A MORPHO-TONOLOGICAL DESCRIPTION OF IKALANGA INFINITIVE VERBS

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Abstract:

In order to explain how tone works in Ikalanga infinitives, this description uses data collected from native speakers and glossaries, verified with the help of dictionary data from other languages. The authors preferred to diversify the data sample in such a way as to include infinitive verbs representing several morphological types so that their description may not be skewed.

The presentation therefore contains two major parts: (1) the morphological part which explains the structure of infinitive verbs and provides details on the syllabic configuration of the components on which tones are anchored and (2) the tonological part which attempts to derive tonal patterns into which several Ikalanga infinitive verbs that share a common behaviour fall. The presentation adheres to Autosegmental Phonology according to which phonological representation is multi-tiered. In this framework, tones appear on an autonomous tear and are not necessarily affected by changes occurring on other tiers though they may be linked to elements on the other tiers by association lines.

This study ends with proposing a mixed approach that combines tone and accent to explain some strange behaviours unaccounted for by an exclusively tonal approach. Such a mixed approach uses dynamic tonic accents which act like magnets. They move around to decisive positions which attract H-tones that are essential in determining the tonal pattern of words as they have the ability to spread from left to right to contiguous unaccented positions.

Key words: dynamic Tonic accent, tone, HL melody, tonal pattern, root, stem, extension, syllabic configuration, pitch-accent languages
1. Introduction

Many languages of the world indicate change in meaning or the grammatical function of words by adding a variety of affixes to them. However, this is not the unique way in which the meaning and function of words can be changed. In addition to this practice, African languages, like many other languages of the world (e.g. Japanese and several Asian languages), use variation in pitch height or tone to induce similar effects. Such variations are so abstract and elusive that they make this area of linguistics unpopular among recent researchers. Failing to make sense of these pitch changes, some people even go so far as to portray this aspect of African languages as totally chaotic.

The present paper attempt to contribute towards an understanding of how tone works in Ikalanga infinitive verbs. Towards this end, the Morphology of Ikalanga simple/plain infinitive verbs as well as their derived or extended forms will be described because morphology plays a major role in the assignment of tone.

Though starting with a purely tonal approach, the description presented proceeds to show how Autosegmental Phonology explains tones before agreeing with Heny (1971) that, some so-called Bantu languages are in fact pitch-accent languages. This is captured by adopting a mixed approach combining tone and accent to explain some strange behaviours unaccounted for by an exclusively tonal approach.

2. The Morphology of Ikalanga Infinitive Verbs

As in other Bantu languages, the structure of infinitives in Ikalanga includes the following basic elements: the Infinitive Marker /ku-/, the Root and the Final Vowel or the Vowel Suffix /-a/. While the Infinitive Marker is consistent with the CV syllabic configuration, the Root comes in a variety of forms: (i) the commonest type of roots have the CVC syllabic pattern (e.g. /-con-/ “see”, /-bhik-/ “cook”, /-lov-/ “beat”, /-sek-/ “laugh”). Some other types of roots are of (ii) the C form ( e.g. /-d-/ “love”, /-tj-/ “fear”, /-p-/ “give”; (iii) the CV form (e.g. /-fu-/ “hear”, /-gu-/ “fight”, /ngu-/ “drink”); and (iv) the VC form (e.g. /-il-/ “avoid”, /-end-/ “go”).

In infinitive verbs with CV roots, the final V is realized as a glide when it is followed by a vowel of a different quality. As it will be explained later, Ikalanga has more low tones than high tones. Therefore, for the sake of economy low tones will not be marked in the Ikalanga examples given below.

(1) e.g.
   a) kufiwa to hear
   b) kuthwa to vomit
   c) kung’wa to drink
   d) kutshwa [kuts’hwa] to burn
   e) kudwa to come from
   f) kushwa to be fine
   g) kugwa to fight
In derived forms, the root is often lengthened by one or many extensions occurring before the Final Vowel. The commonest Ikalanga verb extensions include the following:

1) The causative /-is-/ (or sometimes /-es-/ by nasal harmony when the root contains a second degree vowel like [e]/[ɔ]).

The causative generally means that the subject provokes, initiates or facilitates (in some way) the action of the verb. This extension is illustrated below in (2).

(2) e.g.
   a) kulimisa to cause to plough/help to plough
   b) kubhikisa to cause to cook/help cook
   c) kuvumbisa to cause to build
   d) kubhayisa to cause to slaughter
   e) kung’wisa to cause to slaughter
   f) kulóvesa to help to beat
   g) kuʋokesa to cause to thank
   h) kusekesa to cause to laugh
   i) kuposesa to cause to throw
   j) kufudza to cause to graze (from /ku-ful-(i)s-a/ by imbrication)
   k) kupedza to cause to finish (from /ku-pel-(i)s-a/ by imbrication)
   l) kulidza to cause to cry(from /ku-lil-(i)s-a/ by imbrication)
   m) kukodza to cause to be fat (from /ku-kol-(e)s-a by imbrication)

The change in the quality of the vowel of the causative suffix in the examples with /-es-/ is due to vowel harmony. According to this process the [i] vowel of the extension /-is-/ becomes [e] when the verb root to which it is attached contains a second degree vowel (i.e. [e] or [ɔ]). According to Mathangwane (1999: 73), most verb roots which have a final lateral consonant have a different form of the causative. It should be noted that in these verb roots, the root-final lateral changes into the palato-alveolar affricate [dz] due to imbrication. Instead of positing the existence of two parallel causatives (namely /-is-/ and /-į-/), as in Mathangwane (1999), Lukusa (1993.a, 1993.b, and 2011) proposes the following more plausible explanation supported by the process of imbrication which applies to many Bantu languages. By the process of imbrication of extensions, the number of syllables in some verbs is reduced through the application of two phonological rules including first deletion of the initial vowel of the causative extension –is-/ -es-. This creates contact between the final [l] of the root and the [s] of the causative and results in coalescence between these two consonants, producing an intermediary consonant [dz], as illustrated in examples (2.j to m) which are repeated in (3) below for the sake of convenience.

(3) Examples of imbrication of extensions
   a) /ku-ful-(i)s-a/  →  [ku-fudz-a]  to cause to graze
   b) /ku-pel-(i)s-a/  →  [ku-pedz-a]  to cause to finish
   c) /ku-lil-(i)s-a/  →  [ku-lidz-a]  to cause to cry
d) /ku-kol-(i)s-a → [kukədzə] to cause to be fat

Imbrication of extensions is a very common process in Bantu languages and should not divert us much from our present pursuit.

2) The passive /-iw-/ (or /–w-/)

Contrary to the active voice in which the subject is the real performer of the action of the verb, a passive verb is headed by a subject which rather undergoes the action conveyed by the verb. As in many Bantu languages, the two forms of the passive suffixes include the short form –w- and the long form –iw-. As in the case of the causative, these duplicate passive forms could be reduced to one by postulating that the shorter of these obviously related forms is a mere result of imbrication in which the [i] vowel of the full extension is deleted as explained earlier. It has been observed in many Bantu languages that monosyllabic stems always take the longer passive form –iw- as in:

(4) e.g.
   a) ku-đá > ku-đ-iw-a to be loved
   b) ku-hiwi-á > ku-hiwi-iw-a to be heard
   c) ku-tjá > ku-tj-iw-a to be feared
   d) ku-p-á > ku-p-iw-a to be given
   e) ku-mb-á > ku-mb-iw-a to be sung

A different picture emerges when polysyllabic verb stems are passivized. Two groups of verbs are observed here: one which allows both the short and the long forms and another which only takes the long form of the passive suffix.

(5) e.g. Verbs which take both the short and the long passive form
   a) ku-lind-a > ku-lind-w-a / ku-lind-iw-a to be watched over
   b) ku-suk-a > ku-suk-w-a / ku-suk-iw-a to be washed
   c) ku-bhik-a > ku-bhik-w-a / ku-bhik-iw-a to be cooked
   d) ku-lis-a > ku-lis-w-a / ku-lis-iw-a to be looked after
   e) ku-long-a > ku-long-w-a / ku-long-iw-a to be put in/inserted

Contrary to the preceding group, the examples in the following group of verbs can only take the long passive form –iw-.

(6) e.g. Verbs which can only take the long passive form
   a) ku-feph-a > ku-feph-iw-a to be blown out/be helped to blow the nose
   b) ku-kou-a > ku-kou-iw-a to be given away
   c) ku-kusw-a > ku-kusw-iw-a to be sharpened
   d) ku-nazw-a > ku-nazw-iw-a to be licked
   e) ku-fiw-a > ku-fiw-iw-a to be heard
   f) ku-ngw-a > ku-ngw-iw-a to be drunk
The common characteristic of the verb stems in (6) is that they all end in a labial or labialized consonant. It is clearly the presence of this final labial or labialized consonant of the root which motivates retension of the initial [i] of the passive /–iw-/ so as to conform to the Bantu CV-CV syllable configuration by preventing a sequence of two labial consonants. This sequence would be particularly difficult to pronounce in examples (6c to f).

According to Mathangwane (1999), this prohibition is also common to a number of other Southern Bantu languages which, like Ikangala, have been found not to allow sequences of a labial and the labio-velar glide [w].

3) The applicative /-il-/ (or /-el-/ by vowel harmony)

The applicative indicates what the subject does in relation to the object of the sentence. It can assume many roles such as the locative (i.e. do some action at, in, on, etc.), the benefactive (i.e. do for), the instrumental (i.e. do with), etc. The applicative/applied /-il-/ is sometimes realized as [-il-] when vowel harmony applies.

(7) e.g.
   a) ku-bhik-a > ku-bhik-il-a to cook for
   b) ku-lóv-a > ku-lóv-él-a to beat for
   c) ku-vón-a > ku-vón-él-a to see for

4) The reciprocal /-an-/ 

As in many Bantu languages, the reciprocal suffix is realized by the extension /-an-/ in Ikangala, as shown in the examples below. It has the implication that the action of the verb is done to the object by the subject and vice versa or that two subjects help each other perform the action of the verb.

(8) e.g.
   a) ku-lóv-a > ku-lóv-án-a to beat each other
   b) ku-ḍ-a > ku-ḍ-an-án-a to love each other
   c) ku-vón-a > ku-vón-án-a to see each other

It should be noticed that in (8.b), the reciprocal extension /-an-/ has been reduplicated. This reduplication adds no new meaning to the reciprocal form and can only be accounted for as part of the lexicalization process in the formation of this word to compensate for the shortness of the stem by making it disyllabic (like other stems) with an additional dummy /-an-/ formative. This is similar to the addition of the dummy formative /-esh-/ in the Čilubà verb /ku-p-esh-angan-a/ “to give e.o.” or the addition of a dummy /-an-/ to form the Swahili verb /ku-on-ek-an-a/ “be visible”.

Some of the reciprocal verbs in Ikangala take the causative /-is-/ extension while others take /-y-/.

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1 Čilubà is a Bantu language from the DRC. It is labelled in Guthrie’s (1948) classification as L.31
other form, but what is evident is that verbs that already contain a causative extension also take the reciprocal extension /–an-/ . The examples that follow illustrate the above point.

(9) e.g.

a) katšhana hit each other > katšanya cause to hit each other
b) vónana see each other > vónanisa cause to see each other
c) wanana like each other > wananisa/wananya\(^2\) cause to like each other

Because /–is-/ is a transitivizing extension, the reciprocal extension /–an-/ can be added to it since it requires a transitive input.

(10) e.g.

a) kulimisa > kulimisana to help e.o. plough/help to plough
b) kubhikisa > kubhikisana to help e.o. cook/help cook
c) kuʋumbisa > kuʋumbisana to help e.o. build
d) kubhayisa > kubhayisana to help e.o. slaughter
e) kung’wisisa > kung’wisana to help e.o. drink
f) kulóʋesa > kulóʋesana to help e.o. beat s.o.
g) kuʋokesa > kuʋokesana to help e.o. thank
h) kusekesa > kusekesana to help e.o. laugh
i) kuposesa > kuposesana to help throw
j) kufudza > kufudzana to help graze from /ku-ful-(i)s-an-a/ by imbrication
k) kapedza > kapedzana to help finish from /ku-pel-(i)s-an-a/ by imbrication
l) kulidza > kulidzana to help cry/from ku-lil-(i)s-an-a/ by imbrication
m) kukodza > kukodzana to cause others to be fat / from ku-kol-(e)-s-an-a by imbrication

5) The Neuter /-ik-/ (or /-ek-/ by vowel harmony)

The neuter or middle voice implies that the action of the verb is performed without necessarily involving an external agent. The subject undergoes the action of the verb (in some way) without a clear indication of the performer. Such verbs are sometimes considered to be in the stative voice since they describe the state of the subject.

(11) e.g.

a) kuʋona to see > kuʋoneka to be visible/appear
b) kuvuna to break > kuvuniaka to be broken/breakable/to get shattered
c) kukonga to fry > kukangika to be fried/friable

\(^2\) This example clearly shows that it makes more sense to believe that /-is-/ is the only causative extension in Ikalanga and that the application of imbrication is rather optional in this case because the reduced form wananya is the output of imbrication and wananisa is the alternative without imbrication application.
6) The Reversive /ul-/ and the Reiterative or the Frequentative /ulul-/

While the reiterative or the frequentative implies the repetition or frequent occurrence of the action meant by the simple form from which it is derived, the reversive form shows the undoing or the reversal of the action denoted by the original simple verb root.

(12) e.g.

a) ku-lim-ulul-a to plough again from ku-lim-a to cultivate
b) ku-tham-ulul-a to remake from ku-tham-a to make
c) ku-tjiny-ulul-a to re-do from ku-tjiny-a to do
d) ku-bhik-ulul-a to re-cook from ku-bhik-a to cook
e) ku-sung-unul-a to untie from ku-sung-a to tie
f) ku-fum-ul-a to uncover from *fumu(ideophone) open
g) ku-zhul-a to open from *zhala > zhalila to close

Scarcity of examples of reversive verbs with /ul-/ (e.g. 12.f & g), the fact that the meaning of /ul-/ is being taken up by /ulul-/ (see 12.e) and the fossilization of /ul-/ in some verb roots (e.g. zhul-a open) seem to suggest that the reversive /ul-/ is disappearing in Ikalanga while it still stands apart and is very much productive in other Bantu languages (e.g. Čilubà) alongside /ulul-/

(13) Examples of reversive and reiterative forms in Čilubà

<table>
<thead>
<tr>
<th>Underived</th>
<th>Gloss</th>
<th>Reversive</th>
<th>Gloss</th>
<th>Reiterative/Frequentative</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>ku-kang-a</td>
<td>to close/fry</td>
<td>ku-kang-ul-a</td>
<td>to open</td>
<td>ku-kang-ulul-a</td>
<td>to fry again</td>
</tr>
<tr>
<td>ku-jik-a</td>
<td>to block</td>
<td>ku-jik-ul-a</td>
<td>to unblock</td>
<td>ku-jik-ulul-a</td>
<td>to unblock permanently</td>
</tr>
<tr>
<td>ku-suk-a</td>
<td>to rinse the mouth</td>
<td>ku-suk-ul-a</td>
<td>to wash</td>
<td>ku-suk-ulul-a</td>
<td>to wash again &amp; again</td>
</tr>
<tr>
<td>mu-seng-a</td>
<td>powder</td>
<td>ku-seng-ul-a</td>
<td>to pulverize</td>
<td>ku-seng-ulul-a</td>
<td>to sieve</td>
</tr>
<tr>
<td>ku-jing-a</td>
<td>to roll (eyes)</td>
<td>ku-jing-ul-a</td>
<td>to turn</td>
<td>ku-jing-ulul-a</td>
<td>to unroll (from a spool)</td>
</tr>
<tr>
<td>ku-di-a</td>
<td>to eat</td>
<td>ku-di-ul-a</td>
<td></td>
<td>ku-dy-ulul-a</td>
<td>to ruminate</td>
</tr>
<tr>
<td>ku-keb-a</td>
<td>to search</td>
<td>ku-keb-ul-a</td>
<td></td>
<td>ku-keb-ulul-a</td>
<td>to research</td>
</tr>
<tr>
<td>ku-bal-a</td>
<td>to count/read</td>
<td>ku-bal-ul-a</td>
<td></td>
<td>ku-bal-ulul-a</td>
<td>to count/read again&amp;again</td>
</tr>
</tbody>
</table>

6) Multiple extensions

Some verbs show instances of duplicated and multiple extensions. In such cases, the duplicated extension or the multiple extensions may generate a totally new meaning or composite meanings resulting from the meanings of the combined extensions. According to Chebanne and Schmidt (2010), it is possible to have duplication of the applicative which combines the directional and the benefactive roles. The possibility of their co-occurrence is determined by the semantics of the verb stem as in the examples that follow.
Some extensions which are still productive in Common Bantu are difficult to illustrate in Ikalanga either because they have become unproductive or because though they may be found in the language, they have become fossilized or inseparable from the root and can only be explained with reference to other Bantu languages in which they are still productive.

(15) e.g. Some rare Ikalanga extensions which are still productive in Common Bantu³

a) **kuuluka** to fly (e.g. a bird)  
(c.f. ku-ruk-a ‘fly in Swahili / –ulu ‘up/high/sky in Čilubá)
b) **kumúka** to wake up  
(c.f. -amuk-a ‘wake up’ in Swahili)
c) **kumúsa** to wake s.o. up (nda mmusa)  
(c.f. -amush-a ‘cause to wake up’ in Swahili)
d) **kubharelra** to get stuck (as in the mud)  
(c.f. ma-tel-u ‘a slope in Čilubá vs ku-tel-em-uk-a ‘to descend/go down the slope)
e) **kuđelułka** to descend/get low  
(c.f. ku–bomb–ololok-a ‘to melt/dissolve and ci–bomb–o ‘soda ash? in Čilubá)
f) **kubumbulułke** to lower/diminish  
(c.f. ku–fung–a ‘to close’ vs. ku–fung–ul–a ‘to open’ in DRC Swahili)
g) **kufumula** to uncover  
h) **kusunuqula** to untie  
(c.f. ku–sung–a ‘to select’, ku–sung–ul–a ‘to choose’ vs ku–sung–ulul–a ‘to put in different groups’)
i) **kuthamułula** to undo  
(c.f. ku–tap–a ‘cut’ vs ku–tap–ulul–a ‘to put in different groups’)

While in some Bantu languages, other vowels may be used as the suffix of infinitive verbs (see examples in (16)), this role can only be played by the vowel /-a/ in Ikalanga, as illustrated in the foregoing examples.

(16) e.g. Other Vowels in FV position

In Lingala⁴:

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³ These extensions are the bold-typed parts in the Ikalanga examples. Because they are fossilized, they could not be separated. However, the separate forms are attested in cognate words from related Bantu languages.

⁴ Lingala
In Swahili:

e) kuheshimu /ku-heshim-u/ to respect/honour
f) kuhesabu /ku-hesab-u/ to count
g) kuhimidi /ku-himid-i/ to thank/praise/extol
h) kuthubutu /ku-thubut-u/ to venture/dare
i) kuhadithi /ku-hadith-i/ to narrate

Based on the syntactic behaviour of the derivatives produced by their addition, extensions can be described as (1) valency-reducing, (ii) valency-maintaining or (iii) valency-increasing. This is illustrated below with conjugated verbs so as to show the potential number of NPs that a verb can accommodate.

The passive and the reciprocal are typical valency-reducing extensions since they promote the object of the original underived form to the rank of subject, and leave the object position empty, making thus the resulting verb intransitive.

(17) e.g. valency-reducing extensions /-(i)w-/ and /-an-/  
a) Mwana unoja shadza (the child is eating porridge) > Shadza lonojiwa nge mwana (the porridge is eaten by the child)

b) Nkadzi unobona nlume (the woman sees the man) > Nkadzi ne nlume banobonana (the woman and the man see e.o.)

The applicative and the causative are generally valency-increasing in that they enable transitive verbs to become ditransitive by adding one more object.

(18) e.g. valency-increasing /-il-/ and /-is-/  
a) Ngwana unoja shadza (the child is eating porridge) > Nkadzi unojisa ngwana shadza (the woman is making the child eat porridge)

b) Nkadzi unobhika shadza (the woman is cooking porridge) > Nkadzi unobhikila ngwana shadza (the woman is cooking porridge for the child)
Notice however that the reversive, the reiterative or the frequentative is valency-maintaining because it preserves the valency of the verb root from which it is derived.

(19) e.g. valency-maintaining extension
a) ku-sung-a mbudzi to tie the goat > ku-sung-unul-a mbudzi to untie the goat
b) ku-lim-a nda to plough the field > ku-lim-ulul-a nda to plough again the field

Let us now turn to the tonal behaviour of the Ikalanga infinitive verbs by taking into consideration the verbal morphology described in the foregoing section.

3. Ikalanga Verbal Tonology

3.1 Ikalanga Tone Levels

There are two tone levels in Ikalanga: a High tone (H) and a Low tone (L). However, these two tone levels may combine to form contour tones which may be: falling (HL, marked with a circumflex e.g. â in kúkângá (fry,) rising (LH, marked with a reversed circumflex e.g. á as in kumílídzâna [kumílídzâna] (lift each other).

(20) e.g. H and L Tones
a) kutóla to take
b) kuzíwa to know
c) kubháta to hold
d) kuŋgína to get inside

To illustrate how tones in Ikalanga are a direct replication of those of Common Bantu, the examples below are given alongside similar words from Čilubà, which is usually described as a tone reversal system.

(21) e.g. Contour Tones

<table>
<thead>
<tr>
<th>Ikalanga</th>
<th>Gloss</th>
<th>Čilubà</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Falling Contour:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
a) kúsúka     | to wash     | kúsúká (wash inside e.g.of the mouth/bottle) |
b) kuʋôna     | to see      | kümòná                      |
c) ku³ũma      | to sew      | kúfũmá                      |
d) kükâŋgá    | to fry      | kükà:ngá                    |
e) kukvîcá    | to steal    | kwî:bá                      |
f) kuwômá      | to dry      | kú:má                       |

Though very rare in infinitive verbs, rising contour tones can be found in Ikalanga.
Contrary to a tone reversal language like Čilubà, Ikalanga tones are a direct replication of those of Common Bantu, i.e. where Ikalanga and most Bantu languages have high tones, Čilubà has low tones and vice versa.

(22) e.g.
- **Rising Contour**:  
  kumílídžána [kumílídžá:na] to lift e.o. from kumílídza

<table>
<thead>
<tr>
<th>Ikalanga</th>
<th>Gloss</th>
<th>Čilubà</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) kúsúkà</td>
<td>to wash</td>
<td>kúsúká (e.g. the mouth/a bottle)</td>
</tr>
<tr>
<td>b) kúröñánà</td>
<td>to see e.o.</td>
<td>kúmòñá:ngáná</td>
</tr>
<tr>
<td>c) kúròñà</td>
<td>to see</td>
<td>kúmòñá</td>
</tr>
<tr>
<td>d) kúджánánà</td>
<td>to love e.o.</td>
<td>kúná:ngá:ngáná</td>
</tr>
<tr>
<td>e) kúfá</td>
<td>to die</td>
<td>kúfwá</td>
</tr>
<tr>
<td>f) kúfwá</td>
<td>to hear</td>
<td>kú:mvwá</td>
</tr>
<tr>
<td>g) kújá [kúdʒá]</td>
<td>to eat</td>
<td>kúdyá</td>
</tr>
<tr>
<td>h) kúkwívá</td>
<td>to steal</td>
<td>kwí:bá</td>
</tr>
<tr>
<td>i) kúmá</td>
<td>to wait/stand up/stop</td>
<td>kwí:máná</td>
</tr>
<tr>
<td>j) kúŋ’wá</td>
<td>to drink</td>
<td>kúnwá</td>
</tr>
<tr>
<td>k) kúpá</td>
<td>to give</td>
<td>kúpá</td>
</tr>
<tr>
<td>l) kúfûmá</td>
<td>to sew</td>
<td>kúfûmá</td>
</tr>
<tr>
<td>m) kut’hwá</td>
<td>to vomit</td>
<td>kútwí:lá (spit)</td>
</tr>
<tr>
<td>n) kúwângá</td>
<td>to mix</td>
<td>kúwâ:ngá:kájá</td>
</tr>
<tr>
<td>o) kúwómá</td>
<td>to dry</td>
<td>kú:má</td>
</tr>
<tr>
<td>p) kúbháyá</td>
<td>to slaughter</td>
<td>kúshíbeyá (kill)</td>
</tr>
<tr>
<td>q) kúbhikà [kubika]</td>
<td>to cook</td>
<td>kwí:píká</td>
</tr>
<tr>
<td>r) kúròñà [kuʃøna]</td>
<td>to see</td>
<td>kúmòñá</td>
</tr>
<tr>
<td>s) kúðússà</td>
<td>to remove</td>
<td>kú:múshá</td>
</tr>
<tr>
<td>t) kúdwà</td>
<td>to come from</td>
<td>kúlwá</td>
</tr>
<tr>
<td>u) kúènda</td>
<td>to go</td>
<td>kwé:ndá (walk/march)</td>
</tr>
<tr>
<td>v) kúkâŋgá</td>
<td>to fry</td>
<td>kúkâ:ngá</td>
</tr>
<tr>
<td>w) kúlílá</td>
<td>to cry</td>
<td>kúdílá</td>
</tr>
<tr>
<td>x) kúlímá</td>
<td>to plough</td>
<td>kúdímá</td>
</tr>
<tr>
<td>y) kúlôngá</td>
<td>to put</td>
<td>kúlóːngá (lay/place)</td>
</tr>
<tr>
<td>z) kúlúkà</td>
<td>to plait</td>
<td>kúlúká</td>
</tr>
<tr>
<td>aa) kúmbà</td>
<td>to sing</td>
<td>kwí:mbá</td>
</tr>
<tr>
<td>bb) kúnyá</td>
<td>to excrete</td>
<td>kúnyí:ná</td>
</tr>
<tr>
<td>cc) kúrâgà [kuraŋa]</td>
<td>to kick</td>
<td>kútâhá</td>
</tr>
<tr>
<td>dd) kúsèkà</td>
<td>to laugh</td>
<td>kúsèká</td>
</tr>
<tr>
<td>ee) kútólà</td>
<td>to take</td>
<td>kútwí:lá</td>
</tr>
<tr>
<td>ff) kúwómá</td>
<td>to dry</td>
<td>kú:má</td>
</tr>
<tr>
<td>gg) kúzhà [kuʒa]</td>
<td>to come</td>
<td>kwí:yá</td>
</tr>
</tbody>
</table>
3.2 Tone Notation in Ikalanga Infinitives

For the sake of economy, the notation of tones in the foregoing examples can be simplified by marking high tones and contour tones only because they are fewer, just as in Čilubà (a tone reversal system) only the low tones which are not numerous will be marked as follows.

(24) e.g.

<table>
<thead>
<tr>
<th>Ikalanga</th>
<th>Gloss</th>
<th>Čilubà</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) kubhaya</td>
<td>to slaughter</td>
<td>kushibeya (kill)</td>
</tr>
<tr>
<td>b) kubhika</td>
<td>to cook</td>
<td>kwí:píka</td>
</tr>
<tr>
<td>c) kuróna</td>
<td>to see</td>
<td>kumóna</td>
</tr>
<tr>
<td>d) kuvóóna</td>
<td>to see e.o.</td>
<td>kumóna:ngana</td>
</tr>
<tr>
<td>e) kuðáñána</td>
<td>to love each other</td>
<td>kuna:ngana:ngana</td>
</tr>
<tr>
<td>f) kuðusa</td>
<td>to remove</td>
<td>ku:músha</td>
</tr>
<tr>
<td>g) kuðwa</td>
<td>to come from</td>
<td>kuľwa</td>
</tr>
<tr>
<td>h) kuenda</td>
<td>to go</td>
<td>kwe:nda (walk/march)</td>
</tr>
<tr>
<td>i) kufá</td>
<td>to die</td>
<td>kuľwa</td>
</tr>
<tr>
<td>j) kuñívá</td>
<td>to hear</td>
<td>ku:mvwa</td>
</tr>
<tr>
<td>k) kuja [kudžá]</td>
<td>to eat</td>
<td>kuďyà</td>
</tr>
<tr>
<td>l) kukándá</td>
<td>to fry</td>
<td>kukà:nga</td>
</tr>
<tr>
<td>m) kukwívá</td>
<td>to steal</td>
<td>kwi:ba</td>
</tr>
<tr>
<td>n) kulila</td>
<td>to cry</td>
<td>kudíla</td>
</tr>
<tr>
<td>o) kulíma</td>
<td>to plough</td>
<td>kudíma</td>
</tr>
<tr>
<td>p) kuloŋga</td>
<td>to put</td>
<td>kulo:nga (lay/place)</td>
</tr>
<tr>
<td>q) kuluka</td>
<td>to plait</td>
<td>kuľuka</td>
</tr>
<tr>
<td>r) kumá</td>
<td>to wait/stand up/stop</td>
<td>kwí:mana</td>
</tr>
<tr>
<td>s) kumba</td>
<td>to sing</td>
<td>kwí:mba</td>
</tr>
<tr>
<td>t) kung′wá</td>
<td>to drink</td>
<td>kunwà</td>
</tr>
<tr>
<td>u) kunya</td>
<td>to excrete</td>
<td>kunyi:na</td>
</tr>
<tr>
<td>v) kupá</td>
<td>to give</td>
<td>kuľpa</td>
</tr>
<tr>
<td>w) kuraga [kuraŋa]</td>
<td>to kick</td>
<td>kuľţha</td>
</tr>
<tr>
<td>x) kuseka</td>
<td>to laugh</td>
<td>kusēka</td>
</tr>
<tr>
<td>y) kúsuka</td>
<td>to wash</td>
<td>kusúka (e.g. the mouth)</td>
</tr>
<tr>
<td>z) kuḷ̌úma</td>
<td>to sew</td>
<td>kuḷ̌uma</td>
</tr>
<tr>
<td>aa) kuḷ̌vá</td>
<td>to vomit</td>
<td>kuḷ̌vì:la (spit)</td>
</tr>
<tr>
<td>bb) kutóla</td>
<td>to take</td>
<td>kuľtwà:la</td>
</tr>
<tr>
<td>cc) kuvâŋgá</td>
<td>to mix</td>
<td>kuvwá:ngakaja</td>
</tr>
<tr>
<td>dd) kuwómá</td>
<td>to dry</td>
<td>ku:ma</td>
</tr>
<tr>
<td>ee) kuzha [kuʒa]</td>
<td>to come</td>
<td>kwí:ya</td>
</tr>
<tr>
<td>ff) kuzhula [kuʒula]</td>
<td>to open</td>
<td>ku:nzulula</td>
</tr>
</tbody>
</table>
Notice that though contour tones exist in Čilubà, they are not found in infinitive verbs as they are in Ikalanga.

3.3 The Autosegmental Approach

In agreement with the Obligatory Contour Principle (OCP), identical successive tones are realized as a single tone.

(25) e.g.
a)  
LLL  
|   |   |                         L  
kulila to cry should be better marked as kulila
b)  
LL L  
|   |   |                         L  
kulima to plough should be better marked as kulima
c)  
L L L  
|   |   |                         L  
kulonga to put should be better marked as kulonga
d)  
LL L  
|   |   |                         L  
kuluka to plait should be better marked as kuluka
e)  
L H H L  
|   |   |                         L H L  
kuroñána to see e.o. should be better marked as kuroñána
f)  
L H H L  
|   |   |                         L H L  
kudánána to love each other should be better marked as kudánána
g)  
L HH L  
|   |   |                         LH L  
kulóviwa to be beaten should be better marked as kulóviwa
h)  
LH HL  
|   |   |                         LH L  
kulóvéla to be beaten for should be better marked as kulóvéla
i)

\[
\begin{array}{c|c|c|c}
\text{LH H HL} & \text{L H L} \\
\text{kulóvésána} & \text{kulóvésána} \\
\end{array}
\]

Tones are first mapped onto the words in agreement with the Association Conventions (according to which \textit{when unassociated vowels and tones appear on the same side of an association line, they will be automatically associated in a one-to one fashion, radiating from the association line.} (Goldsmith, 1990: 14)). Then, following the Association Principles as indicated in the foregoing representation, tones are associated to the segmental tier by association lines. \textit{In the examples above, discontinuous lines show that H tones spread from left to right.}

For a phonological representation to be well-formed, \textit{Association lines should not cross. This is in agreement with the Well-formedness Condition suggested in Pulleyblank (1983: 11).}

Carefully observing the correct Autosegmental Phonological Representation on the right side in the examples in (24) above and considering the data used in this paper leads into making the following important remarks on the tonology of Ikalanga infinitives. Their tonal melodies can be either (i) thoroughly Low-pitched or L-toned or (ii) they can include one to two pitch falls.

\subsection*{3.4 From a Purely Tonal Approach to a Mixed Approach}

The remarks made in the foregoing paragraph lead into proposing a mixed approach combining tone and accent to explain some strange behaviours unaccounted for by an exclusively tonal approach.

Heny (1971) demonstrated that, some so-called Bantu languages are in fact pitch-accent languages. His revelation was based on an observation that in every major lexical item in Luganda, there is at most a single H to L sequence (i.e. pitch fall). In Ikalanga infinitives, it has been observed that the maximum number of pitch falls can go up to two per word. This, in other terms, amounts to saying that Ikalanga infinitives can be L-toned throughout, but they can as well include one or two HL sequences. The insight in this remark is that it is possible to predict tonal behaviour from one or two marks indicating the location of pitch drops. The asterisk \([*]\) will be adopted later in this presentation as an indication that the following mora bears a tonic accent.

This location of pitch drop coincides with the position where the H of the HL sequence is anchored. This insight draws heavily from observations made earlier by phonologists like Heny (1971), Goldsmith (1984), as well as Hyman and Katamba (1992).

Such a mixed approach uses dynamic tonic accents which act like magnets. Even among derived forms from the same root, tonic accent is dynamic in that it does not necessarily stay on the same morpheme or syllable. It keeps moving around to decisive positions which attract H-tones that are
essential in determining the tonal pattern of words as they have the ability to spread from left to right to contiguous unaccented positions.

Therefore, instead of mapping tones, it is rather HL melodies that are mapped and their H tone is attracted by the accented positions that will be identified.

That means Ikalanga verbs like *kulila* (cry), *kulima* (plough), *kulonga* (put) and *kuluka* (plait) which are toneless have no tonic accent which can attract an HL melody. Hence, those verbs will be L toned by default.

Verbs like *kuvónána* (see e.o.), *kuḍanána* (love e.o.), *kulóviwa* (be beaten), *kulóvéla* (be beaten for), and *kulóvésána* (help to beat e.o.) have one tonic accent which attracts a single HL melody in which H will spread to the following syllable to the left, as indicated below.

(26) e.g.

a) L H L
   
   kuvónána to see e.o.

b) L H L
   
   kuḍánána to love each other

c) L HH L
   
   kulóviwa to be beaten
   
   is better marked as
   
   L H L
   
   kulóviwa

d) LH HL
   
   kulóvéla to be beaten for
   
   is better marked as
   
   L H L
   
   kulóvéla

e) L H H L
   
   Kulóvésána to help to beat e.o.
   
   is better marked as
   
   L H L
   
   Kulóvésána

Obviously, since the HL meloioes are attracted by tonic accents, the remaining syllables of the infinitive marker on the left are L toned by default as seen in example (20) above.

4 Concluding remarks

In short, the mixed approach that has been proposed in this paper has shown that Ikalanga infinitive verbs follow three clearly different tonal patterns depending on the number of tonic accents they contain as summarized in the description below:
i) Accentless verbs are thoroughly L-toned because they are not assigned any HL melody. They get automatically L-toned.

(27) e.g.

a) kuseka to laugh
b) kusekana to laugh at others
c) kusekesa to make others laugh
d) kusekela to laugh for so reason
e) kusekiwa to be laughed at/become a laughing subject
f) kusekelana to laugh for e.o. for some reason
g) kuluka to plait
h) kulukana to plait e.o.
i) kulima to plough
j) kulimila to plough for
k) kulimilana to plough for others
l) kulimisa to cause to plough/help to plough
m) kusuka to wash
n) kusukilana to wash for e.o.
o) kukumba to visit
p) kukumbana to visit e.o.
q) kubhika to cook
r) kubhikila to cook for/in/at
s) kubhikilana to cook for e.o.
t) kubhikisana to cause to cook/help cook
u) kubhikisana to help e.o. to cook
v) kubhikiwa to be cooked
w) kubhaya to slaughter
x) kubhayiwa to be slaughtered
y) kubhayisa to cause to slaughter
z) kubhayila to slaughter for
aa) kubhayilana to slaughter for each other
bb) kuʋoka to cause to thank
cc) kuʋokesa to cause to thank
dd) kuʋokewa to be thanked
e) kuʋokana to thank e.o.
ff) kuʋokesana to cause to thank e.o.

ii) Verbs with one tonic accent get assigned one HL melody and this has two consequences in terms of pitch falls: if both H and L get associated, the verb has a falling melody. But in case the L tone fails to be associated, the verb will have a rising melody. Since the infinitive marking prefix /ku-/ is generally accentless in Ikalanga, the H tone of this melody is often attracted by the second syllable (i.e. the syllable after the infinitive marker /ku-/). This H tone
normally spreads to contiguous syllables before the FV. When it stops spreading or fails to spread, the L of the HL melody gets associated with the remaining position to the right.

(28) e.g.

\[
\begin{array}{c}
H \quad L \\
\mid \quad \mid
\end{array}
\]

a) ku*ló vána to beat each other

b) ku*vónána to see e.o.

c) ku*vónéla to see for another pers.

d) Ku*vónélána to see for e.o./see on one’s behalf

e) Ku*vóníwa to kubóníwa

f) ku*língána to look at e.o.

g) ku*lóva [kuló:va] to beat

h) ku*lówélá to be beaten for

i) ku*lówélá to beat for

j) ku*lówísána to help to beat e.o.

k) ku*lówíwa to be beaten

l) ku*míídzá to lift

m) ku*ng’wíla to drink on one’s behalf/drink in, at, or for

n) ku*ng’wísa to cause to drink

o) ku*ng’wisána to make e.o. drink

p) ku*ng’wiwa to be drunk

q) ku*pána to give e.o.

r) ku*púrúla to pierce

s) ku*púrúlána to pierce e.o.

t) ku*scávána to gossip about each other

u) ku*túmílána to sew for e.o.

v) ku*túúsána to help e.o.

w) ku*tóla to cause to take

x) ku*tólána to cause to take e.o.

y) ku*tólána to take e.o.

z) ku*tólélá to take for

In the case of kulóva [kuló:va] (to beat), the H tone gets associated to the first mora and fails to spread to the second mora which, like the following FV will get L-toned by default.

In case the L tone remains unassociated, it finally deletes. Deletion is shown by circling the unassociated L tone. This generally happens to verbs with a monosyllabic stem.

(29) e.g.

\[
\begin{array}{c}
H \quad [L] \\
\mid 
\end{array}
\]

a) ku*ðá to love

b) ku*pá to give
Sometimes, association of the H tone of this single HL melody gets delayed and is realized further than the second syllable.

(30) e.g.

\[
\text{HL} \\
\text{H L}
\]

a) kuḍa*nána to love each other  
b) kutenge*lána to buy for e.o.  
c) kuḍa*vwíla to answer  
d) kuḍaci*lána to answer for e.o.

iii) Verbs with two tonic accents have some peculiar signs: They often contain a falling contour tone in the penultimate position and include one pitch fall. (i.e. Once their pitch level rises, it doesn’t fall again. The L of the second HL melody remains unassociated and finally deletes, as indicated below by circling.

(31) e.g.

\[
\text{HL} \quad \text{H L} \\
\text{v}
\]

a) ku*sê*tvá [kuseβá] to gossip  
b) ku*thû*iřá to hit  
c) ku*lô*vá to beat  
d) ku*kwî*išvá to steal  
e) ku*vû*išná to break  
f) ku*vû*išyá to come  
g) ku*kâ*iŋgá to fry  
h) ku*ŋgô*išřá to roast  
i) ku*wô*išmá to dry  
j) ku*vâ*iŋgá to mix  
k) ku*lô*išvá to beat e.o.  but ku*lóvána  
l) ku*vô*išná to see e.o.  but ku*vónána  
m) ku*lî*iŋgá to look at e.o.  but ku*lingána  
n) ku*sê*išvá to gossip about each other  but ku*sêvána  
o) ku*thû*išmá to sew for e.o.  but ku*thůmîlána  
p) ku*tê*iŋgá to buy for e.o.  but kuteŋge*lána

The downward arrows in the above examples show that the H-tone after the falling contour is down-stepped.

In some very ‘rare’ cases, verbs with two tonic accents get two pitch falls and are characterized by the presence of a weird rising contour tone.
e.g. Rare verbs with two pitch falls

- kumîlídzâna [ku*mîlídza*ána] “to lift e.o.”
- kusísíthîla [ku*sísít*i*íla] “to try for e.o.”

References


Heny, F. (No date) Tone and the Verbal Complex in Zezuru. Ms.


