodic High" is detailed immediately below in §3.1.

[3]We note that the domain on which the "patterns" are distinguished is the full verb in Downing & Mtenje's (2017) analysis of Chichewa, as a different tone in SMS and/or TAM prefixes can establish a new pattern. We have chosen to base "patterns" in TN on the tone sequences exhibited within the macrostem—the domain in Bantu which includes the stem and any preceding object (Figure 2). This will be explored and defended below in §5.

(1)), while the right-hand column presents the verbs in non-phrase-final form, each followed by the adverb *bwìnò* 'well'.

(13) Verbal infinitives (no object) ku-Base-a

a.	kúù-dy-à	e.	kú-dy-á bwìnò	'to eat (well)'
b.	kù-máàng-à	f.	kù-máng-á bwìnò	'to tie (well)'
c.	kù-máng-ìil-à	g.	kù-máng-íl-à bwìnò	'to tie for (well)'
d.	kù-chétékèèl-à	h.	kù-chétékèl-à bwìnò	'to trust (well)'

The verbs all have a High tone which generally surfaces on the first TBU of the stem, and undergoes Doubling, given the constraints on this process, as formalized in (6), which prevent it from applying within (13a,b) or onto (13c) a long vowel. When the stem is monosyllabic, the H is realized on the prefix /ku-/. This can be accounted for by assuming that the H docks on the initial TBU of the prosodic stem, which is minimally bisyllabic, forcing the infinitive prefix to be part of the prosodic stem just in case it's followed by a monosyllabic morphological stem (for more on the prosodic stem within Bantu, see, inter alia, Downing 1998, Downing 2006, Mkochi & Bickmore 2021).

The next question is to identify the underlying source of this H, which surfaces on the (macro-)stem-initial TBU (and undergoes Doubling). We propose this is a grammatical rather than a lexical High tone. As surveyed recently in Odden & Bickmore (2014) and Bickmore (forthcoming) Bantu tone languages show evidence of a grammatical tone, often referred to within Bantu as a "melodic" tone, whose presence and docking pattern is conditioned by various combinations of inflectional features in the verb (e.g. TAM, polarity, clause type, to name a few). While in many Bantu languages, certain bundles of inflectional features trigger the presence of a Melodic High, while others do not, in some it is argued to be present in every verb form (cf. Ebarb et al. 2014 analysis of Nyala West, and Bickmore & Mkochi 2018 analysis of Malawian CiTonga, the latter of which is fairly closely related to Chichewa/Nyanja). Thus, for the forms in (13) with no OM, we propose the sole H in the macrostem is the Melodic High, which docks onto the first TBU of the (macro-)stem, and then undergoes Doubling.

Below in (14), we consider the same 8 infinitival forms with an object marker.

(14) Verbal infinitives (with object) ku-Base-a

a. kù-chíî-dy-à
b. kù-bá-mààng-à
c. kù-bá-má!ng-íil-à
d. kù-bá-chétèkéèl-à

e. kù-chí-dy-á bwìinò ‘to eat it (C7) (well)’
f. kù-bá-máng-à bwìinò ‘to tie them (well)’
g. kù-bá-má!ng-íl-á bwìinò ‘to tie for them (well)’
h. kù-bá-chétèkél-á bwìinò ‘to trust them (well)’

In (14c,d,g,h), we see the presence of a second High tone, realized on the penult. We propose that the additional High tone present in these forms is due to the presence of the OM, which always sponsors a H, which we suggest is floating. Given that, we propose that the URs for the non-phrase-final forms in (13h) and (13h) are as in (15a,b). The exact linear placement of the MH is not crucial to our analysis. It could be a segmentless tonal suffix, or even sponsored by the FV.

(15) a. ku-chetekel-a bwiino b. ku-ba-chetekel-a bwiino UR
H H H

To account for the surface forms, we propose that there are two docking sites in the infinitive (and all Pattern 1 verbs): the macrostem-initial TBU and the penultimate TBU. To account for the forms in (13) without an OM (=(15a)), where the lone H surfaces on the macrostem-initial TBU, we propose that of the two docking sites in this pattern, the Macrostem is prioritized (ranked above) the Penult. I.e. if only one of the two docking sites can attract the H, it will be the macrostem-initial TBU. (Theoretical issues stemming from this analysis are taken up in §5.)

Turning to the forms with object markers in (14) (=(15b)), there are two High tones and two docking sites. Each docking site attracts a tone, after which Doubling occurs. This is illustrated derivationally below for (15a,b).

(16) a. ku-chetekel-a bwiino b. ku-ba-chetekel-a bwiino FLOAT H DOCKING
H H H
ku-chetekel-a bwiino ku-ba-chetekel-a bwiino DOUBLING
H H H

In (16a) the there is a single underlying floating H—the melodic H. While there are two docking sites associated with this TAM, the macrostem-initial one is prioritized over the penult and hence the H in this form docks onto the macrostem-initial TBU (and subsequently undergoes Doubling). Forms like this show that “extra” Hs are never added to a form just to ensure every docking site ends up being linked to a H.

In (14a,e) the two docking sites (macrostem-initial and penult) are one and the same TBU (/chi-/). We could assume that both dock onto this TBU or that once one does, the other cannot. For (14b,f), assuming the two Hs dock onto the OM (the macrostem-initial TBU) and the immediately following penultimate TBU, we propose that the rightmost of these two adject Highs delete (a fairly common process known as Meeussen's Rule in Bantu linguistics). The surviving H (on the OM) will then double in (14a/e). In (14f), we see that the rightmost H undergoes Doubling even though the syllable following the target is linked to a High tone, violating the OCP, ultimately resulting in a phonetic downstep. Here, I follow Odden (1982) proposal for Kishambaa in accounting for downsteps in languages such as Town Nyanja where the underlying distinction is H vs. Ø instead of H vs. L. In such cases a phonetic downstep results when two adjacent TBUs are linked to different H autosegments. Other studies also employing this representation of downstep in Bantu languages include, inter alia, Bickmore & Kula (2013) for Bemba, and Bickmore & Mkochi (2018) for Malawian CiTonga.

There are a number of other TAMs (some affirmative, some negative) in Town Nyanja which exhibit macrostem tonal patterns identical to those presented above for the infinitives in (13) and (14). Below we show the non-phrase-final forms, with and without OMs, of verbs with four syllable stems to illustrate this. The morphological structure of the TAM is given to the right of the TAM name. An underlined SM indicates it is prelinked to a High tone (an issue pursued at greater length in §5).

(17) Potential — SM-nga-(OM)-Base-a
a. tì-ngà-chétékèl-è — 'we can trust'
b. tì-ngà-bá-chétèkél-é — 'we can trust them'

(18) Subjunctive Itive — SM-ka-(OM)-Base-e
a. tì-kà-chétékèl-è — 'we should go and trust'
b. tì-kà-bá-chétèkél-é — 'we should go and trust them'

(19) Progressive Habitual — SM-ngo-(OM)-Base-a
a. tí-ngò-chétékèl-à — 'we keep trusting'
b. tí-ngò-bá-chétèkél-á — 'we keep trusting them'

(20) Present Continuous — SM-ku-ngo-(OM)-Base-a
a. tí-kú-ngò-chétékèl-à — 'we are continually trusting'
b. tí-kú-ngò-bá-chétèkél-á — 'we are continually trusting them'

(21)	Future Progressive	SM-za-mbo-(OM)-Base-a
	a. tí-zá-mbò-chétékèl-à	'we will be trusting'
	b. tí-zá-mbò-bá-chétèkél-á	'we will be trusting them'
(22)	Negative Prog Habitual	sí-SM-ngo-(OM)-Base-a
	a. sí-tí-ngò-chétékèl-è	'we don't keep trusting'
	b. sí-tí-ngò-bá-chétèkél-é	'we don't keep trusting them'
(23)	Negative Potential	sí-SM-nga-(OM)-Base-a
	a. sí-tí-ngà-chétékèl-è	'we can't trust'
	b. sí-tí-ngà-bá-chétèkél-é	'we can't trust them'
(24)	Negative Present Contin	sí-SM-ku-ngo-(OM)-Base-a
	a. sí-tí-kù-ngò-chétékèl-à	'we're not continually trusting'
	b. sí-tí-kù-ngò-bá-chétèkél-á	'we're not continually trusting them'
(25)	Neg Future Progressive	sí-SM-za-mbo-(OM)-Base-a
	a. sí-tí-zà-mbò-chétékèl-à	'we will not be trusting'
	b. sí-tí-zà-mbò-bá-chétèkél-á	'we will not be trusting them'

One Pattern 1 TAM that merits special discussion, as first documented in James (ms), is the Recent Past. The phrase-final and non-phrase-final forms are given below.

(26) Recent Past SM-a-(OM)-Base-a

a. t-áà-dy-à
b. t-à-máàng-à
c. t-à-máng-ììl-à
d. t-à-chétékèèl-à
e. t-à-dy-à chìì-ntù 'we just ate the things'
f. t-à-màng-à mùù-ntù 'we just tied the person'
g. t-à-màng-ìl-à mùù-ntù 'we just tied for the person'
h. t-à-chètèkèl-à mùù-ntù 'we just trusted the person'

(27) Cont.

a. t-à-chíì-dy-à
b. t-à-bá-mààng-à
c. t-à-bá-má!ng-íìl-à
d. t-à-bá-chétèkéèl-à

e. t-à-chí-dy-á bwìinò ‘we just ate it (c7) (well)’
f. t-à-bá-máng-à bwìinò ‘we just tied them (well)’
g. t-à-bá-má!ng-íl-á bwìinò ‘we just tied for them (well)’
h. t-à-bá-chétèkél-á bwìinò ‘we just trusted them (well)’

While the Recent Past forms with an OM (27), and those without an OM in phrase-final position (26a-d) have identical patterns to other Pattern 1 TAMs, forms without an OM in non-phrase-final position (26e-h) surface as all Low, in contrast to other Pattern 1 verbs where a High surfaces on the first two TBUs of the macrostem (cf. 13). This TAM, then, is simply exceptional in not generating (or docking) a MH in non-phrase-final forms with no OM. (See fn. 4 for a second exceptional case of this type.)

There are 3 additional TAMs, which I argue are also part of Pattern 1, even though their surface stem tone patterns are not identical to those of the infinitive and the TAMs in (17)-(25). To evaluate this claim, let us consider the tonology of the Remote Past, indicated by the H-toned prefix /ná-/. Below are phrase-final and non-phrase-final forms of Remote Past verbs with and without an OM, of varying stem lengths.

(28) Remote Past (no OM) SM-ná-Base-a
a. tì-náà-dy-à
b. tì-ná-mààng-à
c. tì-ná-máng-ììl-à
d. tì-ná-chétèkèèl-à
e. tì-ná-dy-á bwìinò ‘we ate (well)’
f. tì-ná-máng-à bwìinò ‘we tied (well)’
g. tì-ná-máng-ìl-à bwìinò ‘we tied for (well)’
h. tì-ná-chétèkèl-à bwìinò ‘we trusted (well)’

(29) Remote Past (w/ OM) SM-ná-OM-Base-a
a. tì-ná-chìì-dy-à
b. tì-ná-bá-mààng-à
c. tì-ná-bá-màng-íìl-à
d. tì-ná-bá-chètèkéèl-à
e. tì-ná-chí-dy-à bwìinò ‘we ate it (well)’
f. tì-ná-bá-màng-à bwìinò ‘we tied them (well)’
g. tì-ná-bá-màng-íl-á bwìinò ‘we tied for them (well)’
h. tì-ná-bá-chètèkél-á bwìinò ‘we trusted them (well)’

In the forms without an OM , there is a single surface H—the one on the TAM prefix /ná-/, which undergoes Doubling. In (29) there are two surface Hs—one on the TAM prefix and a second one, which docks onto the penult. One possible analysis of these forms would be to posit a new and separate pattern, where no MH is present, and the docking target is just the penult. But it's also possible to consider these to fall squarely within Pattern 1. Recall that Pattern 1 is characterized by two docking sites: the macrostem-initial TBU and the penult. Employing that analysis here, in forms without an OM (28), the Melodic High would dock onto the macrostem-initial TBU, which immediately follows the H-tone TAM prefix. We have already noted evidence for Meeussen's Rule (motivated by (14b,f)) which deletes the second of two adjacent Hs. If we assume this rule applies both within the macrostem as well as across it, it will delete the H docked onto the macrostem, after which the H on the TAM prefix will undergo Doubling, accounting for the surface patterns.

The forms in (29) can be straightforwardly analyzed as being part of Pattern 1 in the same way. In those forms there are two floating Hs in the macrostem, one from the OM and the other the MH. The one which docks onto the macrostem initial TBU will undergo Meeussen's Rule and the other will dock onto the penult.

Derivations for (28h) and (29h) are given below.

(30)

	a.		b.	
	ti-na-chetekel-a bwiino		ti-na-ba-chetekel-a bwiino	UR
	H H		H H H	
	ti-na-chetekel-a bwiino		ti-na-ba-chetekel-a bwiino	DOCKING
	H H		H H H	
	ti-na-chetekel-a bwiino		ti-na-ba-chetekel-a bwiino	M'S RULE
	H H→ø		H H→ø H	
	ti-na-chetekel-a bwiino		ti-na-ba-chetekel-a bwiino	DOUBLING
	H		H H	

There are two other TAMs that have identical surface tone patterns as the Remote Past, which we propose are also part of Pattern 1. Like the Remote Past, each of these has a H linked to the TBU immediately preceding the macrostem, which induces Meeussen's Rule: the General Future where that pre-macrostem TBU is also a TAM prefix (/zá-/), and the Present, which has a null TAM prefix, but

where the SM is High-toned. These are shown in (31) and (32). We adopt the pattern 1 analysis for these 3 TAMs as it is more parsimonious than setting up a new, distinct pattern.

(31) General Future SM-zá-(OM)-Base-a
a. tì-zá-chétèkèl-à 'we will trust'
b. tì-zá-bá-chètèkél-á 'we will trust them'

(32) Present SM-(OM)-Base-a
a. tí-chétèkèl-à 'we trust/are trusting'
b. tí-bá-chètèkél-á 'we trust/are trusting them'

3.2 Pattern 2

We now turn to Pattern 2. This pattern in exemplified by the Habitual, indicated by the toneless TAM prefix /ma-/. Below are phrase-final and non-phrase-final forms of Habitual verbs with no OM, of varying stem lengths.

(33) Habitual (no OM) SM-ma-Base-a
a. tí-máà-dy-à
b. tí-má-!máàng-à
c. tí-má-màng-íìl-à
d. tí-má-chètèkéèl-à
e. tí-má-dy-á bwìinò 'we eat (well)'
f. tí-má-!máng-á bwìinò 'we tie (well)'
g. tí-má-màng-íl-á bwìinò 'we tie for (well)'
h. tí-má-chètèkél-á bwìinò 'we trust (well)'

We see evidence of two Hs in these verbs. The first is linked to the SM, which is underlyingly H in this TAM. There is a second H which surfaces on the penult, which we ascribe to the Melodic High. Both Highs are subject to Doubling.

Below we present the same set of Habitual verbs containing an OM.

(34) Habitual (with object) SM-ma-OM-Base-a
a. tí-má-!chíì-dy-à
b. tí-má-bà-máàng-à
c. tí-má-bà-màng-íìl-à
d. tí-má-bà-chètèkéèl-à
e. tí-má-!chí-dy-á bwìinò 'we eat it (well)'
f. tí-má-bà-máng-á bwìinò 'we tie them (well)'
g. tí-má-bà-màng-íl-á bwìinò 'we tie for them (well)'
h. tí-má-bà-chètèkél-á bwìinò 'we trust them (well)'

In these forms with an OM, we find the same generalization: there is a H on the SM and a second one which docks onto the penult, after which both undergo Doubling. The URs of (33h) and (34h) are given in (40).

(35) a. ti-ma-chetekel-a bwiino b. ti-ma-ba-chetekel-a bwiino UR

|			|		
H		H	H	H	H

There is a MH in both forms, shown below the FV. In (40b) there is a second floating H, contributed by the OM. Unlike Pattern 1, which had two docking sites, we propose that this pattern has a single docking site: the penult. In each case the penult will attract a floating H, which then doubles. This is illustrated below.

(36) ti-ma-chetekel-a bwiino ti-ma-ba-chetekel-a bwiino DOCKING

|	|		|		|	
H	H		H	H	H	

ti-ma-chetekel-a bwiino ti-ma-ba-chetekel-a bwiino DOUBLING

|/	|/		|/		|/	
H	H		H	H	H	

We note here for (36) that, just as noted for (14a,e), when there are two floating tones and a single docking site it is not in fact clear which of the two floating Hs will dock. Assuming a single H docks onto the penult, it is not clear if the other H remains floating or deletes. What is clear is that any remaining floating H has no tonal effect on the form.

The one form in this TAM which necessitates a bit of further discussion is (33e). The MH on our analysis docks onto the penult, which in this case is the TAM prefix /ma-/. Even though this docked H is immediately preceded by a H on the SM, it appears that the docked H in this case does not delete, as it undergoes Doubling onto the FV. We know from many studies that in a single language the Obligatory Contour Principle (OCP) can have demonstrably different effects in different morphological and prosodic domains (see, inter alia, Shona (Myers 1987) and Malawian CiTonga (Bickmore & Mkochi 2018)). For Town Nyanja, we propose that while Meeussen's Rule, as claimed above, operates within the macrostem (14b,f), and across the macrostem (28)-(29), it does not apply within the INFL domain (Figure 2). (The relevance of morphological domains in TN will be discussed in greater detail below in §5.)

Other TAMs which exhibit identical surface tone patterns as the Habitual are given below. We note here that while Pattern 2 contains the majority negative forms, it does not contain all of them (cf. (22)-(25)).[4,5]

(37) Temporal SM-ka-(OM)-Base-a
a. tì-kà-chètèkél-á 'when we trust'
b. tì-kà-bà-chètèkél-á 'when we trust them'

(38) Remote Future SM-zá-ka-(OM)-Base-a
a. tì-zá-ká-chètèkél-á 'we will trust'
b. tì-zá-ká-bà-chètèkél-á 'we will trust them'

(39) Imperative (no OM) Root-a
chètèkél-á 'trust!'

(40) Neg. Imperative ó-sa-(OM)-Base-a
a. ó-sá-chètèkél-á 'don't trust'
b. ó-sá-bà-chètèkél-á 'don't trust them'

(41) Neg. Imperative Itive ó-sa-ka-(OM)-Base-e
a. ó-sá-kà-chètèkél-é 'don't go and trust'
b. ó-sá-kà-bà-chètèkél-é 'don't go and trust them'

(42) Negative Infinitive kú-sa-(OM)-Base-a
a. kú-sá-chètèkél-á 'to not trust'
b. kú-sá-bà-chètèkél-á 'to not trust them'

(43) Negative Remote Past sí-SM-na-(OM)-Base-a
a. sí-tí-nà-chètèkél-é 'we didn't trust'
b. sí-tí-nà-bà-chètèkél-é 'we didn't trust them'

(44) Negative General Future sí-SM-za-(OM)-Base-a
a. sí-tí-zà-chètèkél-á 'we won't trust'
b. sí-tí-zà-bà-chètèkél-á 'we won't trust them'

[4]There is one irregularity in the Imperative. Non-phrase-final bisyllabic imperatives surface as all-Low, instead of the expected High-High. E.g. máàng-à 'tie!', but màng-à bá-ànà 'tie the children!' (cf. chètèkél-á bá-ànà 'trust the children') See (26) for the other case in TN where the MH unexpectedly fails to link in a non-phrase-final verb.

[5]My consultant notes there is some speaker variation here, where the FV /-e/ is also acceptable.

(45) Negative Habitual sí-SM-ma-(OM)-Base-a
a. sí-tí-mà-chètèkél-á ‘we don’t trust’
b. sí-tí-mà-bà-chètèkél-á ‘we don’t trust them’

(46) Negative Remote Future sí-SM-za-ka-(OM)-Base-a
a. sí-tí-zà-kà-chètèkél-á ‘we won’t trust’
b. sí-tí-zà-kà-bà-chètèkél- ‘we won’t trust them’

(47) Negative Present sí-SM-(OM)-Base-a
a. sí-tí-chètèkél-á ‘we don’t trust’
b. sí-tí-bà-chètèkél-á- ‘we don’t trust them’

(48) Negative Subjunctive SM-sa-(OM)-Base-e
a. tí-sá-chètèkél-é ’you should not trust’
b. tí-sá-bà-chètèkél-é ‘you should not trust them’

(49) Neg. Subjunctive Itive SM-sa-ka-(OM)-Base-e
a. tí-sá-kà-chètèkél-é ‘you should not go and trust’
b.tí-sá-kà-bà-chètèkél-é ‘you should not go and trust them’

(50) Negative Temporal sí-SM-ka-(OM)-Base-e
a. sí-tí-kà-chètèkél-é ‘when we didn’t trust’
b. sí-tí-kà-bà-chètèkél-é ‘when we didn’t trust them’

3.3 Pattern 3

Finally, we turn to Pattern 3. This pattern in exemplified by the Subjunctive, which has a null prefix, and triggers the FV /-e/. Below are phrase-final and non-phrase-final forms of Subjunctive verbs with no OM, of varying stem lengths.

(51) Subjunctive (no OM) SM-Base-e

a.	tíì-dy-è	e.	tì-dy-é bwìinò	‘we eat (well)’
b.	tì-máàng-è	f.	tì-máng-é bwìinò	‘we tie (well)’
c.	tì-màng-íìl-è	g.	tì-màng-íl-é bwìinò	‘we tie for (well)’
d.	tì-chètèkéèl-è	h.	tì-chètèkél-é bwìinò	‘we trust (well)’

In these forms, we see a single H on the penult, which undergoes Doubling. The same verb forms with an OM are presented below. (Forms with five syllable stems are also given here to further illustrate the claims being made.)

(52) Subjunctive (w/ OM) SM-OM-Base-e

a.	tì-chíì-dy-è	
b.	tì-bà-máàng-è	
c.	tì-bà-máng-ììl-è	
d.	tì-bà-chété!kéèl-è	
e.	tì-bà-chétékèl-éès-è	
f.	tì-chí-dy-é bwìinò	‘we eat it (well)’
g.	tì-bà-máng-é bwìinò	‘we tie them (well)’
h.	tì-bà-máng-íl-è bwìinò	‘we tie for them (well)’
i.	tì-bà-chété!kél-é bwìinò	‘we trust them (well)’
j.	tì-bà-chétékèl-és-é bwìinò	‘we trust them intens. (well)’

In the forms with an OM, we see evidence of two H tones in (52d,e,i,j): one on the stem-initial TBU (as contrasted with the macrostem-initial TBU seen in Pattern 1), and one on the penult, both of which undergo Doubling. We propose that the TAMs exhibiting pattern 3 have two docking sites—the penult and the stem-initial TBU—with the former being prioritized over the latter. Derivations of (51h) and (52i) are given below.

(53)

a. ti-chetekel-e bwiino	b. ti-ba-chetekel-e bwiino	UR
H	H H	
ti-chetekel-e bwiino	ti-ba-chetekel-e bwiino	DOCKING
|	| |	
H	H H	
ti-chetekel-e bwiino	ti-ba-chetekel-e bwiino	DOUBLING
|/	|/ |/	
H	H H	

In (53a) there is a single underlying floating H—the melodic H. Parallel to our analysis of (16a), while there are two docking sites associated with this TAM, one (in this case the penult) is prioritized over the other (in this case the stem-initial one) and hence the H in this form docks onto the penult (and subsequently undergoes Doubling). In (53b) there are two underlying Hs and two docking sites. The two Hs dock and then undergo Doubling. In form (52c,h) we see another example where the second of two adjacent Hs (the one on the penult) will delete within a macrostem via Meeussen’s Rule (cf. (14b,f)).

Two other TAMs exhibit the same tonology as the Subjunctive forms, and are shown below.

(54) Imperative Itive ka-(OM)-Base-e
a. kà-chètèkéèl-è ‘go and trust’
b. kà-bà-chété!kél-é ‘go and trust them’

(55) Imperative w/ OM OM-Base-e
bà-chété!kél-é ‘trust them’

4 Relative verb forms

Downing & Mtenje (2017) note that relative forms in Chichewa are sometimes, though not always, tonally different from their matrix clause counterparts. This is also true in Town Nyanja. We first illustrate the syntax of relative clauses. Consider the TN Habitual forms below.

(56) Bàà-ntù bá-má-chètèkél-á bá-ànà
c2-person c2.sm-tam-trust-fv c2-child
‘The people trust the children’

(57) Bà-ntù bà-méné bá-má-chètèkél-á bá-ànà
c2-person c2-rel c2.sm-tam-trust-fv c2-child
‘the people who trust the children’

(58) Bà-ntù b-éè bá-má-chètèkél-á bá-ànà
c2-person c2-rel c2.sm-tam-trust-fv c2-child
‘the people who trust the children’

(59) Bà-ntù bá-má-chètèkél-á bá-ànà
c2-person c2.sm-tam-trust-fv c2-child
‘the people who trust the children’

The form in (56) shows the verb in a matrix clause. The Habitual falls into Pattern 2, assigning a MH to the penult. The forms in (57)-(59) show three ways the relative can be expressed in TN. The phrase in (57) contains the relative root /-méne/ immediately preceding the verb, which agrees in class with the head of the phrase. The phrase in (58) contains the relative root /-e/, which also agrees with the phrasal head. In (59) we see that it is possible in TN to omit the relative word entirely (as is true in Chichewa). In all cases the relative verb itself (57)-(59) has the same morphological composition as the matrix form (56). In the particular example shown above, it turns out that the relative verb form seen in (57)-(59) is identical to the verb in the matrix phrase (56) (something true of many

Chichewa verbs). However, it should be noted that the entire relative phrase in (59) is not in fact homophonous with the matrix phrase. This is due to the fact that, as demonstrated above in (1), there is a productive process of penultimate lengthening that applies to phrase-final words. In Town Nyanja there is a phonological phrase break between a subject Determiner Phrase (DP) and a following matrix verb, but not between the head DP of a subject relative and the immediately following word (see Clemens & Bickmore 2021 for parallel behavior of prosodic phrase construction in Rutooro, a Ugandan Bantu language).

As we consider the broad range of Town Nyanja forms discussed above, the vast majority are similar to the affirmative Habitual forms presented above in (56)- (59) in that the tonal pattern of the matrix and relative forms are identical. Below we note those cases where there is some change in the tonology. These fall into two main groups. The first group consists of the Potential, a Pattern 1 verbs which has a subject marker which is underlyingly toneless in the matrix form, which becomes High in the corresponding relative forms.

(60) Potential
a. Bàà-ntù bà-ngà-chétékèl-è. 'The people can trust.'
b. bà-ntù bá-ngà-chétékèl-è 'the people who can trust'

The second group also contains Pattern 1 verbs with underlyingly toneless SMs. But in the relative counterparts of these verbs, the subject has a High tone, and there is a High on the penult. Thus these relatives are realized as Pattern 2.[6]

(61) Recent Past
a. Bàà-ntù b-à-chétékèl-à. 'The people just trusted.'
b. bà-ntù b-á-chétèkél-á. 'the people who just trusted'

(62) General Future
a. Bàà-ntù bà-zá-chétèkèl-à 'The people will trust.'
b. bà-ntù bá-zá-chètèkél-á 'the people who will trust'

(63) Past
a. Bàà-ntù bà-ná-chétèkèl-à 'The people trusted.'
b. bà-ntù bá-ná-chètèkél-á 'the people who trusted'

[6] Downing & Mtenje (2017) note that Chichewa has the same three possible outcomes for relative verbs: 1) no tone change, 2) changing the SM from Low to High, and 3) changing the SM from Low to High and adding a High to the penult.

In (61b) the High on the subject marker will be immediately followed by the MH assigned to the stem-initial TBU. Meeussen's Rule applies, deleting the second H, after which the H on the SM will undergo Doubling. In (62b) and (63b) there will be 3 consecutive adjacent Hs, on: the SM, the TAM Prefix and the stem-initial TBU. In these two cases both the second and third Hs delete via Meeussen's Rule, after which the H on the SM undergoes Doubling.

No Pattern 2 or 3 verbs change their tonology in relatives.

5 Summary and discussion

We have proposed that all Town Nyanja (matrix clause) verbs fall into one of three patterns, as outlined above. A central question for any analysis is: what are the sources of High tones within the verb. We propose that some High tones within the verb are pre-linked, while others are floating. In order to expound on this, as an aid to the reader we repeat here the morphological structure of the TN verb, first given in Figure 2.

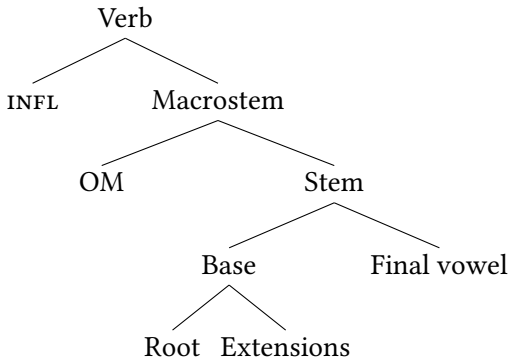


Figure 3: Morphological Structure of the Verb

We propose that within the INFL portion of the verb, i.e. the prefixes preceding the macrostem, morphemes contrast in terms of whether they are pre-linked to a High tone or are toneless.[7] Some TAMs are underlyingly High-toned (e.g. Remote past /ná-/ (28), (29); General Future /zá-/ (31)) while most others are toneless. In one case, the infinitive prefix exhibits lexical allomorphy, as it is toneless (/ku-/) in the affirmative ((13)-(14)), and High-toned (/kú-/) in the negative (42). The

[7]One possible exception here is the TAM prefixes /ngo-/ (19) which resists the tone Doubling of the H on the immediately preceding SM. One way to account for this would be to posit that this TAM prefixe is (exceptionally) linked to a L underlyingly.

negative prefix /sí-/ (always word-initial and followed by a SM) is High-toned (e.g. (43)-(47)), while the negative prefix /sa-/ (never word-initial) is toneless (e.g. (40)-(42)). As is the case in a number of Bantu languages, Subject Markers vary in their underlying tonality, depending on inflectional factors such as TAM and polarity (this is true in other N languages, such as Malawian CiTonga (Mkochi & Bickmore 2021), as well as Chichewa (Downing & Mtenje 2017)). In Town Nyanja, Subject Markers are generally toneless, but in a number of cases are underlyingly High (e.g. Progressive Habitual (19), Present Continuous (20), Future Progressive (21), Present (32), and the Habitual (33)), something which cannot be predicted on phonological grounds. We suggest this is accounted for via lexical allomorphy.

Let us now turn to the tonology within the macrostem. We presented three different patterns, summarized in Table 3. In the second column we note where H appears in forms without an OM. In the third column we note where the H or Hs appear in forms with on OM, where in one case there is a single docking site (Pattern 2), while in two cases (1,3) there are two docking sites. In the third column we summarize the analysis, where there is a ranking in the event of multiple docking sites.

Table 3: Summary of Town Nyanja verbal tone Patterns

Pattern	Hs in MS: No OM	Hs in MS: w/OM	Analysis
1	MS-init	MS-Init, Penult	MS-Init > Penult
2	Penult	Penult	Penult
3	Penult	Stem-Init, Penult	Penult > Stem-Init

Factors determining the surface tonology within the pattern depend on the TAM, the polarity, and the presence (or absence) of an object marker. We propose that unlike the INFL domain where the contrast is between TBUs linked to a H or being toneless, within the macrostem, High tones are underlyingly floating. They have only two sources. First, we propose that a Melodic High tone is present in all verb forms. (As noted above, formally this could be a tonal suffix or part of the final vowel.) Second, we propose that all object markers sponsor a floating High tone underlyingly.

The realization of melodic tones can be conceived as a two-part process, each of which is triggered by inflectional properties such as TAM, polarity, clause type, presence of OMs, just to name a few: 1) triggering the insertion/presence of one or more melodic tones into the verb, and 2) determining exactly how these melodic tones dock onto the TBUs comprising the verb (e.g. establishing one or more

docking sites). Specifically for Town Nyanja, we propose that all verb forms have a Melodic High tone, but the particular combination of inflectional properties of the form determines the docking site (or sites). In Town Nyanja there are three such attested sites, where either one or two are specified for a particular verb: 1) the macrostem-initial TBU, 2) the stem-initial TBU and 3) the penult. Thus, for any verb form there are either one or two underlying floating Hs in the macrostem, and either one or two docking sites.

While it is not unusual to have some constellation of inflectional properties trigger multiple melodic tones in a language, in such cases each tone is generally assigned a distinct docking target. For example, in Kikuria some verbs trigger two MHs where one docks onto the first mora of the macrostem and the second docks onto the 4th mora (Marlo et al. 2014). In Emakhuwa, some verbs trigger two MHs where one docks onto the first mora of the macrostem and the second docks onto the third mora of the stem, while in other verbs the first of two MHs docks onto the second mora of the macrostem and the second docks onto the penult (Kisseberth & Guérois 2014). What we are positing for Town Nyanja is somewhat innovative, as we propose that when the inflectional properties trigger two docking sites, that they are ranked or prioritized.[8] Doing this allows positing just three patterns. An alternative, eschewing the prioritization/ranking of docking sites, would be to admit 6 different patterns. Under this scenario, e.g., an infinitive without any OM would be one pattern (specifying the macrostem-initial TBU as the docking site) and an infinitive with an OM would be a separate pattern (specifying both the macrostem-initial as well as the penult as docking targets). But under that alternative, it would be possible to have one set of TAMs with no OM target say the macrostem-initial TBU, and that same set of TAMs with an OM target just the penult, or the stem-initial TBU and the penult. The analysis proposed here predicts that within a given TAM/polarity, an attested target in forms without any OM is also always attested in forms with an OM.[9]

We conclude by noting two things. First, we do not claim that the TAM/Polarity combinations are equally distributed among the four patterns. As seen above

[8]In a co-phonology OT analysis of TN, e.g., there would be two constraints each demanding that some TBU be linked to a High, and those two constraints would be ranked. Kuria and Emakhuwa would presumably have similar constraints under a co-phonology OT approach, but there would just be no justification for ranking them as the number of targets always match the number of MHs present in the verb.

[9]The determination of the docking sites in TN is made in almost every case by just the TAM and polarity. The sole exception is the (affirmative) Imperative, where it falls into Pattern 2 when there is no OM (39), and Pattern 3 when there is an OM (55). We note that across Bantu the Imperative and Subjunctive often behave exceptionally vis-a-vis other TAMs with regard to melodic tone assignment. See, e.g. Meeussen (1962)

Patterns 1 and 2 are much more common than Pattern 3. Second, while affirmative forms can be found in all 3 patterns, negative forms are only found in patterns 1 and 2. Future research might shed light on how the TN patterns compare to other closely related languages and what set of diachronic changes could have produced this synchronic state of affairs.

Abbreviations

C	class number	OM	object marker
CAUS	causative	REL	relative
DP	determiner phrase	RVS	reversive
FV	final vowel	SM	subject marker
INF	infinitive	STAT	stative
MH	melodic high	TBU	tone bearing unit
OCP	Obligatory Contour Principle	TRS	transitive

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