The Tonology of Simple and Complex Infinitives in Meru Language of the Northeastern Tanzania

Elirehema Daniel Nnko

Assistant Lecturer, The Institute of Accountancy Arusha [IAA], Tanzania
Email: elirehemannko058@gmail.com

Abstract— This study describes the tonology of infinitives in Meru, a Bantu language spoken in Northeastern Tanzania specifically to identify behavior of tone in simple and complex infinitives. The study was guided by the Auto-segmental phonological theory introduced by Goldsmith, (1976) in data analysis to determine different behaviors of tone in these infinitives. The study was conducted in Arumeru district as the targeted population was only Meru native speakers and from these population data were collected through introspection and interview and responses produced were recorded. The methodology used was qualitative. The study indicates that, simple infinitives behave based on the number of syllables that form a root or stem. Accent is assigned at first syllable of a stem and there are processes involved for one to get the acceptable tone patterns and these are; Stem Accent Assignment, Accent-BTM Association, Melody Association, High Spread and finally Output. For the case of simple infinitives with six syllables further processes are involved and they are; Stem Accent Copying after Stem Accent Assignment, and tone simplification after High spread. Complex infinitives appeared differently from simple infinitives on how tone is marked since object marker (OM) is found and it receives an accent and in such instances, the accent assigned at the first syllable of a stem becomes inferior and get deleted. After that, the accent assigned at the object marker spreads rightward. It has been concluded that tone has very important significances as it describes the way meaning can change based on where accent is assigned in Bantu languages including Meru and for that reason; there is a need for further study on tone at nominal, phrase and sentence level.

Keywords— Tone, toneless, pitch, toneme, tonology, analogy, contour and infinitive.

I. INTRODUCTION

Tone has been discussed by different scholars in Bantu languages. Massamba, (1984) in his study on Ci-Ruuri shows that tone can be used to mark and change meaning of lexeme and grammatical category of such lexeme. Harjula, (2004) studied tone in Kiha and he came up with results that in Kiha, tone is handled at both lexical and grammatical level. Another study was done by Matondo, (2006) in Kimunang'weli dialect of Kisukuma and he reported that tonal transfer in Bantu languages is determined by two factors such as stem length of un-reduplicated stem and stem copied in reduplication. Chongowe et al (2022) also did a study on Kinguu simple

and complex infinitives to investigate their behaviors and the result show that there is High tone spread, shifting and penultimate back hopping.

Mwita, (2009) reported what he did concerning tone in Kuria language that High Tone Spread (HTS) is predictable and as a result it produces different meanings. In addition to that, Zulu language is tonal and tonal systems carry lexical and grammatical functions according to the study done by Samuel, (2013).

All these studies have tried to prove what Hyman, (2013) claims that most African languages are tonal. The studies insist that tone affect meaning at lexical and grammatical

categories but no any study that has been found discussing tone of infinitives in Meru although these studies give highlights on how tone behaves in the studied languages. The studies have not explained anything about tone in Meru language. That being the case, the researcher was interested to fill such gap specifically to identify behavior of tone in simple and complex infinitives.

II.   BACKGROUND INFORMATION OF THE MERU LANGUAGE

Meru language is a language spoken by Wameru or Meru, which are Bantu tribe located on the foothills of Mount Meru. Kimeru has alternative names which are; Kirwa, Kirwo, or Rwo (Thomas, 1997). The Meru, a Bantu-speaking people came first about three hundred years ago, arriving from Usambara area together with the first Machame, Chagga whose Bantu language is very closely allied to Meru.

Meru language is spoken in Arusha region specifically at Arumeru district. Arusha region shares its northern borders with the Republic of Kenya. To the northeast, Arusha region borders to Kilimanjaro region. Further east is Tanga region. To the south Dodoma region is found, where the capital city of Tanzania is situated. To the west, Manyara region is found and to the northwest Mara region. Arusha region combines both high lands which include Mount Meru (4,566M asl) and low land. Arumeru District as an area of the study is one of six Districts found in Arusha Region of Northeastern Tanzania. It is bordered to the north, west and southwest by Monduli District and to the east by the Kilimanjaro Region.

The other information about Arumeru includes; Latitude: 3 30` 44``S. Longitude: 36 55` 38``E. Feature description: admin: District. Area/state: Arusha. Other alternative names: Arusha. Country: Tanzania. Country ISO code: TZ. The total area inhabited by the Meru people covers about 300 square miles that is both West; East and South part of Mount Meru with the total population of 50, 225 according to the census report of 1965, (Moore, et al., 1977: 97) but this population may have increased.

According to Lewis, (2013) in his book entitled as "Ethnologue: Language of the World", Meru as Bantu Language has been classified as: Niger-Congo, Atlantic-Congo, Volta-Congo, Benue-Congo,   Bantoid, Southern Narrow Bantu, Central, E. Chagga [E61]; language spoken in Tanzania with an alternative names Kirwa, Kirwo or Rwo. Other information about this language is that, it is not related to Kimiiru (Mir) language spoken in Kenya as many people thought (Lewis, 2013 and Guthrie, 1948).

III.   THEORETICAL FRAMEWORK

The study was guided by Auto-segmental phonological theory (AP) introduced by Goldsmith (1976) in analyzing the behaviors of tone in simple and complex infinitive verbs in Meru language. He says that certain feature groups such as tone versus segmental features, define independent levels of representation (auto-segments) and that there is no a one to one relationship between the number of segments in a string. Auto-segmental phonology is a theory of non-linear phonological representation which was developed in the mid and late 1970s, as a response to certain problems resulted in the phonological theory of that time.

The theory was introduced in order to overcome the weaknesses of developing an adequate theory as used in the work of Williams, (1971) and Laben, (1973); who were the first to introduce non-linear structures into generative phonology in their treatments of tone systems in West African languages such as Margi, Igbo and Mende. In the model proposed by these writers, underlying tones were represented on separate tiers from the feature matrices representing vowels and consonants; they were subsequently merged with these matrices by Tone Mapping Rules that applied in the course of derivation, creating single-tiered representations in surface structure.

The principle innovation of auto-segmental phonology, as presented by Goldsmith (1976), was the idea that tone mapping rules do not merge tonal and segmental representations, but associates their elements by means of formal entities known as Association Lines. In this framework, phonological representations consist of parallel tiers of phonological segments, both tonal and segmental (Jane, 1992).

Elements of each tier, called auto-segmental, are sequentially ordered; elements of adjacent tiers are simultaneous if and only if they are linked by association lines. In this model, all tiers remain independent throughout derivations: at no point is the tonal tier merged with segmental tier.

A further innovation of auto-segmental theory is the set of universal principles termed Well-Formedness Conditions (WFC), which govern the multi-tiered structure of the representation. These principles not only define the set of theoretically possible inter-tier configurations; they also trigger the operation of a set of universal repair mechanisms, often termed Association Conventions, whenever configurations that violates them arise.
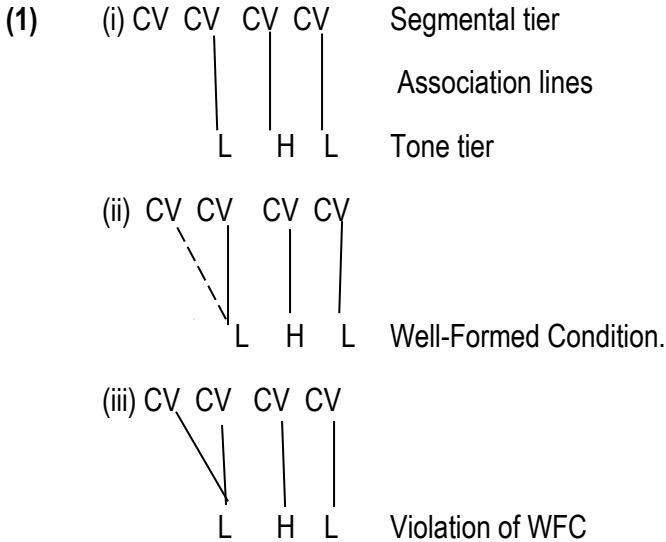
In the classical version proposed in Goldsmith, (1976), the principles of auto-segmental association are as follows;

(a). Associate tones and syllables (tone-bearing units) one to one from left to right.

(b). Well-Formedness Condition: at each stage in the derivation, each vowel must associate with at least one tone, and each tone must be associated with at least one syllable.

(c). No-Crossing of Lines: association lines may not cross.

Theoretical examples;

(1)   (i) CV CV CV CV   Segmental tier

                          Association lines

              L   H   L   Tone tier

          (ii) CV CV   CV CV

              L   H   L   Well-Formed Condition.

          (iii) CV CV CV CV

              L   H   L   Violation of WFC

In the representation of phonological phenomena by using linear sequences of segments and association lines in WFC. Example (iii) shows that association line crosses, and in this case, Well-Formed Condition has been violated.

IV.   TONE IN MERU LANGUAGE

Meru is tone accent language. Based on the different data, it has been proved that tone can be assigned to multiple syllables in a single word which is different from purely tone languages (Mary, (1986). In Meru language, tone is assigned based on the accents based on the number of syllables. In Meru, tone is realized at both lexical and grammatical levels as clarified here below;

A. Grammatical Tone in Meru

It is claimed that in many African languages, tone is mostly at grammatical level than in lexical level. To speak about tone in language especially at grammatical level, verbs are the core center for such discussion; that, tone does functions in verbs to show some verb aspects or tenses. In Meru language, grammatical tones are realized as follow;

	Meru Verbs	Gloss
(2)	(i). kusíkyíyény	"to cover for each other"
	(ii). kufíngyíyény	"to tie for each other"
	(iii).kutúnse	"to preserve"

The data above prove the presence of the grammatical tone in Meru language and the way meaning in those verbs change based on the Melodic high assignments.

B. Lexical Tone in Meru

Apart from grammatical tone, lexical tone is common in Meru language. This tone bases on lexical level as there are words with the same form and spelling but different in meanings that come as a result of where exactly High tone is assigned. In these words, tone assignment is what disambiguates these ambiguous words. Lexical tone in Meru is clarified by data here below;

		Meru words	Gloss
(3)	(i).	Ndá	"lice"

		Ndà	"banana tree/ banana farm"
(ii).		Nrí	"tree or traditional medicine"
		Nrì	"knee"
(iii).		Mbóra	"blesses"
		Mborá	"a woman"

The above words prove the presence of tone at lexical level.

Based on the data above, it is obvious that Meru language is tonal. Tone is realized at both lexical and grammatical level. Tone at these two levels can be used to differentiate meaning of words and in other instances to disambiguate ambiguous words at lexical and grammatical level. Due to the fact that Meru is tonal language, it is then easy for linguists to classify it by using tone as parameter or criteria for grouping or classification.

C.   Basic Tone Melody in Meru

Tone in Meru language has shown different behaviors. In order for one to have the clear form of tone, let us observe the following data;

	Meru words	**Gloss**
(4).	(i). kufíse	"to hide"
	(ii). kusóre	"to follow"
	(iii). kufínge	"to tie"

The data above justify the way tone behaves; that the Basic Tone Melody is Low-High-Low (LHL) and this is marked at the first syllable of a stem. The infinitive marker which is prefix *ku-* has been assigned Low tone as justified above. The basic roots of those infinitives have been assigned High Tone which is also penultimate syllable and finally, the last syllable has been assigned Low tone. In the data above, the final syllables that have Low tone, the front, high mid vowel /e/ has dominated.

For the case of five syllable verbs, the structure of tone is LHHHL but still the basic tone melody remains the same as proved in the data below;

	Meru words	**Gloss**
(5)	(i). kusíkyíény	"to laugh for each other"
	(ii). kumínyíény	"to cut for each other"
	(iii). kuríngyíény	"to take care for each other"

The data above shows a new structure of infinitives when in five syllables. The data shows the LHHHL tone pattern which still maintains the Basic Tone Melody LHL. The prefix *"ku"-* marks the infinitives in all verbs and has low tone. The next syllables are initial part of a root that also has low tone. The third syllables in these data also are the core part of the root with High tone and the next two syllables are just suffixes. The most occurring vowel sound in the second part of the roots in the data above is high-front vowel /i/. For the case of last syllable in each data above the sound /ny/ is common.

Based on the infinitives discussed above, most of data shows Low tone at initial syllable, High tone is common at penultimate syllable where also the succession of two or three can appear and finally the final syllable appears to be low. For that case, it is obvious that the Basic Tone Melody in Meru Must remain Low High Low (LHL).

IV.   TONOLOGICAL ANALYSIS OF MERU INFINITIVES

A. Monosyllabic Simple Infinitives

In the study, it has been found that infinitives with two syllables are very few. Apart from been very rare, the study shows that these infinitives have very different tone behavior from others. These simple infinitives stand for *"to do"* and they behave very differently from other simple infinitives in Meru. From the study the following infinitives with two syllables were found:

	Infinitives	Gloss
(6)	i. Kúle	"to eat"

ii.   kúshe   "to come"

iii.   Kúnle   "to be careful"

iv.   Kúnda   "to love"

In Meru language, as it has been shown in the data above, tone falls at the infinitive marker which is also the first syllable of these infinitives. These infinitives have low tone at the final syllable and now let us see the way these infinitives can be derived from their underlying to surface form through auto-segmental theory below when use the normal tone behavior in other infinitives where accent is assigned at the first syllable of a stem:

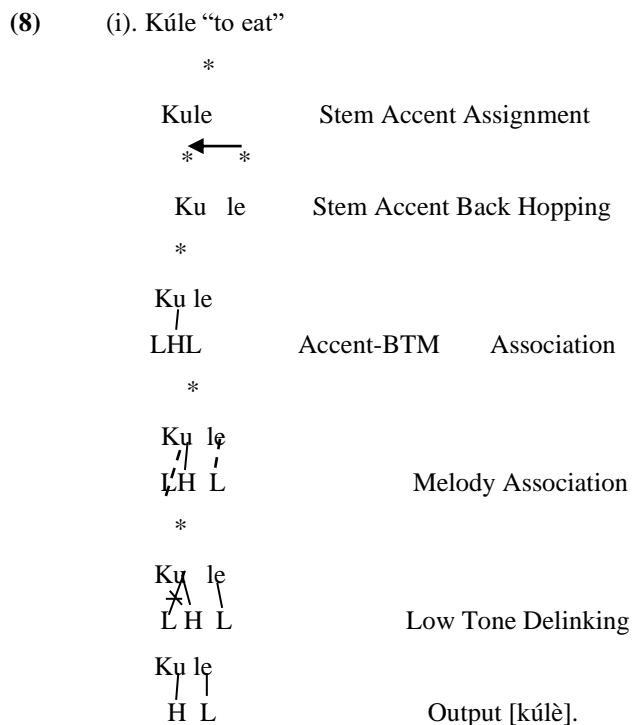|	**Meru words**	**Gloss**
(7)	Kúle	"to eat"

```
                *
              Kule       Stem Accent Assignment


                *
              Kule
               |
             LH L      Accent-BTM Association
                *
              Ku le
               | /\
              LH L        Melody Assosiation

              Ku  le
               |  /\
              L  H L      Output *[kùlê].
```
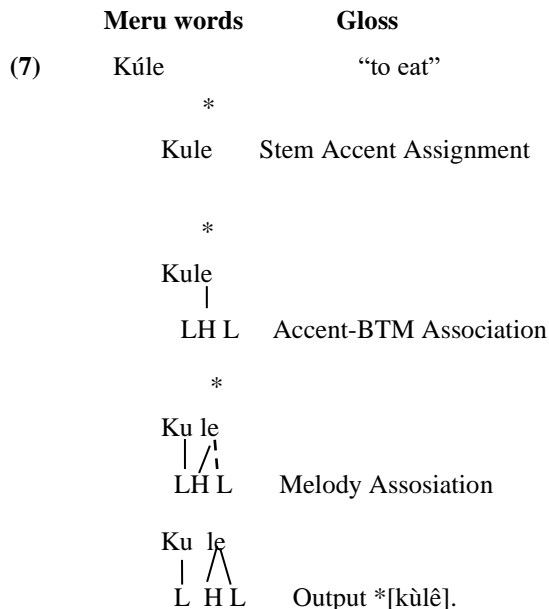
Following the derivation above, the normal tone behavior of accent assignment at the first syllable of a stem has been applied in order to see the way these infinitive verbs with two differ from other infinitives. The derivation shows that the output there is falling tone at first syllable of a stem and initial syllable has low tone. In Meru language, this tone behavior is not acceptable and as a result there won't be clear tone patterns of these infinitives with two syllables. Having seen that, an alternative analysis is required for representation to show clear and acceptable tone behavior as shown here below:

(8)   (i). Kúle "to eat"

```
                 *
               Kule                Stem Accent Assignment
               *  ←    *
               Ku    le      Stem Accent Back Hopping
               *
               Ku le
                |
              LHL           Accent-BTM     Association
                  *
               Ku  le
               /| |
              L H  L                Melody Association
                  *
               Ku  le
               /|\ \
              L H  L                Low Tone Delinking

               Ku le
                |  |
                H  L                 Output [kúlè].
```

(ii). Kúshe   "to come"

                     *

Kushe   Stem Accent Assignment

   *   ← *

Ku she   Stem Accent Back Hopping

   *

Ku she
 |
LHL   Accent-BTM Association

 *

Ku she
 /| |
ĹH L̩   Melody Association

  *

Ku   she
 /\\ |
L H   L   Low Tone Delinking

Ku she
| |
H   L   Output [kúshè]

The derivations above have been used as one of an alternative analysis so that one can have clear tone patterns of these infinitives in Meru. In these derivations it is shown that, after stem accent assignment stage, one must apply the process known as stem accent back hopping and after, melody association, the other process which is low tone delinking has to be applied for one to have accepted output of these infinitives found in Meru language. Having used these procedures, the clear patterns of tone in these infinitives can be seen as verified above.

## B. Tonology in Simple Infinitives with Three Syllables

Simple infinitives refer to the infinitives with no object marker. In Meru language simple infinitives are marked by the prefix "ku'- and must appear at the initial part of verbs. Simple infinitives in Meru language show tone patterns based on the number of syllables. Let us see tone patterns by starting with simple infinitives with three syllables here below;

(9)   **Meru verbs**   **Gloss**

    (i). ku-sóm-e   "to read"

     Inf-read-FV

    (ii). ku-sik-e   "to cover"

      Inf-wash-FV

   (iii). ku-lósh-e   "to learn"

    Inf-learn-FV

From the data above, in simple infinitives with three syllables, the High tone is at the first syllable of the stem. The infinitive marker *"ku"* has low tone where also the final syllable of a stem has low tone. The study shows that, simple infinitives in Meru begins mostly at three syllable infinitives that is for *"to do"* though it is possible to have simple infinitives with two syllable *"to do"* but they are very rare. Simple infinitives with three syllables have end with final vowel (FV) vowel sound /e/ though vowels that forms these infinitives vary.

There is a question to ask ourselves, and the question is "where does tone comes from"? Goldsmith and other Scholars have done their studies on tone in different languages but no one has explained exactly where tone comes from. The study done by Goldsmith (1976) on Ci-Ruuri and he used star (∗) to mark accent.
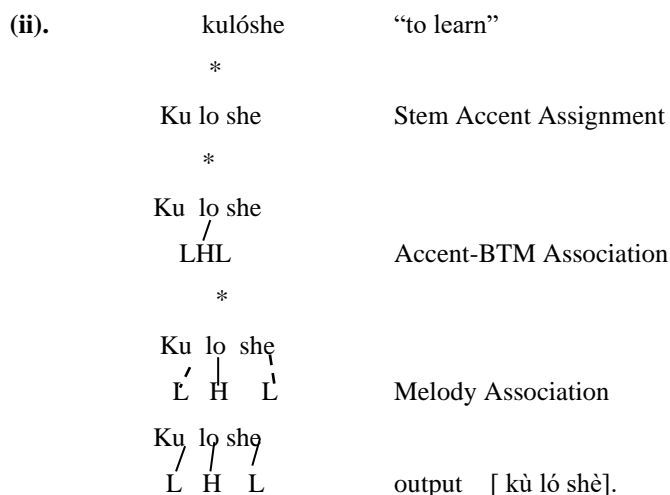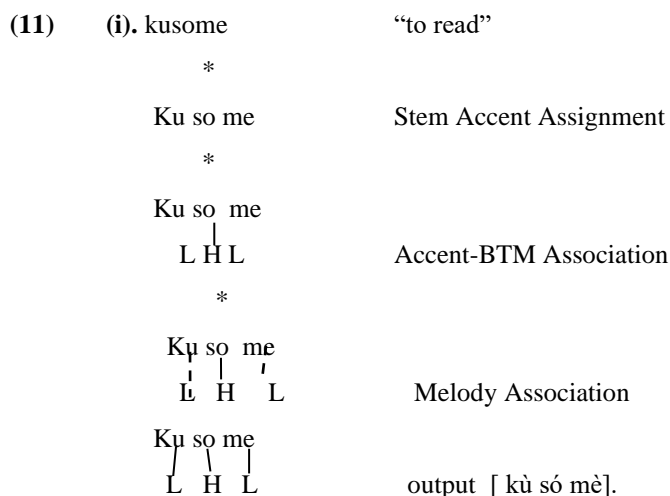
Accent assignment is the first step that guides one to have the acceptable form of tone behavior in any language that is considered to be tonal. Accent assignment rules differ from language to language though there is a possibility of having common accent assignment rules that may cut across various languages. The following is a hypothetical accent assignment rule;

(10)   ∗

　　　　　V ─────────────▶ V

　　　　　　　　　Or

　　　　　　　　　　　　　　　　　∗

　　　(C)V ─────────────▶(C)V
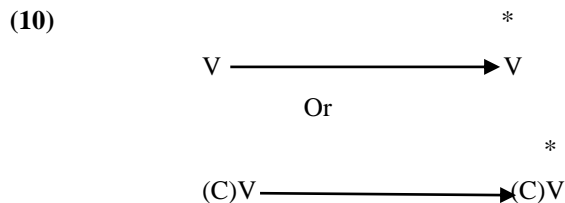
That is to say, vowel is accented.

Based on the hypothetical accent assignment rule above, infinitives in Meru language assign an accent at the first syllable of a stem and it is where other processes follow; stem accent copying (where possible), accent-BTM association , melody association, High spread, tone simplification, and finally output that gives the acceptable tone behavior in these infinitives.

Considering the accent assignment rule and data above, let us see the way through which infinitives can be derived in order to have acceptable the tone patterns;

(11)　　**(i).** kusome　　　　　　　"to read"

　　　　　　　　　∗

　　　　　Ku so me　　　　　Stem Accent Assignment

　　　　　　　　　∗

　　　　　Ku so me

　　　　　　　L H L　　　　　Accent-BTM Association

　　　　　　　　　∗

　　　　　Ku so me

　　　　　L　H　L　　　　　　Melody Association

　　　　　Ku so me

　　　　　L　H　L　　　　　　output [kù só mè].

(ii).　　　　　kulóshe　　　　　　"to learn"

　　　　　　　　　∗

　　　　　Ku lo she　　　　　Stem Accent Assignment

　　　　　　　　　∗

　　　　　Ku lo she

　　　　　LHL　　　　　　　Accent-BTM Association

　　　　　　　　　∗

　　　　　Ku lo she

　　　　　L　H　L　　　　　Melody Association

　　　　　Ku lo she

　　　　　L　H　L　　　　　output　[kù ló shè].

The derivations above have shown simple infinitives with three syllables for "to do". As represented based on the Auto-segmental theory above and the clear tone pattern is shown. The syllable of a stem, which is penultimate syllable, has to be assigned High tone while the first syllables that mark infinitives together with last syllable have Low tone.

C.   Tonology in Simple Infinitives with Four Syllables

Tone in simple infinitives with four syllables has shown a new pattern that has some differences from that of simple infinitives with three syllables as data below verify;

(12)　　　　　　**Meru   Verbs**　　　　**Glosss**

　　　　　　　(i). ku-som-íy-e　　　　　"to read for"
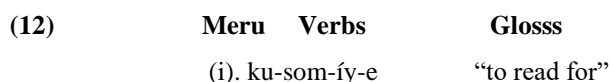
Inf-read-APPL-FV

(ii). ku-losh-íy-e   "to learn for"

Inf-learn-APPL-FV

(iii). ku-rish-íy-e   "to run for"

Inf-run-APPL-FV

Data above show simple infinitives with four syllables. These infinitives have new syllable that has been added to the stem that makes them different from simple infinitives with three syllables. The new syllable added is applicative (APPL) and does not vary in all data above and it takes penultimate position. Tone patterns in these infinitives with four syllables have some differences from that of infinitives with three syllables in Meru. Let us see the way through which auto-segmental derivations show the way tone behaves in these infinitives.

(13)   (i). kusómíye   "to read for"

                    *

          Ku so mi ye   Stem Accent Assignment

                    *

          Ku so mi ye
              |
              LHL   Accent-BTM Association

                    *

          Ku so mi ye
          | | |
          L H L   Melody Association

                    *

          Ku so mi ye
           | \ / |
          L   H   L   High Spread

          Ku so mi ye
          | | | \
          L H H L   Output   [kùsómíyè].

Based on the derivation above, when the forth syllable is attached to the infinitives with three syllables, the High tone must spread right ward or to the penultimate syllable of a stem. These make these infinitives to change from *"to do"* of three infinitive to *"to do for"* of infinitives with four syllables. Based on the fact that accent is marked at first syllable of a stem, the increase of syllables at these infinitives force High tone spread to the right side so as it can also be attached at penultimate of a stem. The infinitive marker in the infinitives with four syllables is still the same and has low tone together with final syllables of a stem. With these data, it is obvious that, when more syllables are added to a stem, the former tone pattern must change.

D.   Tonology in Simple Infinitives with Five Syllables

In Meru language, infinitives can also be found in five syllables. Most of simple Infinitives with five syllables are for "to do for each other". In order to have such infinitives, new syllable has to be added to the stem and the introduced syllable is reciprocal (REC) and it takes the penultimate position in the stem as shown in the data below;

(14)   (i).   ku-sóm-íy-én-y   "to read for each other"

                Inf-read-APPL-REC.FV

        (ii).   ku-sánj-íy-én-y   "to wash for each other"

                Inf-wash-APPL-REC-FV

        (iii).   ku-lósh-íy-én-y   "to study for each other"

                Inf-study-APPL-REC-FV

Data above show the constituent parts in each simple infinitive with five syllables. The data clarifies tone patterns in these infinitives that in Meru, simple infinitive with five syllables stands for 'to do for each other. In order to know the way of getting surface form from underlined form of these infinitives, here below is the way they are derived auto-segmentally:

(15)   . kusómíyény   "to read for each other"

                      *

              Ku so miyeny   Stem Accent Assignment

                      *

              Ku so mi ye ny
                  |
                LHL   Accent-BTM Association

                      *

              Ku so mi ye ny
                  | / |
                L   H L   Melody Association

                      *

              Ku so   mi ye ny
                | | / / |
                L   H   L   High Spread

              Ku so mi ye ny
                | | | | |
                L H H H L   Output   [kùsómíyény`].

The derivation above clarifies the way tone is marked at infinitives with five syllables that make it different from infinitives with three or four syllables. From the above derivation, high tone continues spreading to the right side of a stem due to the increased number of syllable added to the stem. It shows that, in infinitives with four syllables, High tone spread from the first stem of a syllable to the third syllable of a stem which is also the penultimate syllable. The infinitive marker which is also the initial part of the infinitives and the final syllable all together have low tone. Tone in infinitives has shown behavioral change as a result of increasing number of syllables.
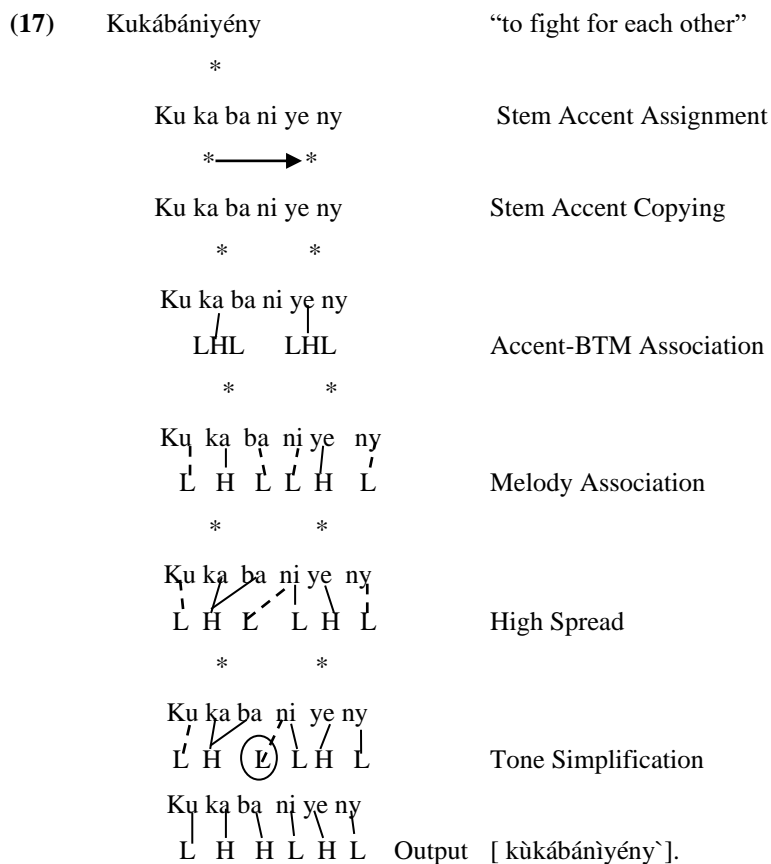
E.   Tonology in Simple Infinitives with Six Syllables

From the study, simple infinitives with six syllables have been found with very different tone behaviors from that of three, four and five syllables. Let us consider the following data;

(16)   (i).   Ku-kábán-ìy-én-y   "to fight for each other"

                      Inf-fight-APPL-REC-FV

          (ii).   Ku-sálál-ìy-én-y   "to supervise for each other"

                      Inf-supervice-APPL-REC-FV

          (iii).   Ku-térév-ìy-én-y   "to prey for each other"

                      Inf-prey-APPL-REC-FV

          (iv).   Ku-tísír-ìy-én-y   "to write for each other"

                      Inf-write-APPL-REC-FV

          (v).   Ku-rúmbúky-ìy-én-y   "to jump for each other"

                      Inf-jump-APPL-REC-FV

From the data above, the constituents of a stem still look similar to that of simple infinitives with five syllables regardless of the increased syllable but different tone patterns. This indicates that, the large the number of syllables the longer the stem. Data above indicates that, there must be two stems where an accent must be assigned hence tone accent copying and finally tone simplification where low tone get deleted in order to have clear patterns of tone in these simple infinitives with six syllables.

Based on tone patterns, the data above from Meru language assign High tone at the first two syllables of a stem together with the penultimate syllable while the infinitive marker, third syllable of a stem and final syllable have low tone. In order to come up with clear tone patterns, let us see the following derivations;

(17)   Kukábániyény   "to fight for each other"

                              *

          Ku ka ba ni ye ny   Stem Accent Assignment

              ———▶

          Ku ka ba ni ye ny   Stem Accent Copying

                 *   *

          Ku ka ba ni ye ny
              LHL   LHL   Accent-BTM Association

                 *   *

          Ku ka ba ni ye ny
           Ľ H Ľ Ľ H   Ľ   Melody Association

                 *   *

          Ku ka ba ni ye ny
           Ľ H Ľ´   Ľ H Ľ   High Spread

                 *   *

          Ku ka ba ni ye ny
           Ľ H Ⓛ Ľ H Ľ   Tone Simplification

          Ku ka ba ni ye ny
           Ľ H H Ľ H Ľ   Output   [kùkábánìyény`].

Data above shows clear tone patterns in simple infinitives with six syllables in Meru language; based on these data with six syllables, after stem accent assignment, stem accent copying must take place in order to have proper Accent-BTM Association. Also after high spread, tone simplification must be applied in order to have accepted tone patterns in infinitives with six syllables.
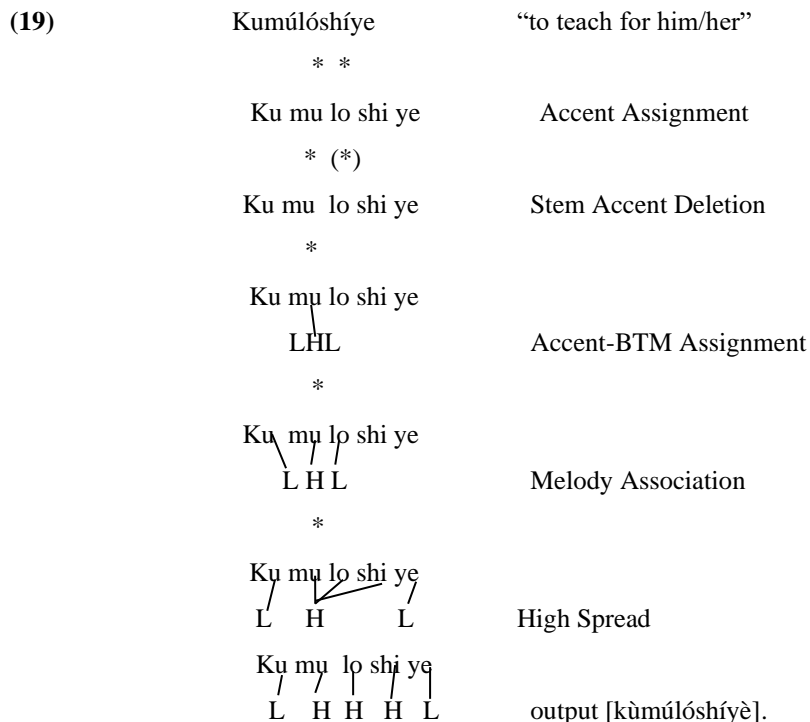
V.   TONOLOGY IN COMPLEX INFINITIVES

The behavior of tone in complex infinitives has also been the focus of this study. Complex infinitives refer to the infinitives with object markers. Object markers can be one or more than one depending on the language. Object markers differ across languages in the aspect of where they are marked; word initial, middle or final position; their number and conditioning environment. There are languages where these object markers are obligatory and optional in the other languages and for that instance, these object markers may either be similar or different from language to language. Object markers in standard Kiswahili are marked before the first syllable of the stem, and they are optional in some environments. For the case of Meru language, the object marker is similar to that of Standard Kiswahili as they are marked or placed before the first syllable of a stem.

The tone in complex infinitives is marked at two syllables which are; at object marker (OM) of these infinitives and at the first syllable of a stem which comes after the object marker. When the succession of two accent assignment occurs consecutively, the accent assigned at the first syllable of a stem becomes inferior from the accent assignment at object marker and for that case it must be deleted. The deletion makes the accent assigned at the object marker much stronger. Let us observe the following complex infinitives in Meru;

 (18)   **Complex infinitives in Meru**   **Gloss**

          (i).   Ku-mú-lósh-íy-e   "to teach for him/her"

                   Inf-OM-teach-APPL-FV

          (ii).   ku-mú-káb-íy-e   "to punish for him/her"

                   Inf-OM-punish-APPL-FV

The data above shows complex infinitives in Meru language and these infinitives constitute of infinitive marker at initial position, object marker (OM), the stem, applicative (APPL) and final vowel (FV). In these data, only infinitives with object marker of third person in singular form have been shown and the object marker for these infinitives is morpheme "mu". In the observation above it is shown that the infinitive marker has low tone while the object marker and two first syllables of a stem have High tone and finally the final vowel has low tone. These data can be derived as follow based on the Auto-segmental theory:

(19)   Kumúlóshíye   "to teach for him/her"

                        * *
            Ku mu lo shi ye   Accent Assignment
                    * (*)
            Ku mu lo shi ye   Stem Accent Deletion
                    *
            Ku mu lo shi ye
                LHL   Accent-BTM Assignment
                    *
            Ku mu lo shi ye
                L H L   Melody Association
                    *
            Ku mu lo shi ye
            L   H   L   High Spread

            Ku mu lo shi ye
            L   H H   H L   output [kùmúlóshíyè].

Based on the derivation above, accent assignment is at both object maker and the first syllable of a stem but based on the fact that basic tone melody (BMT) is LHL the accent assignment at these two consecutive syllables will result into un-acceptable tone pattern. Always in sequences like this, the accent assignment at first syllable of a stem becomes weak and gets deleted while that of object marker becomes stronger. The High tone as assigned to the object marker has to spread through the right side syllables except for the final syllable that will end up with low tone. This is the very alternative way through which one can come up with clear tone patterns of these complex.

VI.   CONCLUSION

The study covered the behavior of tone in simple and complex infinitives found in Meru language. Based on the discussion of the findings, Meru language is tonal like other Bantu languages in that meaning can be differentiated based on the behavior of tone. Also, the Basic Tone Melody (BTM) is LHL.

The study shows that, if an accent is assigned at first syllable of a stem especially at simple infinitives with three to five syllables, one will have an acceptable form of tone easily since no complications like in other infinitives. For simple infinitives with two syllables, there must be stem accent back hopping process and for simple infinitives with six syllables, stem accent copying at penultimate syllable is important where after high spread there is tone simplification. For the case of complex infinitives, accent assignment must be at an object marker (OM), and that of the first stem of a syllable must be deleted.

VII.   RECOMMENDATIONS FOR FURTHER STUDY

The study concentrated specifically on the tonology of simple and complex infinitives as a topic of the study in Meru language of the Northeastern Tanzania. Apart from this topic of the study, there are other areas of language that need a scientific study. There is a need for further study on tones like tone behavior in verbal extensions, passive verbal extensions, reciprocal verbal extensions and applicative verbal extensions. Also, there is a need for research on the behavior of tone at a nominal level on how the meaning of nouns changes based on the tone assignment.

Furthermore, since this study is phonological in nature, still other levels of language like morphology, syntax, semantics and pragmatics, need to be examined so as to answer questions from many researchers and linguists. Doing a research on the recommended topics above, will give a wide knowledge on how language is and also it is the way through which future generation can benefit from the linguistic point of view. Meru; the native speaker and non-Meru native speakers who are scholars or linguists should carry out the study on the suggested areas.

REFERENCES

[1] Chongowe, B. and Ismail, J.H. (2022). *The Study of Tone in Kinguu Infinitive Verbs*. IJELS:

[2] Goldsmith, J. (1976). *Auto-segmental Phonology*. Doctorial Dissertation. MIT.

[3] Guthrie, M. (1948). *The classification of Bantu languages*. London: Oxford University Press.

[4] Harjula, L. (2005). *Morphology Parsing of Tone: An Experiment with Two –Level Morphology on the Ha Language*. Nordic Journal of African Studies: University of Helsinki.

[5] Hyman, L. M. (2013). *Morphological Tonal Assignments in Conflict: Who Wins*? University of California: Berkeley.

[6] Leben, W. R. (1973). *Saprasegmental Phonology*. Doctoral Dissertation. MIT.

[7] Lewis, M. (2013). *Ethnologue:* Language *of the World*. 17th Edition. Texas: SIL.

[8] Massamba, D. P. B. (1984). *Tone in Ci-Ruuri*. In Clements, G.N &Goldsmith, J. Auto-segmental Studies in Bantu tone. Doudrecht-Holland: Foris Publications.

[9]   (2010). *Phonological Theory: History and Development*. Institute of Kiswahili. Dar-es salaam.

[10] Massele, B. F. Y. P. (2000). *Nomonal Tone in Jinakiiya Dialect of Kisukuma.* In Kahigi K. Lugha za Tanzania. The Nertherland: Leiden University, Research School CNWS Publications

[11] Matondo. M. (2006). *Tonal Transfer in Kisukuma.* In Selected Proceedings of 35th Annual Conference on African Linguistics ed. Mugane J. 125-135 Somerville, MA: Cascadilla Proceeding Project.

[12]   (2003). *Tone and Prosodic Morphology in Kisukuma*. Unpublished Ph.D   dissertation: UCLA.

[13] Moore, S, F & Puritt, P. (1977). *The Chagga and Meru of Tanzania*. London: IAI.

[14] Mwita, L. C. (2008). *Verbal Tone in Kuria*. Los Angeles: Ph.D. Dissertation University of Califonia.

[15] Nurse, D. & Philippson, G. (2003). *The Bantu Languages*. London and New York: Routledge.

[16] Samuel, J. T. B. (2013). *Britannica*, Inc Http: //www. Britannica.com/Ebchecked/topic/ 52206/ Bantu-languages.

[17] Thomas, T. S. (1997). *Mountain Formers: Moral Economies of Land and Agricultural* Retrieved from: www.sido.go.tz.

[18] William, D. (1971). *Understanding Tone in Margi and Igbo*. Linguistic Inquiry 7.463-484