THE TONE SYSTEM OF KIKAMBA: A CASE STUDY OF MWINGI DIALECT

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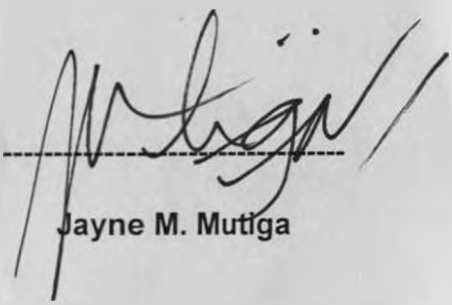
A thesis submitted in fulfillment of the requirements for the degree of Doctor of Philosophy of the University of Nairobi

August 2002

DECLARATION

This thesis is my original work and has not been submitted for examination in any other University



Jayne M. Mutiga

This thesis has been written under my supervision and submitted for examination with my approval

Professor Duncan Okoth Okombo

DEDICATION

To my father
who holds education so dear and
whose achievement this really is

To my mother
who taught me the value of hard work and consistency
who prays for me always

To David, my husband,
whose love and patience has never failed

And to our children
Sheila and Bj
for their patience and tolerance

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KEY TO SYMBOLS AND ABBREVIATIONS

ø	zero morpheme
H	high tone
L	low tone
HL	falling tone
SL	superlow tone
SH	superhigh tone
ɲ	palatal nasal
ŋ	velar nasal
j	palatal glide
ɯ	velar glide
ð	voiced interdental fricative
ɣ	voiced velar fricative
d	voiced alveolar plosive
g	voiced velar plosive
t	voiceless alveolar plosive
k	voiceless velar plosive
m	bilabial nasal
n	alveolar nasal
i	+ATR (Advanced Tongue Root) high front vowel
e	+ATR high-mid vowel
r	non-lateral liquid
l	lateral liquid
ɛ	-ATR high -mid vowel
a	low vowel
ɔ	-ATR high-mid vowel
o	+ATR high-mid vowel
u	+ATR high back vowel
α	± ATR
V_1	vowel 1

V_2	vowel 2
ß	voiced bilabial fricative
ts	voiceless alveolar fricative
[ ]	encloses a phonetic transcription
/ /	encloses a morpheme
→	re-written as .....
sg.	singular
tns	tense
(md)	mood
neg.	negative
imp.	Imperative
foc.	Focus maker
fv.	Final vowel
cl.	noun class
pl.	plural
/	syllable boundary
#	word boundary
+	morpheme boundary
ATR	Advanced Tongue Root
MDK	Mwingī Dialect of Kīkamba
SPE	Sound Pattern of English
MIT	Massachusetts Institute of Technology
WFC	Well - Formedness Condition
AC	Association Conventions
EST	Extended Standard Theory
GTGF	Generative Transformational Grammar Framework
IAR	Initial Association Rule
OCP	Obligatory Contour Principle
IMP	Imperative
TIR	Tone Intensification Rule
tbu	Tone -bearing Unit
tbus	Tone -bearing Units

ACKNOWLEDGEMENTS

Many friends and colleagues helped me in one way or another during the process that culminated into this document. To them I would like to express my sincere gratitude and appreciation.

I would like to acknowledge the help of my two supervisors at the University of Nairobi: Professor D. Okoth Okombo and Dr. E.M. Yokwe.

Prof. Okombo helped me in the conceptualization of the research problem, presentation of tone and in the organization of my argumentation. Inspite of his busy academic schedules and life-style, Prof. Okombo found time to guide and support me through this work. I thank him ever so much.

Dr. Yokwe was involved in this work at its initial stages. He helped me in the organization and presentation of data. However, due to unforeseeable circumstances he could not continue working with me to the completion of the project. I thank him nonetheless for his input.

I would like to thank the German Academic Exchange Service (DAAD) for awarding me the scholarship for this study and in addition a six-month study visit to Bayreuth University, Germany.

I would like to thank Professor Dr. Franz Rottland (formerly of Institute of African studies, Bayreuth University) for hosting me in the Institute, guiding me in my literature review and helping me in the initial testing of the data.

Equally, I would like to thank the University of Nairobi for nominating me for the DAAD Scholarship and later allowing me a six-month study leave to visit Germany.

I would also like to thank Dr. Angelina N. Kioko for ably helping me to hear tone and for the much-needed moral support.

Further, I would like to acknowledge the help of my husband David. In more ways than one David's involvement and tireless help in my work has been invaluable. I thank him specifically for organizing the typing and layout of this work, and for being there when I needed a shoulder to lean on. Our two children Sheila and Bj deserve my gratitude and appreciation for their patience and understanding.

To my friends of the Home Bible Study Fellowship: Steve & Elizabeth Mutua; Kirabo & Mary Lukwago; David & Delina Odera; and Steve & Anne Muhudhia — thank you for standing in the gap. I knew I could count on you.

Many thanks also go to Marriage Enrichment Ministry co-workers for releasing me on Sabbatical from Ministry responsibilities so that I could concentrate on this research.

And to all my friends, family and colleagues whose support I have not found space to mention specifically: thank you very much.

ABSTRACT

This study is an investigation of the tone-system of the Mwingī dialect of Kīkamba (MDK). It identifies and describes the tone patterns of the MDK as well as their lexical and grammatical functions. It also shows the relevant processes of tone association.

The research was based on the Autosegmental theory of phonology as presented by Goldsmith (1990) and other authorities referred to in this work, as the model for representing, analysing and describing tones and their associations.

Chapter one gives the background to the problem of this study and states the objectives and hypotheses of the study. It also gives a review of the relevant literature and states the theoretical framework within which the study has been conducted.

Chapter two examines the phonological and morphological phenomena relevant to the study. It describes the phonological and morphological structure of Kīkamba in general and shows what segments are specifically found only in MDK. It goes further to discuss the vowels and aspects of their phonological behaviour that may create changes in words, thus affecting tone in the language. This chapter also discusses the consonant system of Kīkamba and gives a detailed description of the nouns by identifying the noun classes and showing the relationship between these classes. Finally it gives an overview of the syllable structure. This chapter is vital to this study as it provides the

phonological and morphological information to be used for the discussions raised later in the study.

Chapter three demonstrates the nominal structure of MDK words and their tonal patterns. The number and kinds of tones found in the MDK nouns are identified and their underlying and surface manifestations are discussed. Affixation on MDK nouns is also discussed together with its effect on the nouns. Furthermore, it is in this chapter where the functions of tone on MDK nouns are identified.

Chapter four deals with MDK verbs. It begins with a description of the segmental and tonal structures of the imperative verb. It then proceeds in a similar manner to describe the infinitive verb. This chapter also analyses the tensed MDK verb, looking at the present tense, the past tense and the future tense. The chapter demonstrates further the segmental properties of the tensed verb and the tonal structures that govern such properties.

Chapter five determines the association patterns of MDK tones identified in the nouns and verbs in chapters three and four, respectfully. It goes further to show that the four contrastive surface tones of MDK have lexical and grammatical functions as illustrated in chapters three and four. It is demonstrated here that by use of Autosegmental rules the underlying behaviour of MDK tones can be discovered. Using the principles of Autosegmental analysis and language specific rules of MDK, it is demonstrated that

MDK tones associate with tone-bearing units to bring about the surface tones from the underlying ones.

Finally, chapter six gives a summary of the findings of this study. It also indicates the contribution of the study to Linguistics and draws conclusions from the research findings. The chapter ends by indicating aspects of this study which require further investigation.

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.0 Overview

Our paramount concern in this study is to investigate the tone system of the Mwingī dialect of Kīkamba (MDK). The aim was to identify and describe the tone patterns of MDK as well as their lexical and grammatical functions. This study also endeavours to show the relevant processes MDK uses to associate tone to tone bearers.

This research bases its argument on the Autosegmental theory of phonology presented by Goldsmith (1990) as its model in the presentation, analysis and description of MDK tones and their associations.

This chapter includes the issues that cumulatively form the fundamental basis for the research proposal for this study. The most salient of these issues include the statement of the Research Problem, the Objectives and the Scope of the Study, the Methodological Framework and the review of the Autosegmental Framework and other relevant literature.

1.1 The Language and the People

Kīkamba is a Bantu language spoken mainly in Machakos, Makūeni, Mwingī and

Kītui Districts of the Eastern Province of Kenya. The native speakers
themselves Akamba and their homeland Ukamba. Outside of these fo
comprise the homeland of the Akamba, a sizeable number of Kīkamb
settled in Mwea Division of Kirinyaga District, Ithanga Division of Thik
as in Kilifi, Taita-Taveta and Kwale Districts of the Coast Province of K

According to the Kenya National Census of 1989, there are more t
speakers of Kīkamba in Kenya. The most recent National Census,
inhabitants of the four Ukamba districts close to 3 million people. Of
million live in Mwingī District.

According to Guthrie (1967), Kīkamba (Kikamba) belongs to the ce
Bantu languages of Kenya and was categorised as belonging to grou
language unit 5 of group 50, situated in zone E in Guthrie's classi
therefore belongs to the same branch as the Kikuyu, Meru, Embu, Th
languages.

In most literature and by most non-Kīkamba speakers, the bound morp
been inappropriately used to refer to the people, the language and th
morpheme however, is a nominal root and has no other semantic valu
a root morpheme. It acquires the status of a word only when it has the
that mark noun classes in the language, as in example 1 below:

(1)

a) a + kamba - Akamba, the speakers of Kīkamba

b) mū + kamba - Mūkamba, One speaker of the languag

c) kī + kamba - Kīkamba, the language of the Akamba

d) ū + kamba - Ūkamba, the homeland of the Akamb

Although no linguistic survey has been carried out to demarcate Kīkamba dialects, nativ speakers of the language are able to identify where speakers come from by their speec or variety of the language they speak. In doing so, Kīkamba speakers are able t differentiate between five major varieties or dialects of the language. Our observation i that two of these dialects are in Kītui District, one in Machakos District, one in Makūeni an the fifth in Mwingī District.

These dialects are as follows:

1. **The Eastern Kītui dialect**, spoken with variations in Eastern and Southern Kītui. Th two regions border each other and the variation of the dialects spoken here are not s distinct as to warrant classifying them into two dialects (Maundu 1980).

2. **The Central Kītui dialect,** spoken in the rest of Kītui District - again with variation.

3. **The Kītui North dialect**, spoken in the former Kitui North region which is now Mwin

District. For the purposes of this research we shall call this variety the **Mwingī dialect**.

4. **The Machakos variety** (better known to Kīkamba speakers as Kīmasakū), spoken with variation in the whole of Machakos District. This is the variety treated as standard Kīkamba. It is normally the one taught in the lower primary schools in Ūkamba and to non-native speakers learning the language. It is also the variety used in Kīkamba broadcasts and in print such as literature, grammar books and in the Bible.

5. **The Kīlūngū dialect**, spoken with variations in Makūeni District.

Researchers on different aspects of Kīkamba have made observations on regional variations of the language. Lindblom (1926) recognised two dialects: The one he called 'Thaisū', spoken in what was then Thaisū region, which later came to be called Kītui District; the other he called the Ulū Dialect, which was spoken in the region then called Ulū - the present Machakos District.

Maundu (1980), on the other hand, recognised four dialects, two spoken in Machakos District and two in Kītui District. According to Maundu, of the two dialects spoken in Kītui District, one is spoken in Kitui North region, (now Mwingī District), while the other is spoken within the rest of the Kītui District. And of the two Machakos dialects, one was spoken in the then Kīlūngū Division, of the present day Makūeni District, while the other is spoken within the rest of Machakos District.

This research recognizes the four major regional dialects of Kīkamba as cited by Maundu (op.cit.). It goes further to observe that the four dialects have developed from two regional dialects, a Machakos dialect and a Kītui one. The Akamba call the dialects Kīkītui and Kīmasakū and their speakers Akītui and Amasakū , respectively.

The Kīkītui dialect, spoken in Kītui and Mwingī districts as earlier stated, can be broken further into two dialects or sub-dialects: Mwingī dialect, spoken in Mwingī District (this being the dialect Maundu refers to as the Kītui North dialect) and the Kītui Central dialect, spoken in the central part of Kītui District together with the Eastern Kītui variety, which is spoken with variations in both the Eastern and Southern parts of Kītui District.

On the other hand, the Kīmasakū dialect is spoken with some variation in Machakos and Makūeni Districts. The variety spoken in Makūeni is referred to, by its speakers, as Kīkīlūngū while the one spoken in Machakos District is simply known as Kīmasakū. Maundu (op.cit.). The Kīmasakū and Kīkītui dialects are marked by tonal differences among other features. For example, where Kīmasakū speakers use a high tone, the 'Kīkītui' speakers in most cases tend to use a non-high tone. According to our observation tone is a major distinguishing factor in the Kīkamba dialects; the other prominent factor is the phonological substitution of the cluster sounds [nz] for [nð] by the Kīkītui speakers, as seen in example 2:

(2)

	Kīmasakū	Kīkītui	Gloss.
a)	[nðe] H	[nze] H	earth
b)	[nðakamɛ] H H H	[nzakamɛ] H H H	blood
c)	[nðɛŋgɛ] L L	[nzɛŋgɛ] L L	he goat

The (object) language of this study is the Mwingī dialect (of the Kīkītui variety), which is marked by the presence of such sounds as:

(3)

[ɤ], [ts] and [r]

Two of the above sounds namely [ɤ] and [r] are also found in other central Kenya Bantu languages such as Kīkūyū, Kīembu and Kīmeru.

The Mwingī dialect may have borrowed the sounds from these languages since the dialect is in very close proximity to them. It may also be the case that these sounds were part of Kīkamba and that other dialects have lost them through historical change. Whichever of the two hypotheses is plausible is not considered herein as it lies outside the scope of this study.

1.2 Statement of the Problem

Although it is recognized that Kīkamba is a tonal language (Ford 1975), it is not known what the tone functions, patterns and (tone) bearing units are in a specific dialect. Further, it is not known what rules relate the tones to the tone bearing units and what phonological processes regulate these patterns.

Previous attempts at the description of Kīkamba tone by Ford (1975) and Kioko (1994) have been based on the standard Kīkamba variety only. The tone system of the Mwingī dialect of Kīkamba has received no previous description at all. There is therefore need to do a detailed and systematic description of the tonal patterning of the morphological constructions and the phonological sequences of this dialect. This study is motivated by the more general need to identify and describe the tonal shapes of words; and to investigate how these tonal patterns associate with the words.

Taking the Mwingī dialect of Kīkamba as one specific and, therefore, more reliable source of data (than the vaguely defined notion of Standard Kīkamba), the issues raised above concerning Kīkamba tones can be investigated in a systematic manner. Such issues, addressed in relation to the Mwingī dialect, constitute our research problem in this study.

For the sake of convenience Mwingī dialect of Kīkamba shall henceforth be referred to as MDK unless the writer considers it contextually necessary to use the full expression.

1.3 The Objectives of the Study

In relation to the research problem stated in 1.2, the objectives of the study are to:

1. identify and describe the tone patterns of MDK;

2. establish the functions of tone in MDK;

3. identify the tone bearing units in MDK in terms of the association principles of Autosegmental phonology; and

4. determine the tonal processes of MDK in given phonological and morphological environments.

1.4 Hypotheses

The following hypotheses are tested in this study;

1. MDK has a distinguishable tonal system;

2. Tone has both lexical and grammatical functions in MDK;

3. The tone-bearing unit of MDK is the vowel;

4. The observable characteristics of tonal elements in MDK are governed by a set of generalisable morphological and phonological processes;

5. MDK can be defined tonally as a separate variety of Kĩkamba.

1.5 Theoretical Framework

As indicated earlier in this study (1.0), this research will be treated in the framework of the Autosegmental theory of phonology as briefly explained below and in 1.6. This is a theory that was developed by Goldsmith (1976) and has since been enriched subsequently by other language researchers (See 1.6).

The aim of this research is to describe and analyse the tone patterns of MDK words. In our description we hope to identify the MDK tones and units that bear them while in the analysis we will show how the tones relate to the tone bearing units.

The description will be done using general principles of Generative Phonology as contained in the relevant literature (cf. Hyman 1975). We will show the segmental and the suprasegmental features of MDK and how they enter into the combination in the formation of words. The Autosegmental theory then will be used in the analysis of the units that have been identified, to explain how the tones relate to the bearing units.

Before the advent of Goldsmith's Autosegmental theory as presented in Autosegmetal and Metrical Phonology (1990), Phonologists viewed segments as arranged in a linear order on the same hierarchy. Autosegmental theory breaks this tradition and proposes that segments are arranged in tiers or different hierarchies, with tonal tiers above the segmental ones. These tiers relate through the Well-formedness Condition and Association Convention as well as any language specific rules.

1.6 Literature Review

The literature reviewed here includes previous works on Kīkamba and the theoretical literature on Autosegmental phonology.

1.6.1 Previous works on Kīkamba

Most books written on Kīkamba grammar are of a pedagogical nature. They are usually grammar books written by the Christian missionary educationists and by the colonial government for the non-native speakers who wanted to acquire a working knowledge of Kīkamba.

In this group of literature one finds such works as *Notes on Kamba Grammar* (Lindblom 1926), and others. In his work, Lindblom compares the differences in phonology and vocabulary between what he calls the 'aisū' and 'Ulū' dialects of Kīkamba (cf. 1.1). Although he looks at important grammatical categories such as adverbs, adjectives, pronouns etc, his work is different from this study in that it is not done within a modern theoretical framework and does not address our research problems as outlined in 1.2. above.

A Kamba Grammar (Farnsworth 1952) has grammar that is intended to be "helpful to those just beginning to study the language, and as a teaching guide for Europeans" (Preface). This work is of a prescriptive nature and is based on the English grammar model of the traditional school. Like the *Practical Introduction to Kamba* (Whiteley and Muli 1962), this work concerns itself with providing exercises that present the kind of sentences the European government officers are likely to require in their work within the region. Farnsworth (1952) is a morphological analysis of the verbs and the nouns of Kīkamba and

does not contain much, if anything, that is of direct relevance to our study.

There are however, few Kīkamba studies that are based on modern theoretical approaches to language description. One such work is Ford (1975), which is the only existing study of the tone and intonation of Kīkamba. This study describes the tone system of the Kīkamba language spoken in Kangundo in Machakos District and treats it within the framework of the transformational generative grammar.

Other theory-based descriptions of Kīkamba include Maundu (1980), which examines the Kīkamba consonantal sounds with the aim of reconstructing an earlier system of sounds that gave rise to the present day consonants. Although this work is concerned with the phonology of the language, it does not concern itself with matters of tone.

Mutisya (1986) compares the concordial agreement systems in Kīkamba and Kiswahili. This work is a morphological study of the noun class systems of Kīkamba and Kiswahili.

Mwove (1987) attempted a syntactic analysis of the Kīkamba noun phrase. Her study aimed at outlining the noun-phrase constituents and discussing their order of occurrence in relation to head-noun, and in relation to other noun phrases. This work is treated within the Extended Standard Theory (EST), a syntactic theory, and does not address Kīkamba tone in any way.

Mwove, appearing as Kioko (1994) is the one researcher who has significant work on Kīkamba tone. In her Ph. D thesis titled *Issues in the Syntax of Kīkamba: A Bantu Language*, she dedicated a chapter to a detailed description of the tone patterns of Kīkamba words. We find Kioko's work on Kīkamba tone very useful and insightful. Although we have benefited from her insight in various aspects this study is significantly different from hers. For example, the dialects studied and the theoretical approaches are different.

Like Kioko (1994), the above works on Kīkamba do not address the tone system of MDK. This is the gap that this study addresses itself to. As we have pointed above, this study also employs a theoretical framework, which has not been used before in the analysis of Kīkamba tones.

Generally the study of tone in African Languages has acquired a relatively recent interest with the attitude of many linguists changing significantly. We now find that Bantu linguists are attempting to say something about tone even when tone is not the focus of their research. This increased interest in the study of tone is evident in the number of modern texts being published recently on this area. These include Fromkin (1978), Leben (1980), Goldsmith (1976), *Bantu Linguistics* (ILCAA) Vol. 1 (1987) and Vol. 4 (1989). The last two contain extensive studies on the tone systems of Tanzanian and Zambian languages.

Ford's (1976) findings in his later works on tone is of great interest to us. He observes that a group of African languages may have the same underlying tones but differ on the surface realisation because of differences affecting surface realisations of tone in specific languages. After analysing the tone systems of central Kenya Bantu languages, Ford concludes that:

> Among this group of languages, lexical, syntactic and segmental differences are few though distinctive. The surface facts of tone are perhaps among the sharpest distinguishing characteristics (loc.cit.).

This review of the study of other Bantu languages is helpful to us as far as it exposes us to the general assumptions on underlying tones and general processes affecting their surface realisations.

None of these scholars, however, has done an analysis of the tone system of the MDK. This study as stated earlier (sections 1.2 & 1.3) will address itself to the tone system of MDK using the autosegemental theory.

1.6.2 Review of the Theoretical Literature

In the *Sound Patterns of English* (SPE) (Chomsky and Halle, 1968), it was assumed that such features as tone and stress, and possibly vowel harmony were super-imposed on the

segment. Both segmental and suprasegmentals were (thought to be) arranged in a row one after another. This assumption that phonological representations consisted of linear segmental and suprasegmental levels was taken for granted, and the question of how these two levels related to each other was never addressed.

However, around the mid-70s, a number of language researchers started to focus on the relationship between segmentals and suprasegmentals and the question to the fore-going assumption. Their findings revealed that the assumption was questionable, especially as far as the representation of tone was concerned. A key question raised was whether tonal properties such as [high], [low] or [rising] should be regarded as properties of a vowel, much in the same way that features such [back] or [round] are, or whether tonal properties are to be viewed as distinctive from the segmental representation of vowels.

Another question that concerned them was whether tone should be represented using diacritic marks like (́) for high, (̀) for low?. They also sought to understand whether Chomsky in SPE (and all the phonologists in his school of thought) were justified in their assumption that phonological representations are linear, with segments, both segmental and suprasegmental arranged in a sequence.

In 1976, Goldsmith came up with a proposal to answer these questions. In his proposal, division of speech in segments may proceed in different ways in language-specific cases. For example, while the parameters of place and manner of articulation are treated as

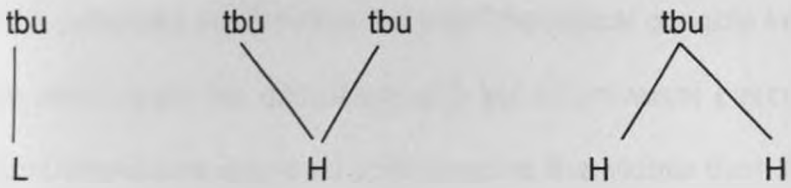
segmental properties belonging to particular consonants, there may be some language-specific cases where these properties may extend over several other segments. Nasalisation for example is a property of nasal consonants only, but it was observed in some languages it could be a property of the vowel, the syllable or even the whole word (1976: 135).

Central to this theory is the principle that various articulatory parameters such as aspiration, nasalisation, voicing and tone are autonomous, and the articulations resulting from them are independent.

Goldsmith called this theory Autosegmental phonology with the aim of highlighting the fact that in this model, the potential independence of different phonological parameters is considered crucial.

Autosegmental phonology was initially developed in response to the challenges of developing a theory that can describe tone. In the works of William (1971) and Leben (1973), the first non-linear structures were introduced into the generative phonology treatment of tone systems in West African languages. Leben called his model suprasegmental phonology. In this model, underlying tones were represented on separate tiers from the feature matrices representing vowels and consonants. These were subsequently merged with the same matrices by tone mapping rules that apply in the course of surface derivations, creating single- tiered representations in the structure.

This model, however, did not meet the criterion of Goldsmith's (1976) model, Autosegmental phonology, whose principle innovation was the idea that the tone mapping rules do not merge tonal and segmental representations but rather associate them by means of association lines. In Goldsmith's framework, phonological representations consist of parallel tiers of phonological segments , both tonal and segmental, which may take the following form:



Where L = low tone, H= high tone and tbu is any tone bearing unit, be it vowel or syllable.

Elements of each tier are called Autosegments and are sequentially ordered. Elements of adjacent tiers are simultaneous if and only if they are linked by association lines.

As shown above, tones are not necessarily related to tone-bearing units on a one-to-one basis. Rather, one tone may be linked to two or more tone-bearing units and one tone-bearing unit may be linked to two or more tones , as is the case in a falling or rising tone.

Phonological rules may introduce or delete elements on any tier, but because each tier is independent, deletion of an element on one tier does not entail deletion of the element or

elements to which it is linked on another tier. The function of phonological rules in this model is that of creating and modifying the patterns of association among elements of different tiers. In this model, all tiers remain independent and are at no point merged together.

These conditions form a further innovation of the Autosegmental theory. They are a set of universal principles, which govern the multi-tiered structures of the representations. They are the principles which define the set of theoretical possible inter-tier configurations and which also trigger the operations of a set of universal pairing mechanism called Association Conventions whenever configurations that violate them arise. One important condition of the Association Conventions is that association lines must never cross.

The earlier version of this theory, Williams (1971) and (Leben 1973), required that every element be linked to at least one element on another tier at all stages of derivation. Later on, the theory has shown that certain tones could remain unlinked to tone-bearing units, thus accounting for the phenomena of the Floating Tones. Also, some tone-bearing units could be toneless thus creating the default tone as in tones that are inserted into representations only after the initial mapping processes have been carried out as explained in Clements and Goldsmith (1984) and Pulleyblank (1986).

In our analysis of MDK tone, we chose to use the Autosegmental theory version presented by Goldsmith (1976) which he later enriched (1990). Our choice is guided by the proposed

tenets of this version that shows tone as presented in a tier above the segmental tier and that the two tiers relate through the Well-formedness Condition and Association Conventions.

1.7 Definition of a Tone Language

According to Pike (1948), a tone language may be defined as a language having lexically significant, contrastive, but relative pitch on each syllable. However, according to Welmers (1973), in specific languages, pitches may contrast on some syllables qualifying them as tones but other syllables are toneless and that there may be other morphemes composed only of tone. Welmers modifies this definition by stating that "A tone language is a language in which both pitch phonemes and segmental phonemes enter into the composition of at least some morphemes" (1973:79-80). It is this modified version of Pike's definition that is used in this study.

1.8 Significance of the Study

Scholars who have so far carried out linguistic studies in Kĩkamba have mainly concentrated on other aspects of the language and have regarded tone as "a task best left to a special study" (Ford 1975).

In his work Ford described the tone and intonation of Kangundo dialect (considered the standard dialect) using the Generative transformational grammar framework. Ford's study was based on the speech of an individual, Michael Mulwa. Mulwa was a speaker of the Kīkamba variety spoken in Kangundo area of Machakos District. Although Ford mentions the Kītui variety of Kīkamba as a "language" to which he was introduced by a Mr. Boniface Kithita, he does not describe it. This study is therefore addressing itself to a gap in the literature to-date because general conclusions made by Ford (and other scholars) on the tone system of Kīkamba do not cater for the 'Kīkītui' dialects spoken in Kītui and Mwingī Districts.

The use of Auto-segmental theory, a relatively modern (though not the latest) one in the description and analysis of the tone system is further justification for the study. Such a theory should give us better insight into the tone system of Kīkamba than we have so far been able to get.

This study will also contribute to the discussion of basic issues such as Kīkamba orthography and adult literacy curricula. The descriptions of Mwingī dialect will facilitate the understanding of the differences between the dialect used in print (the standard) and other regional dialects.

1.9 Methodology

In this study, we have employed three data-collection techniques namely elicitation, introspection and naturalistic observation. Being a native speaker of the MDK dialect (born and bred in Mwingī), this researcher took advantage of her native competence to generate (through introspection) relevant data during the pre-field stages of the research. Such data helped in gauging the pertinent issues for the research problem. The data obtained in this manner was better subjected to checking during the field stage.

Using the elicitation method the researcher together with research assistants carried out interviews with other native speakers of MDK. The interviewers sought the lexical items such as the nominals, verbals, adjectivals, adverbials, demonstratives, prepositions and particles. Informants were asked to utter such lexical items in isolation as well as put them in grammatical phrases and sentences. This information was recorded on tapes and notebooks.

The naturalistic observation method involved listening to the native speakers without necessarily soliciting information from them. In the course of this study the researcher observed and wrote down what seemed to be pertinent utterances during her contact with the speakers. The researcher noted and included in the data any additional features that were reflected on the tonal characteristics MDK.

In view of the researcher's knowledge of the dialects of Kīkamba and the study area, sampling in this study was based on the judgement sampling approach. As explained by Smith (1984) (quoted in Adhiambo-Oduol (1990:37).

> " When we know the composition and the characteristics of the target population, it is not important to strictly observe the principle of random selection to ensure reasonable representativeness."

The basic requirements for our informants were that they be native speakers of MDK, born and brought up within the area, which is now Mwingī District. The data collected was arranged in paradigms such as lexical items appearing in isolation as well as in phrases and sentences. The tone patterns emerging were then analysed according to principles of the autosegmental theory of phonology.

1.10 The Scope of the Study

The aim of this study as stated earlier (1.2) is to examine the tonal system of MDK as spoken in Mwingī District. The study is therefore not concerned with other dialectal differences that mark Kīkamba dialects in general. The study of the other dialects of Kīkamba therefore falls outside the scope of this study and these will only be mentioned to the extent that they further the understanding of MDK.

CHAPTER TWO

PHONOLOGICAL AND MORPHOLOGICAL BACKGROUND

2.0 Overview

This chapter represents a basic account of those areas of Kīkamba (MDK) phonological and morphological properties that are directly relevant to our discussion of the tone system. The chapter will serve as a necessary background to the analysis of the tonal data presented in the rest of the study. For ease of representation and analysis, data in this chapter is presented in phonetic symbols.

This chapter is divided into two sections namely, the introduction to Kīkamba phonology and introduction to Kīkamba morphology. In the introduction to Kīkamba phonology, we discuss the vowel and the consonant systems of Kīkamba. We also mention the autosegmental (suprasegmenal in traditional terms) features, mainly the tone system.

In the introduction to Kīkamba Morphology, we discuss the noun class system and the syllable structure of the language. This will be the basic morphological domains from which we draw information to be displayed as discussed in chapters three, four and five.

2.1 Introduction to Kīkamba Phonology

The phonological system of Kīkamba is made up of both segmental and autosegmental features. The segmental features in the language include the vowels and consonants. Apart from vowel length and the tones, not much has been revealed at the autosegmental level. However, since our concentration is on tone, we cannot claim any finality of findings on this matter.

2.1.1 *A phonetic overview of the vowel system*

Kīkamba, like all the other Central Kenya Bantu languages namely; Kikuyu, Kimeru, Kiembu, Kitharaka and Kimbere, has a seven vowel system (cf. Kioko 1994). The seven vowels of Kīkamba are accompanied by vowel length. Thus, each vowel has a long and a short distinction, this doubles the number of vowels from seven to fourteen as seen in the following vowel charts:

(4) **The Vowel Chart**

a) Short Vowels

	Front		Back
High	i		u
Mid	e		o
		ɛ ɔ	
Low		a	

b) Long vowels

	Front		Back
High	ii		uu
Mid	ee		oo
	ɛɛ		oo
	ɛɛ		ɔɔ
Low		aa	

The seven phonologically distinct (short) vowels correspond to the Proto- Bantu vowel system reconstructed by Meinhöf (1932). The Kĩkamba vowel system consists of two high vowels; two mid-high vowels, two mid-low vowels and one low vowel. Thus, the system has three front vowels and four back vowels, as shown in (4a) above.

It is worth noting that the Kĩkamba mid vowels are in pairs of high and low counterparts. This is evidenced by the mid back rounded +ATR vowel [o] which has for a counter part the -ATR [ɔ]. Similarly the mid front +ATR [e] has a -ATR counterpart [ɛ]. The rest of the vowels do not have counterparts.

The long vowels are represented in orthography as a sequence of identical vowels and at other times as single vowels. However, every co-occurance of identical vowels does not always occasion a long vowel, see example (5):

(5)

a) mu: - type of fruit

H

b) mbu: - a scream

H

At times, however, such vowels do represent distinct syllables, bearing their own tones as may be seen in (6) below:

(6)

a) [ovɔɔ] - news/ information
L HL

b) [wɔɔ] - pain
HL

c) [mboo] - red ochre
HL

We have observed that Kīkamba words can have a sequence of up to eight vowels, with each bearing its own tone, as exemplified by (7) below:

(7)

[aoaoeaa i] - "be repeatedly and habitually off-
L H HH H H H HL loading for someone."

This stringing of vowels in Kīkamba words is a consequence of a historical consonant loss. Maundu (1980) reports that Kīkamba has historically lost two consonants [r] and [ɤ]. This, however, seems to be the case only in the Machakos dialects and not in all the Kītui dialects. In the Mwingī dialect, for instance, both sounds [r] and [ɤ] are evident in some lexical items where speakers use or delete them optionally, but are absent in other cases where speakers do not have the choice of using them. This is shown in the examples (8) and (9):

(8)

Mwingĩ dialect	Machakos dialects	Kikuyu	Gloss
a. /ɤoa/, /oa/	/oa/	/ɤora/	buy
b. /ɤeio/, /eio/	/eio/	/iriɤo/	banana
c. /maɤoo/, /ma:o/	/ma:o/	/maɤoro/	legs
d. /ɤiðɔ] /, /iðɔ/	/iðɔ/	/riiðɔ/	eye

and in contrast:

(9)

Mwingĩ dialect	Machakos dialect	Gloss
a. /aoa/	/aoa/	off-load
b. /ua/	/ua/	cook
c. /oa/	/aa/	get lost
d. /oɛ:a/	/oɛ:a/	keep adding water to pot
e. /aoaoĩaa i /	/aoaoĩaa i /	keep repeatedly and habitually off-loading for someone (imperative)

The phenomena of consonant loss is of importance in accounting for the fact that all Kĩkamba vowels seem to belong to an un-predictable series of what Ford (1975:12) called mutable and immutable vowels. According to Ford (loc.cit.) the immutable vowels can be said to have historically come from a 'cv' syllable or syllables. Due to this fact, the immutable vowels block particular phonological processes, thus creating a vowel cluster whereas the mutable vowels, which do not result from any consonant loss, allow a glide formation process which avoids a vowel cluster. This is exemplified below:

(10) **Behaviour of immutable vowels**

	underlying form	**surface form**	**gloss.**
a)	/ko + ɛ:nda/	[koɛ :nda]	to go
b)	/ko + a: ða/	[koa: ða]	to shoot
c)	/ko + amba/	[koamba]	to make noise
d)	/ko + asja/	[koasja]	to pay bride price

(11) **Behaviour of mutable vowels**

	Underlying form	**Surface form**	**Gloss.**
a)	/ko + ɛ:nda/	[kw ɛ :nda]	to love
b)	/ko + aða/	[kwa: ða]	to order
c)	/ko + ɔja/	[kwɔ:ja]	to bellow
d)	/ko + aka/	[kwa:ka]	to build

Table (12) gives the symbols of the vowels in their standard orthographic representations and the corresponding IPA symbols:

(12)

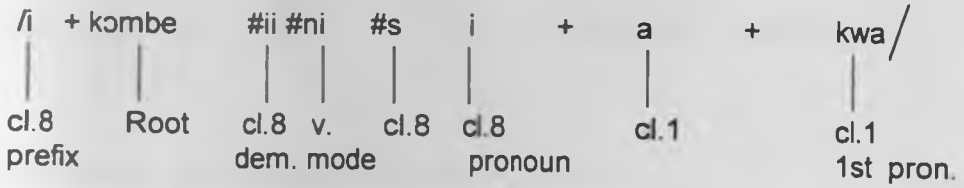
Standard Orthographic symbols	**IPA symbols**
i	/i/
ĩ	/e/
e	/ɛ/
a	/a/
o	/ɔ/
ũ	/o/
u	/u/

2.1.1.1 Glide -formation

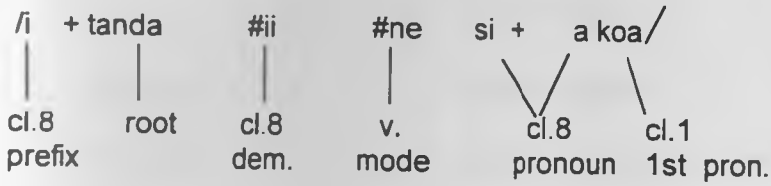
The process of glide formation is a synchronic vowel process in MDK. This processes changes /i,e,ɔ,o/ into semi-vowels in appropriate environments. /i/ occurs in the noun prefix of class 8 and all the prefixes functioning as pronouns for that class noun while /e/ is found in cl. 4 prefixes. The two vowels become glides as exemplified in (13) - (17):

(13)

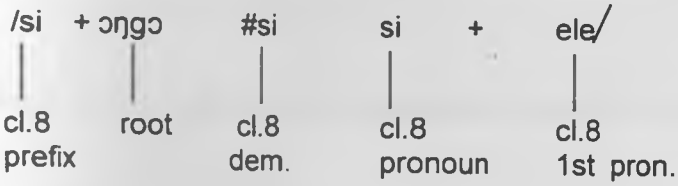
a) ikombe ii ni syakwa 'these cups are mine'



b) itanda ii nĩ syakwa 'these beds are mine'



c) syongo syele ' both heads'



When /i/ and /e/ occur in prefixes such as that shown above, they glide into /j/ if the prefix is followed by a root beginning with a vowel other than /i/ or /e/. Thus the above forms surface as:

(14)

/i + kɔmbɛ # si + a + kūa/ → [ikɔmbɛ sjakwa] 'my cups'

also,

(15)

/i + tanda # si + a + kɛ/ → [itanda sjakɛ] 'his beds'

and,

(16)

/si+ ɔŋgɔ #i + le/ → /sjɔ:ŋgɔ ile/ 'two heads'

Other examples of /i/ and /e/ gliding to form /j/ include:

(17)

/si +ɔa/ → [sjɔa] 'frogs'

/si + aa/ → [sjaa] 'fingers'

/si + uɔ/ → [sjuɔ] 'words of wisdom'

/me + ɛ i/ → [mjɛi] 'months'

/me + aka/ → [mjaka] 'years'

Therefore, we can state this process more generally as in (18).

(18)

/ i / → / j / / ——— [ɔ, a, u]

/ o / → / j / / ——— [ɔ, a, u]

In most cases the above gliding process is found in the prefix position. However, it is by no means restricted to that position since /i/ and /o/ glide elsewhere, for instance at word-final position when the next word begins with a vowel other than an identical one. Thus:

(19)

/n + kundi #emwɛ/	→	[ŋgundjemwɛ]	'one fist/ punch'
/ne + ki +ao #ke + ou/	→	[nekjaokju]	'what is that?'

This process can be accounted for by the following rule:

(20)

$$\begin{bmatrix} +\text{ATR} \\ -\text{back} \end{bmatrix} \rightarrow [-\text{syll.}] / \underline{\quad} \; V_2$$

Condition: $V_1 \neq V_2$

That is,

(21)

$$/i/ \rightarrow [j] / \underline{\quad} \begin{bmatrix} e \\ \varepsilon \\ a \\ ɔ \\ o \\ u \end{bmatrix}$$

and

(22)

$$/e/ \rightarrow [j] / \underline{\quad} \begin{bmatrix} i \\ \varepsilon \\ a \\ ɔ \\ o \\ u \end{bmatrix}$$

Another MDK vowel that glides is /o/. When followed by a vowel initial word, this vowel glides to become [w]. This change is exemplified in (23) below:

(23)

/mo	+	ato/	→	[mwato]	- 'beehive'
/mo	+	aka/	→	[mwaka]	- 'year'
/mo	+	ɛnɛ/	→	[mwɛnɛ]	- 'owner'
/mo	+	e:wa/	→	[mwe:wa]	- 'thorn'

Therefore, /o/ → [w] ——/ # [e e a u ɔ]

The general glide-formation rule in MDK is as follows:

$$\begin{bmatrix} +\text{ATR} \\ \alpha\text{ Back} \end{bmatrix}_{V_1} \rightarrow \begin{bmatrix} -\text{Syll} \\ \alpha\text{ Back} \end{bmatrix} \; / \; \underline{\quad} \; V_2$$

Condition: $V_1 \neq V_2$

2.1.1.2 *Vowel harmony*

Vowel harmony in MDK is of two types. The first occurs in attributive adjectives, MDK tends to have double prefixes comprising a preprefix and a prefix, these occur albeit in an optional manner in noun classes 1, 2, 3, 4, 6, 7, 12, 16 and 17. In each of the cases where the double prefixation occurs, they are found to have identical vowels ordered in such a way that the preprefix takes the vowel of the prefix as shown in (24) below. (In (24) Adj=Adjectival and ( ) = optional).

(24)

Noun Class	Preprefix	Class Prefix	Adj Stem	Gloss.
1	/o/	/mo/	-nene	big
2	/a/	/ma/	- "	"
3	/o/	/mo/	-asa	tall
4	/e/	/me/	- "	"
6	/a/	/ma/	-nene	big
7	(/e/)	/ke/	-seo	beautiful
12	(/a/)	/ka/	-nene	big
13	(/o/)	/to/	-nene	big
16	(/a/)	/va/	-seo	good
17	(/o/)	/ko/	-seo	"

For such expressions, the preprefix vowel is identical and so in perfect harmony with the vowel in the class prefix.

The demonstrative adjective vowels fall in harmony with the vowel in the noun-root. These vowels are found to be identical and sometimes appear in a cluster, as seen in example (25). In some forms, the consonant between the two syllabic vowels has been diachronically deleted, leading to the vowel cluster, otherwise this type of harmony seems to result from morpheme copying and so it is a morphological process within the language.

The examples of the foregoing are shown (25):

(25)

Noun Class	Demonstrative adjectives	Gloss.
1 /mondo/	/oyo/	this person
2 /andu/	/aa/	these people
3 /mote/	/oyo/	this tree
4 /mete/	/ee/	these trees
5 /ethoka/	/yee/	this axe
6 /mathoka/	/aa/	these axes
7 /keßɛti/	/kee/	this wife
8 /ißɛti/	/ii/	these wives
9 /ŋgɔ:/	/ee/	this heart
10 /ŋgɔ:/	/ii/	these hearts
11 /okota/	/oo/	this selling
12 /kana/	/kaa/	this child
13 /toana/	/too/	these children
14 /oŋɛi/	/oo/oyo/	this theft
15 /koja/	/koo/	this eating
16 /ßando/	/vaa/	this place (general)
17 /kondo/	/koo/	this place (inside)

As stated earlier in this section, vowel harmony is also found in the verb and especially in the verb extensions. Vowel harmony in the verb extensions seems to be controlled by the vowel of the verb root in such a way that if the verb root vowel is +ATR then the verb extension will take a +ATR vowel, but if the vowel in the verb root is -ATR then the

extension will have a -ATR vowel. Phonetically /a,i,u,o,e/ are +ATR while /ɛ/ and /ɔ/ are -ATR. The following examples demonstrate this type of vowel harmony.

(26)

(i) [+ATR] vowels

verb	**verb root**	**verb extension**	**Gloss.**
/vinga/	ving-	/vingeka/	possible to close
/aka/	ak-	/akeka/	possible to build
/oma/	om-	/omeka/	possible to bite
/tuma/	tum-	/tumeka/	possible to sew
/eta/	et-	/eteka/	possible to call

(ii) [-ATR] vowels

verb	**verb root**	**verb extension**	**Gloss.**
/ɔla/	ɔl-	/ɔlɛka/	possible to reduce
/sɔma/	sɔm-	/sɔmɛka/	possible to read
/ɔsa/	ɔs-	/ɔsɛka/	possible to take
/ɛla/	ɛl-	/ɛlɛka/	possible to try/ fit

2.1.1.3 *Vowel heightening*

Vowel heightening affects the Kĩkamba +ATR mid-vowels are /e/ and /o/. These get raised to become high vowels when they are immediately followed by a high vowel of

the same feature value [Back]. Thus when underlying /e/ is followed by /i/ it surfaces as /i/. Likewise, when underlying /o/ is followed by /u/ it surfaces as /u/. When /e/ and /o/ have risen to the levels of /i/ and /u/, respectively, they are then realized in their long forms as (no sequence in the example) /ii/ and /uu/, respectively, as seen in the following examples:

(27)

/ke:	+ imb + a/	→	[kiimba]	- 'corpse'
/mo	+ u/	→	[muu]	- 'ash'

2.1.1.4 *Vowel deletion*

In some instances, when two vowels come together, one of them is deleted. For instance, this happens when the /a/ of the diminutives [ka] is followed by a -ATR mid-vowel, as in the sequence /a + ɛ/ or /a +ɔ/. These are realized as /ɛ/ and /ɔ/, respectively. This point is further illustrated below:

(28)

/ka + ɛlitu/	→	[kɛlitu]	- 'the small girl'
/ka + ɛnde/	→	[kɛndɛ]	- 'the smal loved one'
/ka + ɔu/	→	[kɔ:u]	- 'the small rotten one'
/ka + ɔnzɛ/	→	[kɔ:nzɛ]	- 'the small weak/ sickly one'

The full extent of this process in MDK morphology is not clear to us. Since a full investigation would take us out of the defined scope of our research, we have chosen to limit ourselves to the diminutives.

2.1.1.5 *Vowel coalescence*

Vowel coalescence refers to a phenomenon whereby a sequence of two different vowels at the phonological level is replaced by a vowel different all together from them (cf. Mberia 1993).

However, from the evidence available to us, MDK vowel coalescence often preserves the identity of the input vowel. This is fairly obvious in what Whiteley and Muli (1962) have concluded about vowel coalescence in Kĩkamba (which is consistent with our observation in MDK) as can be seen in (29).

(29)

a	+	a	=	a	a	+	e	=	e
a	+	o	=	ɔ	o	+	u	=	u
e	+	e	=	i	a	+	ɔ	=	ɔ
a:	+	a	=	a:	u	+	o	=	o
a:	+	e	=	e	a:	+	ɔ	=	ɔ
a:	+	o	=	ɔ					

These are exemplified in the following words:

(30)

/ma + e + u/	→	[mɛu]	-	'ripe ones'
/ma +o + u/	→	[mɔu]	-	'rotten ones'

Here, the sequence of an underlying /a/ followed by /e/ results in a phonetic [ɛ], while that of an underlying /a/ followed by /o/ results in a phonetic /ɔ/.

2.1.2 Phonetic overview of the consonant system

Kĩkamba consonants can be divided into two categories of phonemes. The first category is what has been referred to as "simple phonemes". These are called simple due to the fact that their manner and place of articulation are similar to those of attested sounds in other languages (Kioko 1994). The second category is what has been referred to as the nasal compounds (Omondi 1980). However, we believe this should be more appropriately be referred to as prenasalized stops.. These are also known in the relevant literature as consonant clusters (cf. Whitely and Muli 1962). We present, in the chart below, the simple phonemes by manner and place of articulation:

(31)

Manner of articulation	PLACE OF ARTICULATION					
	Bilabial	**Dental**	**Alveolar**	**Palatal Alveolar**	**Palatal**	**Velar**
Stops			t			k
Nasals	m		n			ŋ
Africates		ð	ʦ			
Fricatives	β		s			ɤ
Liquids Laterals Non-Laterals			l r			
Glides	w				j	

We have found phonemes [ɤ], [r] and [ʦ] to be special to the MDK and are thus not found in any of the other Kīkamba dialects.

The Kīkamba compound phonemes have traditionally been divided into three classes; the prenasalized, the palatalized and the labialized. (cf. Whitely and Muli 1962). Such prenasalized phonemes in other languages have also been called "nasal compounds" (Omondi 1980), a term used to refer to this type of phonemes by Welmers (1973).

2.1.2.1 *Nasal compounds*

As stated earlier (2.1.2), Nasal compounds in Kīkamba are what grammar books such as Whiteley and Muli (1962) refer to as consonant clusters. These compounds function as units of phonemes within the language. They are a product of phonological features

that specify a homorganic co-articulation in which the first articulated sound, a nasal consonant, assimilates to the consonant sound following it. The following sound is usually a plosive or a fricative. The resulting influence makes the plosive or fricative acquire the features of the nasal.

Kĩkamba has seven nasal compounds, these are as follows:

(32) [mb, nd, ŋg, nz, nð, ndʒ and nzj].

The following is the exemplification of their occurrence:

(33)

(i) [mb]

a)	mbũi	[mboi]	-	goat
b)	mbua	[mbua]	-	rain

(ii) [nd]

a)	nda:	[nda:]	-	lice
b)	ndeta/ndata	[ndeta]/ [ndata]	-	star(s)

(iii) [ŋg]

a)	ngo:	[ŋg:]	-	heart(s)
b)	ngo	[ŋgɔ]	-	leopard(s)

iv) [nz]

a) nzīa [nzea] - path/way

b) nzī [nze] - world/earth/land/country

v) [nð] (3)

a) nthi [nðe] - world/earth/land/country

b) nthenge [nðɛŋgɛ] - he goat

(vi) [ndʒ]

a) lungya [longʒa] - 'chase away'

b) ngya [ndʒa] - 'poor'

(vii) [nzj]

a) mulonzya [molɔnzja] - 'name of a person'

b) kulonzya [kolɔnzja] - 'to cause to make noise'

As observed from the above data (33 (i)-(vii)) nasal compounds are well distributed in vocabulary of Kīkamba and are not restricted to any particular part of the word, they are found in word initial (i-iv), medial (v) and final positions (vi-vii).

2.1.2.2 *Glides*

According to Schane (1973), the term semi-vowels indicates that glides are consonants with features which make them vowel-like. Glides are produced at the same tongue

position as the high vowels except for the closeness of the tongue to the palate, creating an extra narrowing of the oral cavity and thus making them consonants.

Glides are consonants, which are vowel-like and are therefore also known as semi-vowels. Kīkamba has two glides, the labiovelar glide [w] and the palatal glide [j]. These are orthographically represented as 'w' and 'y'.

The data given in (34) below shows the occurance of glides (bold) in MDK:

(34)

(i) [w]

a)	**w**atho	-	[waðɔ]	-	'an order'
b)	**w**īa	-	[wea]	-	'work'
c)	**w**oo	-	[wɔ:]	-	'pain'

(ii) [y]

a)	**y**ūa	-	[joa]	-	'famine'
b)	**y**ūngū	-	[joŋgo]	-	'cucumber'
c)	**y**aanga	-	[ja:ŋga]	-	'cassava

2.1.2.3 MDK syllable structure

MDK syllables are of the open type, with the nucleus as the minimum constituent. Such a syllable may be seen in the following examples:

(35) ε - being (cl.1)

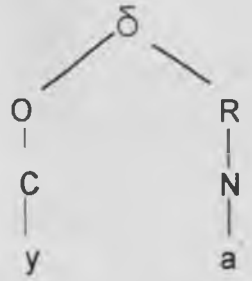
This gives us the following structure:

The nucleus is always a vowel which is the only syllabic element in MDK. The nucleus may be preceded by a consonant, consonant cluster or a semi-vowel as in (35) below:

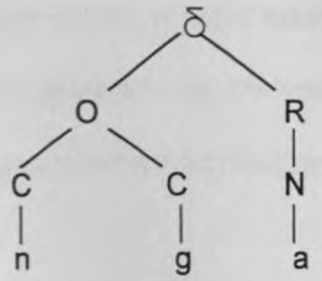
(36)
a) ya - eat
b) ngo - leopard
c) woo - pain

Thus giving us the following structure:

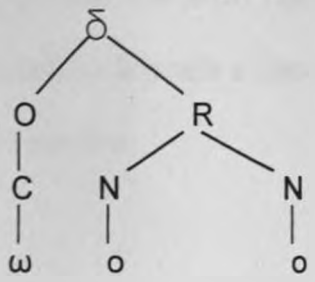
(37) a)



b)

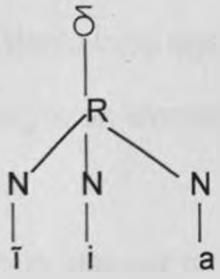


c)



A nucleus can also consist of a vowel cluster as in (38) below:

(38) ĩia - milk



Where δ - syllable O - onset

R - rhyme N - nucleus

C - coda

Therefore. MDK syllable structure could take any of the following shapes: v, cv, ccv and vv with the nucleus always being the vowel, whether preceded or unpreceded by a single consonant or a consonant cluster.

2.2 Introduction to MDK Morphology

In this section we are going to show that MDK has seventeen noun classes and that most of these nouns have a prefix which acts a class marker. These noun classes also have a concordial agreement system.

2.2.1 Noun class system

Bantu languages employ the noun class system to classify their nouns and every noun belongs to a noun class. In our classification of Kĩkamba nouns we adopt the approach initiated by Bleek (1869) which was used by Meinhöf (1932) and later modified by other scholars and researchers of Bantu languages such as Bennett (1986). This approach puts together nouns according to an identical prefix and an identical concord system.

Kĩkamba has seventeen noun classes out of the twenty-three of the Proto-Bantu proposed by Welmers (1973) and Meinhöf (1932) and so not all the pro-Bantu noun classes are represented in the Kĩkamba noun system.

As stated above nouns belonging to the same noun classes usually share an identical prefix and concord system. This, however, may not always be the case as far as the

prefix is concerned. Two nouns belonging to the same class may have different prefixes for historical reasons. And on the other hand, the converse may also happen whereby the nouns belonging to different classes may have identical prefixes, at least at the phonetic and phonological level. A case in point here is the MDK class 1 and 3 prefix [mo] which may either be realized as [mo] or [mw] depending on the phonological environment. That way such lexical items as [mwaka] and [mote] are grouped in the same class.

In addition to this, it is worth observing that there is a category of nouns, which do not have prefixes at both the phonological and the phonetic levels. Such lexical items in MDK include: [sa:]- watch, clock or time; [sulualĩ]- a pair of pants or trousers. Noun words of this kind render null and void classification that relies only on the prefixes. Grouping nouns together according to shared semantic properties has also proved unworkable.

A more applicable method of noun classification is that of putting together nouns according to their effect on syntactic constructions, as suggested by Kapinga (1993), and cited in Mberia (1993). We will, however, base our classificationof MDK nouns on the prefix system but shall provide a syntactic explanation where this is may present a problem for example in classes 9 and 10. The MDK nominal prefixes according to their classes, are as shown in (39):

The prefix [mo] is realized as [mw] when it is followed immediately by a -ATR vowel root initial as in [mo+ aka] → [mwaka] - 'year' .On the other hand, it remains as [mo] when

it occurs immediately before a consonant root initial, as in [mo+te] — [mo+te] - tree.

(39). Nominal Prefixes

Class	Nominal Prefix	Example	
1.	/mo-/	/mo-ndo/	"person"
2.	/a- /	/a-ndo/	"people"
3.	/mo-/	/mo-te/	"tree"
4.	/me-/	/mete/	"trees"
5.	/e-/	/e-tu/	"cloud"
6.	/ma-/	/ma-tu/	"clouds"
7.	/ke-/	/ke-ßɛti/	"wife/woman"
8.	/i-/	/i-ßɛti/	"wives/women"
9.	/ɲ/	/ɲomba/	"house"
10.	/ɲ-/	/ɲomba/	"houses"
11.	/o-/	/o-lii/	"string/thread"
12.	/ka-/	/ka-na/	"child"
13.	/to-/	/to-ana/	"children"
14.	/o-/	/o-emi/	"farming"
15.	/ko-/	/ko-ema/	"farming"
16.	/ßa-/	/ßa-ndo/	"place"
17.	/ko-/	/ko-ndo/	"places"

One typical feature of Bantu noun classes is that they tend to group up in terms of singular and plural pairs, thus class two contains the plural forms of the nouns in class one, so does class four from three; six from five; eight from seven; ten from nine; eleven from ten and thirteen from twelve. A description of the 17 noun classes of MDK is given in (40) - (48) below:

(40) **Classes One and Two**

Class one is marked by the prefix [mo] and class two is marked by the prefix [a].

Class 1:	/mo + ndo/	—	[mondo]	'person'
	/mo + anakɛ/	—	[mwanakɛ]	'young man'
	/mo + indi/	—	[moindi]	'an Indian'

Class 2:	/a + ndo/	—	[ando]	'people'
	/a + ka/	—	[aka]	'wives'
	/a + anakɛ/	—	[anakɛ]	'young men'
	/a + indi/	—	[aindi]	'Indians'

These classes consists of nouns denoting humans. As stated earlier, class one contains the singular forms of the nouns in question while their plural forms are to be found in the counter-part class two.

(41) **Classes Three and Four**

Class three is marked by the prefix [mo] while class four is marked by [me]. The nouns contained in class three have their plural forms in class four. The bulk of the nouns in these two classes denote names of trees. These classes also include other nouns of diverse semantic fields, for example; 'muongo' - back (of body), 'mwei' - moon or month, 'mukeka' - mat, 'muthenya' - day and 'mukwa' - strap. Thus:

Class 3:	/mo + te/	—	[mote]	'tree'
	/mo + ɔŋgɔ]/	—	[mɔɔŋgɔ]	'back (of body)'
Class 4:	/me + te/	—	[mete]	'trees'
	/me + ɔŋgo/	—	[meɔŋgɔ]	'backs'

(42) **Classes Five and Six**

Class five has prefix [e] as its marker while class six has [ma]. Classes five and six consist mostly of nouns for most farm fruits but also other nouns that do not fall on any one semantic set, for example, 'maɛo'- teeth, 'matumo'-spears, and 'maia' - lakes, in class five with class six including mass nouns much of which are uncountables, for example; 'mata'- saliva, 'mauta'- oil, 'mavia'- pus. These are the type of nouns which Nida (1949) refers to as "pluralia tantum". Class five and six also include augumentive nouns such as:

Class 5:	/e + ŋɔi/	—	[eŋɔi]	'donkey'
	/e + loŋga/	—	[elonga]	'sheep'
	/e + ðɔka/	—	[eðoka]	'axe'
	/e + ßeti/	—	[eßɛti]	'big woman' Pejorative
	/e + ßese/	—	[eßese]	'big boy'

Class 6:	/ma +ŋɔi/	—	[ma + ŋɔi]	'donkeys'
	/ma + loŋga/	—	[ma + longa]	'sheep'
	/ma + ðɔka/	—	[ma + ðɔka]	'axes'
	/ma + ßɛti/	—	[ma + ßɛti]	'women' (pejorative)
	/ma + ßese/	—	[ma + ßise]	'boys'

(43) **Classes Seven and Eight**

These do not assign their nouns to any common semantic field. Their nouns include; man-made objects, parts of the body, natural phenomena, and people with defects and negative aspects, places of specific usage, birds and insects among other things. The examples of nouns in each of these categories are given below:

(i) **man-made objects**

Class 7:	/ke + ðima/	—	[keðima]	'well'
	/ke + taa/	—	[ketaa]	'platform'
	/ke + koða/	—	[kekoða]	'sling'
	/ke + ato/	—	[keato]	'shoe'
Class 8:	/i + ðima/	—	[iðima]	'wells'
	/i + taa/	—	[itaa]	'platforms'
	/i + koða/	—	[ikoða]	'slings'
	/i + ato/	—	[iato]	'shoes'

(ii) **parts of the body**

Class 7:	/ke + ðoi/	—	[keðoi]	'chest'
	/ke + aa/	—	[kjaa]	'finger'
	/ke + tala	—	[ketala]	'palm of hand'
	/ke + taiɲɔ/	—	[ketaiɲɔ]	'heel'
Class 8:	/i + ðo/	—	[iðoi]	'chests'
	/i + aa/	—	[syaa]	'fingers'
	/i + taala/	—	[itaala]	'palm of hand'
	/i + taiɲ ɔ/	—	[itaiɲɔ]	'heels'

iii) **natural phenomena**

Class 7:	/ke + ßonzi/	—	[keßonzi]	'whirlwind'
	/ke + ßindu/	—	[keßindu]	'darkness'
	/ke + sɛßɛ/	—	[kesɛßɛ]	'wind'
Class 8:	/i + ßonzi/	—	[ißonzi]	'whirlwinds'
	/i + ßindu/	—	[ißindu]	'types of darkness (plural)'
	/i + sɛßɛ /	—	[isɛßɛ]	'winds'

(iv) **insects**

Class 7:	/ke + laßutja/	—	[kelaßutja]	'butterfly'
	/ke + ŋauwe/	—	[keŋauwe]	'scorpion'
Class 8:	/i + laßutja/	—	[ilaßutja-]	'butterflies'
	/i + ŋauwe/	—	[iŋauwe]	'scorpions'

(v) **humans with negative attributes**

Class 7:	/ke + ŋɛi/	—	[keŋɛi]	'thief'
	/ke + lalinda/	—	[kelalinda]	'blind person'
	/ke + ɔnze/	—	[kjonze]	'disabled person'
Class 8:	/i + ŋɛi/	—	[iŋɛi]	'thieves'
	/i + lalinda/	—	[ilalinda]	'blind persons'
	/si + ɔnze/	—	[sjɔnze]	'disabled persons'

(vi) **birds**

Class 7:	/ke + kwaɛ/	—	[kekwaɛ]	'francolin'
	/ke + endile/	—	[kendile]	'small guinea fowl
Class 8:	/i + kwaɛ/	—	[ikwaɛ]	'francolins'
	/si + endile/	—	[sjendile]	'small guinea fowls'

(vii) **places of specific usage (function)**

Class 7:	/ke + ðɛmbɛɔ/	—	[keðɛmbɛ]	'shrine'
	/ki + uɛɔ/	—	[kiuɛɔ]	'kitchen'
	/ke + ðenzɛɔ/	—	[keðenzɛɔ/	'slaughter house'
	/ke + ßoejɔ/	—	[keßoejɔ]	'thrashing place'
Class 8:	/i + ðɛmbɛɔ/	—	[iðɛmbɛ]	'shrines'
	/i + uɛɔ/	—	[iuɛɔ]	'kitchens'
	/i + ðenzɛɔ/	→	[iðenzɛɔ/	'slaughter houses'
	/i + ßoɛɔ/	→	[ißoɛɔ]	'thrashing places'

(44) **Classes Nine and Ten**

Some nouns in class nine and ten are marked by the prefix [n] while others are marked by a zero prefix. These classes contain most nouns which denote animals and large birds. Within these classes are also found foreign words which have come into MDK through the process of borrowing. Some of the borrowed nouns are found to be marked by a zero class prefix.

Nouns in both classes nine and ten appear identical at the phonological level and the same appearance is maintained at the surface level. Their difference is only evident at the syntactic level. At this level, the different classes use different concordial

agreement rules for singular and plural. The following is a description of the nouns in the two classes.

Class 9 & 10:

(i) **Animals:**

/n + sɔu/	→	[nzɔu]	-	elephant(s)
/n + kɔ/	→	[ŋgɔ]	-	leopard(s)
/ n + ßoi/	→	[mboi]	-	goat(s)
/n + twea/	→	[ndwea]	-	giraffe(s)

(ii) **Large birds:**

/n + kaŋga/	→	[ŋgaŋga]	-	guinea foe
/n + sɔkɔlɔ/	→	[nzɔkɔlɔ]	-	cockrel
/n + koko/	→	[ŋgoko]	-	chicken

(iii) **Borrowed Nouns**

/ø + sukulu/	—	[sukulu]	-	school
/ø + suluale/	—	[suluale]	-	trousers/ pants
/ø + mɛsa/	—	[mɛsa]	-	table

Class ten goes further to include nouns which are in plurals and which have their singular forms in class eleven, such nouns include:

(iv) **Body parts**

/n + kɔßɛ/	→	[ŋgɔßɛ]	-	eye lashes
/ɲ+ ae:/	→	[ɲae:]	-	feet
/n+ lemɛ/	→	[ndeme]	-	tongue
/n + kuɲo/	→	[ŋguɲo]	-	finger nails

(45) **Classes Twelve and Thirteen**

Class twelve marks its noun by the prefix [ka] and class thirteen by [+o]. These classes consist of nouns denoting diminutives, whereby class 12 contains the singular forms while class 13 has the corresponding plurals, as seen below:

Class 12:	/ka + ßese/	—	[kaßese]	-	small boy
	/ka + ßɛti/	—	[kaßɛti]	-	small woman
	/ka + kite/	—	[kakite]	-	small dog
	/ka + ßoli/	—	[kaßoli]	-	small goat
Class 13:	/to + ßese/	—	[toßese]	-	small boys
	/to + ßɛti/	—	[toßɛti]	-	small women
	/to + kite/	—	[tokite	-	small dogs
	/to + ßoli/	—	[toßoli]	-	small goats

In these two classes, a unique characteristic does take place in the language. Occasionally some of the prefixes do get affixed before nouns with prefixes drawn from other classes thus giving rise to double prefixation as in:

Class 12: /ka + mo + ndo/ - small person

cl. 12 cl.1

/ka + mo + twe/ - small head

cl.12 cl.2

/ka + mo + te/ - small stick

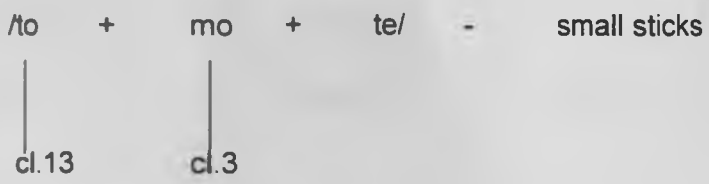
cl.12 cl.2

Class 13 /to + mo + ndo/ - small persons

cl. 13 cl.1

/to + mo + twe/ - small heads

cl.13 cl.2



(46) **Class Fourteen (14)**

Class fourteen has its nouns marked by the prefix [0]. Generally most of the abstract nouns in the language belong to this class. It also includes nouns denoting non-countable substances and some countable things. The plural forms of the few countables included in this class are to be found in class six. Class 14 nouns include:

/o + sɛɔ/	—	[osɛɔ]	-	goodness
/o + ðoku/	—	[oðoku]	-	evil
/o + ðɛu/	—	[oðɛu]	-	cleanliness
/o + ŋɛi/	—	[oŋɛi]	-	theft
/o + kia/	—	[okja]	-	poverty

(48) **Class Fifteen (15)**

The nouns in class 15 are marked by the prefix [ko]. This class consists of verb infinitives which have a concordial agreement of their own, thus functioning as nouns in syntactic constructions. Such infinitives include:

/ko + ja/	—	[koja]	-	eating
/ko + ðaoka/	—	[koðaoka]	-	playing

/ko + ðɛka/	—	[koðɛka]	-	laughing
/ko + ea/	—	[koea]	-	crying

By its nature this class does not have corresponding plurals.

(47) Class Sixteen and Seventeen (16 & 17)

Class sixteen nouns are marked by the prefix [ßa] while those of class seventeen are marked by [ko]. Both of these classes denote places, but with different functions. Class 16 denotes a specific and particular place, but class 17 denotes a general place:

Class 16:	/ßa + ndo/	—	[ßando]	- a specific place
Class 17:	/ko + ndo/	—	[kondo]	- a generalized place

2.3 Summary

In this chapter, we have demonstrated that MDK has a seven-vowel system. The vowels are accompanied by vowel length in that each has a long and a short distinction, thus doubling the number. The vowels are phonologically distinctive and comprise two high, two mid-high, two mid-low and one low vowel. When these vowels occur in orthography they are sometimes represented as a series of identical and at other times as single vowels. The series of identical vowels does not necessarily indicate along vowel since they may represent distinct syllables bearing distinct tones.

We have also shown that MDK words can be made up of sequences of vowels going up to as many as eight vowels. This phenomenon is due to a historical loss of certain consonants. This consonant loss accounts for the blocking of the glide-process in some vowel clusters.

Also observed in this chapter is the glide-formation process. This process changes certain vowels into semi-vowels. Vowel harmony is a morphological process that MDK vowels tend to undergo. Vowel heightening, vowel deletion and vowel coalescence are the other phonological processes that may influence tone in the word.

We have also demonstrated that MDK has simple phonemic consonants and consonant clusters. Consonant clusters function as phonemic units within the language.

The noun class system is yet another aspect of MDK that we showed. The seventeen noun classes are usually marked by a prefix and a concord system. However, some of these classes are not overtly marked and the nouns in them are put together on the basis of the concord agreement.

CHAPTER THREE

TONE PATTERNS IN THE MDK NOUNS

3.0 Overview

This chapter discusses the structure of MDK nouns and their functions. It aims at identifying the number and types of tones found in the MDK nouns. Both the underlying tones and their surface manifestations are examined. It also examines the effect of affixation on the surface tones of the nouns, and endeavours to identify the functions of tone in the MDK nouns.

3.1 An Overview of Tone

Tone serves many functions in the language, one of which is to differentiate lexical items. In MDK there are minimal pairs in which tone is minimally contrastive, creating a situation in which consonants and all the vowels in such pairs are identical and the words differ on the basis of tone only. Such minimal pairs include:

(49)

a) t̄ i a - "milk"
L SH SL

t̄ i a - "weeds"
L H SL

The pair 49(a) above gives us a minimal contrast created by SH and H tones found in the medial position of both words. The second contrast is created against word-medial position by the L and SH tones of the two segments as seen in 49(b) below.

(b) m ūa k i - "fire"
L L SL

m ūa k i - "builder"
L SH SL

Another function that tone serves in this language is to differentiate word classes, especially verbs and nouns, as seen in example (50) below:

(50)

a) mūtile - cut him (imp.)
L H HL

b) mūtile - the cut one (cl.7)
L L H

c) mūlekye - neglect/ let go of him
L L HL

d) mūlekye - the neglected one (cl.1)
L L H

Where (a) and (c) are imperative verbs, and (b) and (d) are derived verbs.

According to Kīoko (1994), Kīkamba nouns fall into four tone groups, each group with sub-types, while the verbs are only in two groups (se chapter four).

3.2 Introduction to MDK Nouns

MDK nouns typically consist of a prefix and a root. As already discussed in chapter two the nouns are grouped into seventeen classes according to their morphological or

syntactic behaviour. These classes are generally marked by a prefix where some of the class marker-prefixes are identical. This point is illustrated by examples (51-56) below:

(51) Class one mū- and Class three mū-

In both classes, mū- is used as the noun prefix. This prefix is realized as mū- when it occurs before consonant-initial roots and as mw- when it occurs before vowel-initial roots and specifically before vowels [a] [i] and [ɔ] as seen in (a) and (b) below:

(a) Class 1:

mū +ana L H L	→	mwana H L	-	child
mū +ini L H L	→	mwini H L	-	singer
mū +oni L H L	→	mwoni H L	-	seer

(b) Class 3:

mū +atū L L H	→	mwatu L H	-	beehive
mū + imbo L H L	→	m w i m b o SH SL	-	boil (on the skin)
mū +oondo L H L H	→	mwoondo HL H	-	side (of body or place)

The two classes, however, would be distinguished by the tone patterns assumed by their different possessive pronouns while the segmental structures would be the identical *wakwa*. Tonally the class 1 possessives would be marked by a L and a H tone, while class 3 would be marked by a HL and L tone. Thus cl. 1 *wakwa* and cl. 3 *wakwa*.
L H
L L

(52) Class 9 n- and Class 10 n-

Class 9 contains the singular forms of the nouns whose plural forms are found in class 10. Both classes 9 and 10 are phonologically identical with the distinction between singular and plural being indicated at the syntactic level where different concordial agreement markers are used to distinguish the singular forms from the plural forms. Examples (a) and (b) illustrate this.

(a) Class 9 and 10

nyūmba L H	-	house
n g i t ĩ H L	-	dog
m b u i H L	-	goat
ngoo H L	-	heart

(b) Singular Class 9

nyūmba L H	# ya # L	Mūtūa L L SL	nĩ HL	nene H L
house (sg)	poss.sg.	Mūtūa	is	big

Mutua's house (sg) is big.

nyūmba L H	# sya # HL	Mūtūa L L SL	nĩ HL	nene H L
houses (pl.)	poss.pl	Mūtūa	are	big

Mūtūa's houses are big.

The structure of the noun roots in its simplest form is cv or in the case of consonant clusters csv and ncv. In a few cases we get noun roots that have ncsv as well. Examples of the foregoing are found in (53) below.

(53) (a) cv roots

mū+ka L H	-	wife
mū+tī L H	-	tree
ĪI + vu L SH	-	stomach/ belly

(b) csv roots

m ū + t w e L SH	-	head
m ū + k w a L H	-	strap (for tying up things)
k a + v y ū L H	-	knife

(c) ncv roots

m ū + n d ū L SL	-	person
m ū + mbo L L	-	name of a person

(d) ncsv roots

n + z w a H	-	termites
n + g w a H	-	thunder

MDK noun roots range from monosyllabic to trisyllabic and even larger structures. These can take any of the basic tone patterns of H, L, SH, SL and HL. Examples

(54) to (56) below illustrate the different syllabic structures of the noun-roots in singular forms and according to their noun classes.

(54) Monosyllabic Singular noun-roots.

noun -class	root		gloss.
1.	mū+ndū L SL	-	person
3.	mū+tī L H	-	tree
5.	ī + v u H SH	-	stomach/ pregnancy
7.	kī + wa L H	-	sugarcane
9.	n+go SL	-	leopard
12.	ka +vyū L H	-	knife
14.	ũ + thū L H	-	bitterness
15.	kū + ya L HL	-	eating
16.	va + ndũ L SL	-	place (specific)
17.	kū +ndũ L SL	-	place (generally far/ enclosed)

(55) Bisyllabic Singular noun-roots.

Noun -class	root		gloss.
1.	mū + sumbī L H SH	-	king
3.	mū + ongo L L SL	-	back (of body)
5.	ī + thoka L L H	-	an axe
7.	kī + thima L H L	-	well
11.	ū + kuta L S H L	-	wall
12.	ka + ana L SH L	-	child
14.	ū + n g' e i L L H	-	theft
15.	k ū + i a L L SL	-	crying

(56) Trisyllabic and larger Singular noun-roots

noun -class	root		gloss.
1.	mū +nyanyawa L HL HL L	-	my friend
2.	mū + kwenzele L HL H L	-	type of grass
3.	n + zukulu H H H	-	grandchild
4.	n + zukululu H H H H	-	great grandchild

5.	n + zokolo L L L	-	cockrel
6.	n + zakeme H H H	-	blood

3.2.1. Types and patterns of MDK tones

The data analysis in this section suggests that the MDK has two basic level tones. These are High (H) and Low (L) tones. The two are expanded by the formation of Super High (SH) and Super Low (SL) as well a falling tone (HL).

The HL tone in this study is deemed and thus analyzed as underlyingly a H tone followed by a L tone. The falling effect is based on the mapping together of the two tones (H and L) on one tbu at the surface level. The SL tone is observed as being found in the word final position. As Welmers (1973:80) points out:

> "Especially in isolation or at word final position, a low tone is characterized by relaxation, often a progressive relaxation accompanied by a slight downward glide of pitch"

The SL tone is observed to be an allotone of the L tone. All the derived tonal forms are associated with particular syntactic environments.

MDK nouns analyzed in isolation distinguish between four phonetic tones, H, L, SH, SL and HL. These tones are exemplified in the data shown in the following examples (58) and (62), also see (55) for further examples.

(57) High (H)

a)	mū + tī L H	-	tree
b)	n + z ī H	-	country/ ground
c)	n + dundu H H	-	small gathering of people
d)	n + gūlū H H	-	pride/ arrogance
e)	n + gūkū H H	-	chicken
f)	n + zangili H HH	-	loafer/ busybody
g)	n + gengele H H H	-	bell
h)	m + bu H	-	scream
i)	n + zakame H H H	-	blood

(58) Low (L)

a)	n + gūkū L L	-	a gulp
b)	n + gūlū L L	-	name of person
c)	mū + aki L L SL	-	fire
d)	n + dundulu L L SL	-	an owl
e)	n + zokolo L L L	-	a cock

(59) Superhigh (SH)

a)	mū + twe H SH	-	head
b)	n + gū SH	-	firewood
c)	n + za SH	-	courtyard/ outside.

(60) Super Low (SL)

a)	mū+ndū L SL	-	person
b)	ngo SL	-	leopard
c)	kī+tuto L L SL	-	field

(61) Falling Tone (HL/ SHL)

a)	n + goo SHHL	-	heart
b)	ka + ana L SH L	-	child
c)	ka +te:na L HL L	-	kid
d)	mū + savi:vū L L HL SL	-	vine tree
e)	n + do:to HL SL	-	dream

In 58 - 61 we can observe that SL phonetic tones are found exceptionally at word-final positions and in no other position.

We can also observe that the nouns do not always keep the same tone in all syntactic and phonological environments but that particular tones can have as many as four allotones depending on the environment of occurance. We will show this later in this section.

There are seventeen (17) noun classes in MDK as shown in (3.2) and each of these classes marks a set on nouns. Most of these noun classes are marked by a prefix while a minority is not overtly marked by a prefix. It is observed in this study that the prefixes marking the noun classes are invariably L tone [and so our investigations of the tones of nouns is based only on the noun stems]. There are cases where the noun class prefix does not have a tbu. Consider, for example class 9 and 10 nouns which are marked by the concordial affix n- and contain such nouns as:

noun	adj. pronoun	gloss.
Nyumba #	**n**zeo -	good house
L H		
Ndeto #	**n**zuku -	bad words
SL L		
ng'ombe #	**n**gito -	pregnant cow
L L		

In this case the initial tone is the noun root tone. The only monosyllabic nouns in MDK are found in this category.

As stated earlier in this section, tones of nouns change depending on the environment the particular noun finds itself in. For example, a final — L tone is realized as a Superlow at clause medial position (see example 62 below).

(62) (i) L tone becomes SL

a) mena # mūndū → kūmena mūndū - 'to hate a person'
H L L SL L H SL L SL

b) vuta # kìvetì → kūvuta kìvetì - 'to rob a woman'
H L L L SL L L L L L SL

c) vuva # mwaki → kūvuva mwaki - 'to light a fire.'
L L L SL L L L L SL

d) lūngya # ndundulu → kūlūngya ndundulu - 'to chase away the owl
L L HL HL SL L L SL HL HL SL

e) ete # nzokolo → kūete nzokolo - 'to bring the cockerel'
H L L L SL L L SL L L SL

Here we note that all the word -final tones of the verbs have changed from L to SL tone due to the addition of the noun creating a clause: thus changing their position form word-final to clause-medial and clause-final position.

The same thing is also observed to happen to the clause-final-H tone in a syntactic environment where we get SH, thus both H and L tones are realized as the extreme version at clause medial and final position, respectively. In the case of H tone exemplification is provided in example (63) below:

(63) (i) H tone becomes SH

a) mūtwe wakwa Vs kūkwata mūtwe
L H L L L L L SH

my head 'to hold the head'

b) ngū mbūmū Vs kuna # ngū
H SH L H L SH

dry firewood 'to collect firewood'

c) nza nene Vs kūkoma nza
H SH L L L L SH

big courtyard 'to sleep outside'

Only in the medial/ final position do we find the extreme tones SL and SH. At word medial position, for example, the H tone patterns will be realized as SH and at clause -medial position a L tone will be realized as SL as we stated earlier and illustrated in examples (62) and (63). Thus they get realized as the extreme version thus a final L as SL and a final H as SH. This can be explained by a rule that uses the environment final position (we would specify that final here means clause final position but not sentence final position) as the condition for the tone change. This environment is considered to be the clause boundary. The rule is thus:

(64) Tone Intensification Rule.

T → Super T / —— clause-medial.

/ —— clause- final position.

Where T is any of the level tones of MDK . This has been found to happen to all nouns without exception.

We take this as a language specific rule in MDK where the specific environments are the conditioning factor.

Another environment found to affect the tone of MDK nouns is the sentence final position. This environment affects all nouns except for a particular H subtype (a). This environment is characterized by a final L even for the basically H vowels. Our analysis concurs with Kioko (1994) on Kīkamba nouns, that this environment has (among other things) a floating tone that is L. This tone is often mapped on the final tone of every noun. This is exemplified in (65) below.

(65)

a) ngo nī yakwata mbūi Vs mbūi nī yakwatwa nī ngo
L H H H L HL LH H H H L HL SL

the leopard has caught a goat

the goat has been caught by a leopard

b) mūndū ni wakwata ngūkū Vs ngūkū ni yakwatwa ni mūndū
L L H H H L H H H H H L H L SL

a person has caught the chicken

the chicken has been caught a person

c) kaana nikakunywa ni nzokolo Vs nzokolo niyakunya kaana
LH L H H L H H L L L L L H H L L LH L

The child has been scratched by a cockerel

The cockerel has scratched the child

This behaviour of the introduction of a final L tone at sentence final position can be summed up in the following rule which we propose:

(66) L floating Tone mapping

Ø ⟶ L / —— sentence final position

This could well pass as intonation contour occurring at the sentence final position, but our analysis chooses to treat it as an introduction of a L tone triggering tonal changes. This is a situation where a L tone is introduced at sentence final position. The behaviour of tones in sentence final position is noted as follows:

The high tone subtype (b) are found to acquire a HL tone, the H subtype (a) get SH and the L have a SL tone. Thus:

(67) H Subtype (b) → HL

a) mūtī Vs Mūtūa nī watema mūtī
L H L H H H L L HL
Mutua has cut a tree

b) nzakame Vs Mūtūa - nī u-kutavika nzakame
H H H L H L L H L H H H HL
Mūtūa - nūkūtavika nzakame
L H L L L H L H H H HL
Mutua is vomiting blood

c) mwaitu Vs Mūtūa nī-wa-ona mwaitu
HH H L H L H L L HH HL
Mūtūa nīwona mwaitu
L H L H H L HH HL
Mutua has seen mother

Here, the H H H noun changes to H H H L at sentence final position.

(69) H subtype (a) → SH

a) mūtwue Vs Mūtūa nī-ū-ku-et-e mūtwe
L LH L HL H L L L L L SH

Mūtūa nū-kwete mūtwe
L H L H H L L SH

Mūtūa is holding head

b) nzia Vs Mūtūa nī -wa- kom - a nza
LH L H L H H H SL SH

Mūtūa has pro. Sleep-fv outside.

Mūtūa nīwakoma nza
L H L H H H L SH

Mutua has slept outside

Here we find that the L L H nouns become L H L at sentence -final position.

(69) L → SL

a) Mūtūa # nī + wa + on +a ngo
L HL H H H H SL SL

Mūtūa nīwona ngo
L HL H H L SL

Mūtūa tns.see leopard

Mūtūa has seen a leopard

b) nzokolo Vs Mūtūa ena nzokolo
L L L L HL L L H H SL

Mutua tns. with cock

Mūtūa ena nzokolo.

Mūtūa has a cockerel

c) nondo Vs Ka-īlītu ka-ena nondo
L L L HL L H H L L SL

cl.12-girl cl.12 Pro. has breasts

Kelītu kena nondo
H L L L L L SL

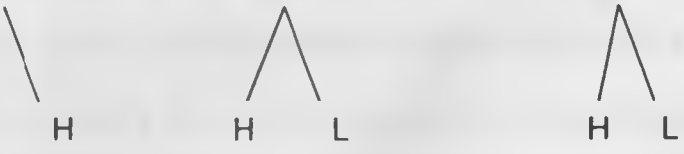
The small girl has breasts

We notice again here that L L L nouns become L L SL at sentence- final position.

The occurrence of the tone intensification rule and L floating tone seems to be ordered such that one has to take place before the other and in this case, the tone intensification rule is preceded by the L tone introduction rule and that both of them take place at clause final position as well as sentence final position, since sentence final position is a clause final position. This order will then be explained as follows:

(70) H subtype (b)

a) mūtī + L-intro → mūtī + intensification → mūtī



(71) L

a) ngo + L-intro → ngo + intensification → ngo

The high subtype (a) nouns can be said to be HH in the underlying structure and only surfacing as H. According to Kioko (1994), this subtype resulted from a historical loss of segments and that there is phonological evidence that the following deletions took place (see 72 below).

(72)

a) mū + tūe → mū-twe – 'head'
L HH L SH

b) n + sīa → n + za – 'outside'
HH SH

c) ka + lukū a small piece of firewood,
L L H

→ ngū - firewood' pl.
SH

When the L is introduced to this type of H the result is a series of three tones mapped onto one tbu but this L does not surface, it happens and stays in the underlying structure and it is inaudible at the surface structure. This can be explained by proposing a language specific rule that deletes the right-most tone in a series of three tones associating to one single tbu to rid the language of rising tones, thus:

(73) L Tone Deletion

$$L \longrightarrow \emptyset / HH \_\_\_$$

This only happens with the H subtype (a) and thus makes it different from the rest of MDK nouns.

The HL bisyllabic nouns present a different behavioural pattern. First, both tones undergo a tone intensification at word final position, this presents an interesting question: why should H, which is not in the last tone at word final position, respond to the intensification rule? There must be another motivation.

The change in the HL nouns at word final positions, as we see it, is motivated by the final L tone rather than by the word boundary, but the change of the L to SL is motivated by the boundary as in the previous examples. This is also evident in Kĩoko's (1994:123) analysis of Kĩkamba when she says that:

> "Perhaps the H intensification in these nouns is motivated by the need to retain maximum differentiation between the L and the H tone. That is after the L tone has been intensified to extra L (because of the boundary), it is possible for the H tone to be down-stepped but to avoid this the language does the opposite and raises the H to extra H".

We have referred to extra H as SH in this study. The second phenomenon that we notice is that one type of HL, when it undergoes the intensification, its two SH are

produced where the last tbu of the noun has one SH mapped together with the L. Thus we have SH and super H falling at the sentence final position. In this same environment, the other HL subtype will have a Super H and L.

The difference here seems to suggest that the underlying forms in both types are different. The first seems to be an underlying HHL, where the two Hs are mapped onto one tbu after the application of the tone intensification rule, these are changed to Superhigh and tend to spread to the right to join the L on the last 'tbu' of the noun.

The second subtype seems to be underlyingly H and thus after the application of the tone intensification rule only one SH is realized on the surface.

The foregoing analysis does reveal that over and above the behaviour of the level tones in the MDK nouns, there are derived tones and we find these to have the following distribution:

a) SL tones only occur at word final positions.

b) SH tones occur at word final positions and at penultimate position.

c) The HL tones occur at word final position.

3.2.2. The effects of the locative marker on MDK nouns

Let us now turn our attention to the effects that are brought about by the affixation of the MDK locative morpheme - "nī" to the tones of the nouns. The locative is the only other affix in MDK, the first one being the noun class marker prefix. There are only two types of affixation on the MDK nouns:

a) The Noun class prefix:

The noun class marker has been found to invariably carry a L tone. Our observations show that the noun class prefixes do not have any effect on the tone of the nouns they affix to. Likewise, they are not affected by the tones of these nouns.

b) The locative suffix:

Location in the MDK is marked by the morpheme -nī. The locative -nī has been observed to effect changes in the basic pattern of tone in the nouns on which it is affixed.

In this section we are going to examine the effects that are brought about by the affixation of the locative morpheme -nī to the tones of the nouns and also what tone it bears.

(74) H Monosyllabic roots

a) mū + tī — mū tī + nī
L H L HL L
Pref. Root

tree on the tree

b) kī + ko — kī ko + nī
L H L HL L
Pref. Root

dirt on the dirt

(75) H Bisyllabic —Roots

a) n + kūkū — ngūkû + nī
H H H HL L
ngūkū
H H
Pref. root

chicken on the chicken

b) m + vūmbū — mbūmbū +nī
H H H HL L
pre. Root

kidney bean in the kidney bean

(76) H Trisyllabic Roots

a) n + sakame — nzakame+nī
H H H H H HL L
pre. root 'in the blood'

b) mū+aitū — mwaitū +nī
L HH HHHL L
pre. root 'on the mother'

c) n+ kengele — ngengele+nī
H H H H HL L
pre. root 'by the bell'

(77) SL Monosyllabic Roots

a) ngo → ngo+nī
SL L L
pre. root 'on the leopard'
ngo
Leopard

b) ngi → ngi+nī
SL L L
pre. roo 'on the fly'
ngi
housefly

c) nda → nda+nī
SL SL L
pre. root 'in the stomach'
nda
stomach

d) mū+ndū → mūndu+nī
L SL L L L
pre. root in/ on the person'
mūndū
Person

(78) SL Bisyllabic roots.

a) veva → veva+nī
SL SL L L L
pre. root in the spirit'

veva

spirit

b) k ī + a o → kyao + nī
L SL SL L L L
pre. root 'by the bridge'

kyao
L L
Bridge

c) n+yūnyi → nyūnyi+nī
L SL L SL L
pre. root 'on the bird'

nyūnyi
L SL
bird

(79) SL Trisyllabic Roots

b) n+sokolo → nzokolo+nī
SL SL SL L L L L
pre. root 'by/ on the cockerel'

nzokolo
L L L
cockerel

) H L Root

a) mū+tambo → mūtambo+nī
L H L L H HL L

Pr. root 'on the railway'

mūtambo
L H L

railwayline

b) ma+savu → masavu+nī
L H L L H HL L

Cl. pr. root 'in the mathematics'

masavu
L H L

mathematics

c) mū +ana → mwana+nī
L H L H HL L

pr. root 'on the child'

mwana
H L

Child

d) kī+ imba → ki:mba+nī
L H L H HL L

pr. root 'on the corps'

ki:mba

corpse

(81) L H Roots

a) kī+kavū → kīkavū+nī
L L H L L HL L

pr. root 'in the basket'

kīkavū
L L H

basket

b) ma+thangū → mathangū+nī
L H L L H HL L

pr. root 'in the leaves'

mathangū
L L HL

leaves

We have demonstrated in the analyzed data above (examples 74 -81) that the following changes are evident in the basic noun stems: The underlying H monosyllable noun stems become HL, the underlying bisyllabic HH become H HL, and the trisyllabic HHH become HH HL when followed by the locative prefix -"nī".

The noun stems analyzed as underlyingly L are retained as L in the monosyllabic noun stem and thus without any phonetic change just as is the case of an LL noun stem. This is shown in examples (75) and (81), respectively. Also the trisyllabic L noun stem LLL does not change and thus retains all the tones on its three syllables. The HL noun stem acquires a H H L tone pattern.

Therefore, in concluding our observations on the locative marker, we state that unlike the noun class prefix, the locative marker affects the nouns in its environment. So what is the tone pattern of the locative marker? [It does seem to have a tone pattern and this must be what affects and changes some of the tones of the stems it affixes to].

The locative marker seems to carry a HL tone pattern. We suggest that the H in this tone pattern gets associated with the syllable at the word final position.

The locative marker "-nī" seems to have a floating L tone attached to it. This floating L tone, it appears, attaches itself to the last tbu of the noun stem after affixation. Where the tone of the last tbu is L, then there is no phonetic change (as seen in all the L and LL examples discussed in examples (73-81) above), but where the tone is H on the nominal stem, then a HL tone is created. This is shown in all the monosyllabic H, bisyllabic H and trisyllabic H examples above. However, when the surface tone is L but the underlying tone is H, the L tone tbu behaves like a H tbu as in example (81) above.

3.3 Tone Behaviour in the Noun-Modifier Phrase

The MDK has the following adjectival roots among others:

(82)

- seo L H	-	good
- nene H L	-	big
- theke H SH	-	thin/ narrow
- mosu H H	-	thin
- thūku H H	-	bad
- n i n i HL H	-	small/ little
- aamu HH H	-	wide
- kuvī H H	-	short
- aasa L L H	-	long
- nou L H	-	fat
- ingī H H	-	many/much
- kūū H H	-	old

MDK adjectival roots take different prefixes differently depending on the class of the noun they qualify. The four tonal patterns identified in the language are found to operate in the adjectives as well.

In this section, we are going to combine nouns of different tones with adjectives of different tonal patterns for the purpose of observing the emerging tonal patterns that may come as a result of the juxtapositions.

Whenever a L or SL noun-final tone is modified with a demonstrative, possessive or an associative, the L tone is raised to a H. This behaviour of the noun-phrase is illustrated in the following examples below:

(83) Noun-demonstrative phrases

a) L nouns

nzokolo	#	īsu	→	nzokolwesu
L L L		H SH		L L H SH
cockerel		demo.		that cockerel

b) SL nouns

ngo	#	īsu	→	ngwesu
L		H SH		H SH
leopad		demo.		that leopard

mūndū	#	ūsu	→	mūndūsu
L SL		H SH		L H SH
person		demo.		that person

c) HL nouns

ngitī	#	īsu	→	ngitīsu
H L		H SH		H H SH
dog		demo.		that dog

kīthima	#	k ī u	→	kīthimakyu
L H L		L SH		L H L SH
well		demo.		that well

This same behaviour is repeated in the noun-possessive and the noun-associative phrases here, however, the SL is raised to a L and not a H, while the L is raised to a H. This is shown in examples (84) and (85) below:

(84) Noun-Possessive phrase

a) SL nouns

ngo SL	#	yake L H	→	ngoyake L L H
leopard		poss.		his leopard
mūndū L SL	#	wake L H	→	mūndū wake L L L H
person		poss.		his person (his relative)

b) L nouns

nzokolo L L L	#	yake L H	→	nzokolo yake L L L L H
cockerel		poss.		his cockerel

c) HL nouns

ngití H L	#	yake L H	→	ngitī yake H L L H
dog		poss.		his dog
ngolu H L	#	yake L H	→	ngolu yake H H L H
chin		poss.		his chin

(85) Noun-Associative phrase

a) SL nouns

nyūnyi # sya # Kītheka	→	nyūnyi sya Kītheka
L SL HL L L H		L L HL L L H
birds Assoc. forest wild birds		
ngombe # sya # Mūtinda	→	ng'ombe sya Mūtinda
L SL HL L H L		L L HL L H L
cows Assoc. Mūtinda		Mūtinda's cows
ngo # sya # Kītheka	→	ngo sya Kītheka
L HL L L H		L HL L L H
leopards Assoc. forest		wild leopards

b) HL nouns

ngitī # sya # kīsala	→	ngitī + sya kīsala
H L HL L L L		H H HL L L L
dogs poss. Rabies		rabied dogs
ngolu # sya #aume	→	ngolu sya aume
H L HL L H L		H H HL L H L
chins poss. men		chins of men
mbevo # ya # ūtukū	→	mbevo yotukū
H L L L H L		H H L H L
cold poss. night		night cold
mbisu # ya # mwaitu	→	mbisu ya mwaitu
H L L HH H		H H L H H H
pot poss. mother		mother's pot

(86) H, HH and HHH nouns

a)	mbu	#	īsu	→	mbwīsu
	H		H SH		H SH
	scream		demo.		that scream
b)	ngūkū	#	īsu	→	ngūkwūsu
	H H		H SH		H H SH
	chicken		demo.		that chicken
c)	ngengele	#	ūsu	→	ngengelesu
	H H H		H SH		H H H SH
	bell		demo.		that bell
d)	mwaitū	#	ūsu	→	mwaitūsū
	H H H		H SH		HH H SH
	mother		demo.		that mother

87) LH nouns

a)	mūtī	#	wakwa	→	mūtī	wakwa
	L H		H L		L H	H L
	tree		poss.		my tree	
b)	mūkwa	#	ūsu	→	mūkwosu
	L H		H SH		L H SH
	strap		demo.		that strap
c)	mbandi	# ya #	kītheka	→	mbandi ya	kītheka
	L H	HL	H L H		L HL	H H H
	grasshopper	assoc.	forest		wild grasshopper	

The tone patterns of the noun-phrases discussed before show that a H tone is inserted between the noun and its modifier and this H tone is linked to the last syllable of the noun. In the nouns whose last syllable is SL, the SL tone on that syllable is changed and becomes L as seen in examples 84(a) and 85(a). But when the last syllable of the noun is L, the inserted H tone raises it to a H as illustrated in examples 84(a) and (b) in the all-L nouns, and 83(c), 84 (c) and 86(b) in the HL nouns.

However, when the final syllable of the noun is H as in the case of all-H nouns in example (86), or in the LH nouns in example (87), the inserted H is deleted or does not attach itself to the final syllable of the modified noun-phrase. According to Clements and Keyser (1983), this is due to the 'Twin sister' principle, which states that when two identical tones are mapped onto one syllable, one of these tones is deleted or neutralized. This is what according to our observation is happening to the tones of 'mbū', 'nguku', 'ngengele', and 'mwaitu' on one hand and those of 'muti', 'mukwa' and 'mbandi' on the other, in the modified noun-phrase of the MDK.

3.4 Further Observations on the Behaviour of SL in the Modified Noun-Phrase

As discussed earlier in section (3.2.1) of this chapter, MDK has a SL tone and this we have observed is always to be found at the final position. We have taken to transcribe SL thus:

SL = $\begin{bmatrix} -H \\ +\text{Extreme} \end{bmatrix}$ and the normal L tone as L = $\begin{bmatrix} -H \\ -\text{Extreme} \end{bmatrix}$

Whenever a noun phrase ending with a SL is modified with an adjective, the SL is deleted as we have observed in the above section (3.3) but the SL tone spreads to the right hand side of the preceding vowel on the same word. This is illustrated in example (88) below:

(88)

a) mūomo # mūnene → mūomo munene
L L SL L L L L L H H L
door adj. big door

b) ngūthu # nene → ngūthu nene
L SL H L L L H L
team adj. big team

c) mūndū # mūnene → mūndū mūnene
L SL L H L L L H L
person adj. big person

(89)

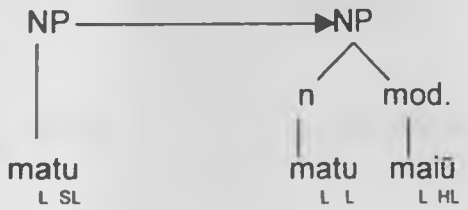
a) kīveti # kyakwa → kīveti kyakwa
L L SL HL L L L HL H
wife poss. my wife

b) matu # maiū → matu maiu
L SL L L L L L HL
clouds adj. dark clouds

c) matu # a a → matwaa
L L H SH L H SH
clouds dem. these clouds

The above observations lead us to a conclusion that SL is replaced by L before a noun modifier be it an adjective, possessive or demonstrative.

Thus:



Another behaviour of the SL tone of the noun-phrase is found in the environment of a long vowel. When SL is preceded by a long vowel, it spreads leftwards attaching itself to the preceeding vowel there, for example:

90)

a) mūūndu - person (+ emphasis)
LSL L

Vs

mūito - heavy (cl.1)
LL L

In 'mūūndu' the SL which is the tone of the second part of the long vowel ū- is found
L SL SL
to spread leftwards to attach itself to the first part of the same vowel ū- just before it.

But in mūito SL does not spread to the vowel preceeding it because the
LL SL
environment is not conducive for that.

This seems to be based on the fact that in 'mūūndu' the penultimate vowel is long
LSL L
while in mūito the penultimate vowel is short. Other examples to illustrate this
LL L
behaviour include:

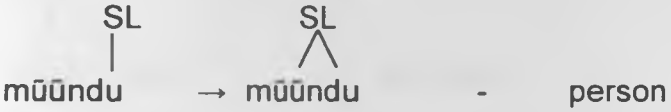
(91)

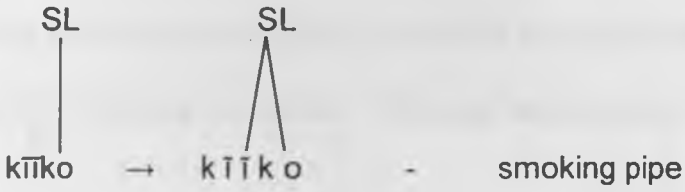
b) k ī ī k o - smoking pipe
L SL SL
vs

kīkūū - old (cl.7)
L L L

→ k ī ī k o kīkūū - an old smoking pipe
L SL SL L LL

Therefore SL can be represented as:





Yet another behaviour of the SL tone in the noun-phrase is that whenever it is suffixed to a H tone, the SL tone becomes SH. Example (92) illustrates this behaviour.

(93)

a) mūtwi - 'picker' (e.g. fruit picker)
L H

mūthwii - 'rich (cl.1)'
SL HL

→ mūtwi mūthwii - 'rich picker'
L SH SL HL

b) īkwaasī - 'sweet potato'
H L L H

ī a a s a - 'long (cl.5)'
SL L L H

→ īkwaasī ī aasa - 'long sweet potato'
L HH SH L LLL H

Thus:

H + SL → SH

mūtwi → mūtwi
L H L SH

[H] [L, extr.] [H, Extr.]

There are certain environments that we have found to trigger the loss of SL tone, for example in kalūlū - 'little leg' and tūlūlū - 'little legs' as illustrated in example (94) below:
L L SL L L SL

(93)

a) kalūlū kaa - 'this little leg'
L L L H SH

b) tūlūlū t w ī ī l ī - 'two little legs'
L L L HH H

c) kalūlū kaangī - 'another little leg'
L L L HH H

d) kalūlū kaa ngūkū - 'this little leg of a chicken'
L L L H L H H

This is a situation where SL appears immediately after a H, and because of that, SL is raised to L.

A second environment that triggers the loss of SL is already discussed in section (3.3) of this chapter where SL is changed to a L in the environment where in the noun it is followed immediately by a noun modifier, be it an adjective, a possessive, an associative or a demonstrative.

3.5 Summary

In this chapter, we have shown that tone in MDK is contrastive and that the contrasting morphemes may be H, L, SH or HL.

Any of the above tones may associate with any syllable through the AC irrespective of the length of the words involved. These tones are underlyingly specified and there are two processes in MDK which determine the surface tone patterns, first, environment- motivated tone deletion rules, which are used to eliminate sequences of H tones on adjacent H tones. Two, other rules delete the left-most of two H tones in specific morphological contexts. Once environment-oriented deletion rules have eliminated a sequences of adjacent H tones, a post-lexical rule of tone shift applies to the remaining H tones.

Tone shift applies in the word at specific morphological environments whereby a H tone is inserted on the final syllable of the noun if that noun is followed by any modifier within the MDK noun-modifier phrase. However, the inserted H tone is deleted by the Twin Sister Principle (Clements & Keyser 1983:90) if the noun's final syllable is Immediately preceded by a H tone syllable or is itself H tone, respectively.

In summary the following processes have been observed to take place in nouns in the specified environments:

a) L tone is inserted at sentence final position and all other final positions such as clause final and phrase final position.

b) Tones are intensified at clause final position, phrase final position and sentence final position.

c) Tones spread rightwards in all nouns with an underlyingly single tone and more than one tbu.

d) L tone is deleted when it occurs immediately after a series of H tones on one tbu

Derived tones have been shown to have the following behaviour in MDK nouns:

a) Super L (SL) occurs only at final position, for example, word finally.

b) Super H (SH) occurs penultimately and word finally.

c) MDK has no rising tone

d) Falling tone occurs only word finally

e) The distinction between LL and L nouns is neutralized after the affixation of the locative marker so that the series of LL on one tbu is not phonetically different from a single L.

CHAPTER FOUR

TONE PATTERNS IN THE MDK VERB

4.0 Overview

Having dealt with the MDK nominals in chapter three, in chapter four we will now proceed to analyse the MDK verbs. To begin with, we describe the segmental and tonal make up of the imperative and the infinitive verbs. In a similar manner, the MDK verb tense is analysed, starting with the present tense, then the past and the future. Again, here we demonstrate the segmental as well as the tonal structures that govern them.

4.1 Introduction to MDK Verbs

In Chapter three we described both the segmental and tonal structure of MDK nouns. This description is important to this study because it helps us to understand and discuss tone assignment and behaviour in the MDK nouns. Chapter four seeks to do a similar description to the MDK verbs.

MDK verbs fall into two categories: the H tone and the L tone, a distinction which is based on the tone of the initial vowel of the verb root. This distinction was also observed by Ford (1976) on Kĩkamba verbs, and our findings on MDK verbs concur with it. The H and L verb classification is coupled with a general L tone at verb final position,

so the H toned verbs are realized with a final L tone at the surface just as the L tone verbs are realized with a L final tone.

The MDK verb may consist of a verb root only or a verb root, prefixes and suffixes. In certain verbs, there is only one prefix and/ or suffix while in others there may be more than one prefix and/ or suffix. Example (94) below illustrates this:

(94)

a) Verb root, with no prefix

o s + a - 'take' (imp)
H L

b) Verb root, with one prefix

kū + o+ s + a - kwosa - to take
L H L SH L

c) Verb root, with two prefixes

kū + mū + os + a - kūmwosa - to take him/ her
L L SH L L SH L

4.2 Types of Verbs

Our aim in this Chapter is two-fold, firstly to identify the segmental and tonal make-up of some specified MDK verbs and secondly to highlight the environments that motivate changes of tone in the verb root (a more detailed analysis of these environment is given in Chapter 5). For the observation of (specified) verbs we choose the imperative and the infinitive verbs.

A general observation on the MDK verb reveals surface tone patterns similar to those found in the nouns in Chapter three. This seems to suggest that both MDK verbs and nouns are subject to the same general tone patterning behaviour.

4.2.1 The imperative verb form

We choose to use the imperative verb form because it has no segmental representations and so it is easy to observe tone changes on the verb root. The MDK imperative verb comprises two forms: the positive imperative and the negative imperative. The positive form in its singular form consists of the verb root and the verb final vowel -a, as shown in example (95) below.

(95)

a) os + a - take
H L

b) et + e - bring
H L

c) ūm + a - bite
H L

The positive imperative plural form comprises the verb root, the verb final vowel -a and the imperative plural suffix, which is always the vowel -i. Example (96) illustrates this.

(97) MDK Verb Tone Patterns*

	1	2	3	4	
Tone	**Non-final Infinitive**	**Final Infinitive**	**Final Imperative**	**Non-final Imperative**	**Gloss**
L (a)	kū+theka L L L kū+tila L L L kū+ita L L L kū+īma L L L	kū+theka L L SL Kū+tila L L SL Kū +i ta L L SL kū+īma L L SL	theka L SH t i l a L HL i t a L SH īma L SH	theka L SH t i l a L SH i t a L SH īma L SH	(to) laugh (to) cut (to) thatch (to) cultivate
L (b)	kū+veva L L L kū+thamba L L L kū+voya L L L	Kū+veva L L SL kū-thamba L L SL kū+voya L L SL	veva H L thamba H L voya H L	veva H L thamba H L voya H L	(to) breath (to) bathe (to) pray
H (a)	kū+ta L H kū+ya L H kū+ne L H	kū+ta L SH kū+ya L SH kū+ne L SH	ta HL ya HL ne HL	ta SH ya SH ne SH	(to) sell (to) eat (to) give
H (b)	kū+ūma L H L kū+tuma L H L kū+tava L H L	kū+ūma L H L kū+tuma L H L Kū+tava L H L	ūma H L tuma H L tava H L	ūma H L tuma H L tava H L	(to) bite (to) sew (to) scoop
H (c)	kū+soma L H L kū+semba L H L kū+vanga L H L	kū+soma L H L kū+semba L H L kū+vanga L H L	soma H L semba H L vanga H L	soma H L semba H L vanga H L	(to) read (to) run (to) arrange

* Adapted from Kioko (1994)

The positive imperative also takes an object. With an object, this form will have the verb root, the mood vowel and the object prefix, as seen in example (97) below.

(97)

a) mwose
H HL

mū +os +e
L H HL

cl.1 -take - md.
take him

b) kye: te
H HL

kī + -et + -e
L H HL
cl. 7 -bring -md.

bring it.

c) kaūme
H H HL

ka + ūm + -e
H H HL

cl. 12 -bite -md.

bite it.

The negative imperative has two forms namely: the negative imperative singular and the negative imperative plural. The negative imperative singular consists of the second person subject marker, the negative prefix, future tense marker and the verb root and the mood-marking vowel -e, as exemplified in example (98):

(98)

a) ndūkose
L H HL

ū + ti + ka +os + e
L L L H HL

2sg – neg. tns -take -md.

do not take

b) n d ū k a e t e
L L H HL

ū +tī +ka +et +e
L L L H HL

2sg – neg. - tns -bring -md.

do not bring

c) n d ū k a ū m e
L L H HL

ū +tī +ka +ūm +e
L L L H HL

2sg - neg -tns -bite -md.

do not bite.

The negative imperative plural differs from the negative imperative singular in only one point. Where the singular forms incorporate the second person singular, the plural form has second person plural as shown in (99) below:

(99)

a) mūikose
L L H HL

mū +ti +ka +os +e
L L L H HL

2pl -neg -tns -take -md.

do not take.

b) mūikaete
L L L H HL

mū +ti +ka +et +e
L L L H HL

2pl -neg -tns -bring -md.

do not bring.

c) mūikaūme
L L L H HL

mū +ti +ka +ūm +e
L L L H HL

2pl -neg -tns -bite -md.

do not bite.

The Imperative with object is yet another type of this verb-form. When this type of verb-form is addressed to one person, it will present itself in the following form: verb radical, the mood vowel and the object mood as seen in example (100) below:

(100)

a) kyete
H HL

Kī + et + e
H H HL

cl. 7 -bring -md.

bring it (class 7 object).

b) mūete
L H HL

mū +et +e
L H HL

cl.1 take md.

bring him/ her (class 1 object)

In its negative form this verb-type introduces the subject marker and the negative marker as in (101):

(101)

a) ndūkakyete
L L H HL

ū +tī +ka +kī +et +e
L L L H H HL

2sg -neg -tns -7sg -bring -md.

do not bring it (class 7 object).

b) ndūkamūeete
L L H H HL

ū	+tī	+ka	+mū	+et	+e
L	L	L	H	H	HL
2sg	-neg	-tns	-1sg	-bring	-md.

do not bring him (cl. 1 object).

The imperative form with object in its plural form differs from the singular form in that it has the imperative plural suffix –i added to it.

4.2.2 The infinitive verb-form

The infinitive verb form has been chosen in this analysis along with the imperative verb form. The infinitive comprises an invariably L tone prefix *kū-*. When this verb form is used as a nominal, the prefix *kū-* serves as a class marker and its L tone is consistent in all MDK nouns. This consistency is found maintained through out the MDK verb. Examples of the infinitive verbal form are given below:

(102)

a) kūtema
L SH L

kū	+tem	+a
L	SH	L
to	cut	md.

'to cut'

b) kūya
L HL

kū +y +a
L HL

to eat md.

to eat

c) kūtheka
L L L

kū +thek +a
L L L

to laugh md.

to laugh

he infinitive verb with Object.

103)

a) kūtema mūtī
L H L L H

kū + tem + a # mū - tī
L H L L H

to cut md. Cl.3 tree

b) kū ya mūkate
L HL L H H

kū + y + a # mū - kate
L HL L H H

to - eat -md. bread

to eat bread

c) kūtheka mūndū
L L L L L

kū + thek + a # mūndū
L L L L L

to -laugh -md person

to laugh at a person

For us to analyze and determine the tones found in the MDK verbs, and to understand their behaviour, we have chosen to examine the imperative and the infinitive verbs in the following environments: a) infinitives in a non-final position; b) infinitives in a final position or in isolation; c) imperatives in a final position or in isolation and d) imperatives in a non-final position.

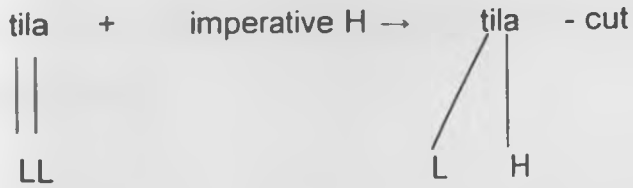
In our examination of the selected MDK verbs, in this chapter, we shall observe each of the above environments separately. We take environment 1, the non-final infinitive as basic because it only reflects two types of tones; the H and the L and no derived tones are revealed. Environment 2, the infinitive in final position or in isolation has the verb H change to SH and the L tone at the verb root final positions changes to SL. These changes observed in environment 2, we postulate, are motivated by the phrase or clause boundary the verb appears next to, and can be captured by the Tone Intensification Rule demonstrated in Chapter three. All the L sub-types and all the H sub-types of the infinitives are seen to respond positively to this rule.

In environment 3, the final imperative, we observe a H-L pattern on the verb root final on all the items considered. We attribute this behaviour to an introduction of a H tone on

the right-most tbu, this H tone replaces the L tone of the verb final position observed in all sub-types. In the L (a) sub-type, the HL tone falls on the final tbu of the verb root producing a falling tone pattern. In L(b) sub-type, the HL tone replaces the stem tone and the L part of the HL remains in the underlying, thus the verbs in this case surface as H on the first tbu of the verb root while the last tbu remains characteristically L tone. This seems to happen in the bisyllabic verbs in this environment where they all get realized as H tone. The mono-syllabic H verbs on the other hand get realized with a HL tone.

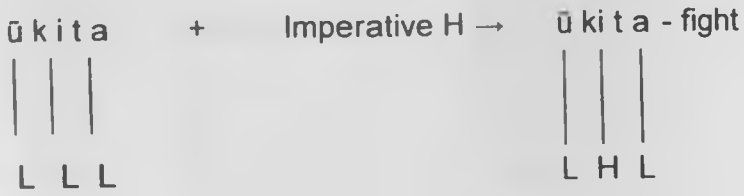
This observation leads us to a postulation that the MDK imperative verb form comprises a H tone which falls on the H verb root producing different effects. On the L verb roots, this H tone creates two sub-types and underlying LLwhich we referred to as L sub-type (a) above. When the underlying L L verb root is followed by the H tone of the imperative, the last L is deleted and replaced with the H of the imperative. In a bisyllabic verb root in this sub-type, the H will attach on the last tbu of the verb root combining with the L tone of the verb root final position and creating a falling tone. This is the case in example (104):

(104)



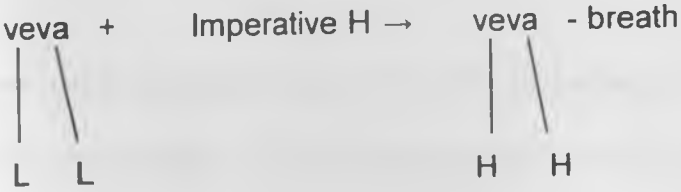
In trisyllabic verbs in this sub-type, the H tone of the imperative falls on the second tbu and deletes the L tone on that tbu as seen in (105) below:

(105)



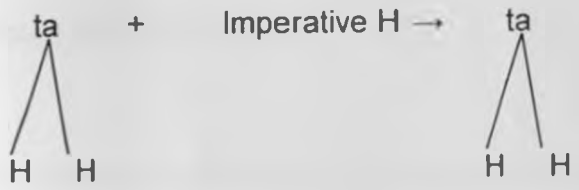
The other verbs that the H imperative influences are the L ones, which we have analyzed as underlyingly L. This is the sub-type that we have referred to as L sub-type (b). The application of the imperative H tone replaces the only stem tone and changes the stem to H tone instead of L as shown in (106):

(106)



Thus the introduction of the H imperative tone neutralizes the difference between the L (a) and H verbs. For the H verbs, the H (a) and (b) are underlyingly HH. In a situation where the verb is monosyllabic, the underlying HH deletes the final L tone and surfaces as HH as shown in (107):

(107)



The falling tone in H (a) at final imperative seems to permit the L tone at verb final position to surface.

4.3 Tense-Marking in MDK

4.3.1 Introduction to MDK tense

Ford (1972) and Comrie (1985) have defined tense variously. The definition we find adequate for the description of MDK tense is the one by Comrie (1985) where he defines tense as the grammaticalized expression of location in time, where tense is presented in a linear order with the past represented to the left hand side while the future lies to the right hand side of the line. The present, he represents by a point in the straight line. In this presentation Comrie explains thus:

> To say that an event occurred in the past is to locate it diagrammatically to the left of '0'; to say that one event occurred after another is to say that it is located diagrammatically to the right of the other event; to say that one event occurred during some other process is to say that the location of the first event is

diagrammatically inside the time-span allocated to the second process (Comrie 1985:2).

Tense and aspect in MDK are very closely interwoven; the tense slot in the verb complex is right between the object prefix and the subject prefix (in present tense) while the aspect position is the verb final position. In our discussion in this section and the following sections of this chapter, we will focus on the tense and not on aspect except in cases where aspectual issues will make it easier for us to talk about tense.

4.3.2 Present tense

Although it would be rare for a situation to coincide accurately with the present moment, Present Tense has generally been used to refer to situations that may in actual fact be longer than the actual present moment but within which the present moment is included (Comrie 1985:37).

This tense form is marked in MDK by a –kū- segment that has a L tone. Aspect is marked segmentally or tonally in MDK present tense as shown in (108):

(108)

	tense	aspect	
	kū | L	Ø	
a)	nī +n + kū + som +a H L SH SL	-	I am reading

b) nī + n + kū + semb + a - I am running
H L SL SL

c) nī + n + kū + til + a - I am cutting
H L L SL

d) nī + n + kū +vev + a - I am breathing
H L L SL

e) nī + n + kū + īm + a - I am cultivating
H L L SL

f) nī + n + kū + y + a - I am eating
H L SH

The L tone of tense segment does not affect the stem tone and the tone of the vowel or the verb final position. The tense forms seem to undergo tone intensification whereby the H tone roots become SH but the L verb roots remain L with the tone intensification taking place at the verb final position as seen in (108 c, d and e).

In this study we choose to use two forms which are assigned to name 'present tense' but whose use flows between the immediate past and the immediate future. These are the progressive form *-ĩte* and the gerundive form *-ũk* as shown in the following examples:
H HL L

(109)

a) n ī n ū k ī t e o y u
H H H HL L SH

nī + n + ūk + -ī te # o # yu
H H H HL L SH

Foc. -1sg -come - tns -emph. now

I am coming right now

b) n īngūka oyu
H L L L SH

nī +n +kū +ūk +a # o # -yu
H L L L SH

foc -1sg -tns –come -fv -emph. now

I will come now

xample (109a) presents a present moment interpretation and derives from an action
iat is 'coming'. It includes the present and continues into the future, while example
109b) uses the immediate future form and gives a present moment interpretation on
ie basis of its close proximity to the present moment. We call it present tense because
ie present moment is captured within it.

he progressive form -īte, which marks the present tense, has a HL HL tone pattern
hile the gerundive form -ūk is H tone.

.3.3 Past tense

ast tense puts a situation ahead of the present moment. Comrie (1985) defines it as a
ocation in time prior to the present moment". According to our observations MDK
iarks four types of past tense in relation to the distance in time a particular situation is
om the moment time point.

his study identifies the four types of past tense in MDK, which are exemplified below:

i) The past perfect form: This is the immediate past tense and it is marked by *-á* as seen in the examples below:

(110)

a) naūka
LH L

na +u +uka
L H H L

1sg -tns -come

I came

b) twaūka
LH L

tū +a + ūka
L L H L

1pl. -tns -come

we came

ii) The near past: This type of past tense is marked by *-ie* suffix as seen in example (111) below:
HL

(111)

a) n o s i e
L H L

nī +os +i e
L H HL

1sg -take -tns

I took (something)

b) twoosie
LH HL

tū +o +os +i e
L H H HL

1pl. -tns -take -tns

we took (something)

i) The far past tense: This form of the past tense is marked by *-nȁ ..-ìȅ* as shown in (112):

112)

a) nīnoosīe
H LH LL

nī +na +os +ie
H L H LL

1sg -tns -take -tns

I took (something)

b) tūnoosie
L HH LL

tū +na +os +ie
L HL H LL

1pl. -tns -take -tns

we took (something)

v) The remote past tense: This form of past tense too is marked by *-a..-ie* as exemplified in (113):

(113)

a) noosie
LL HL

na +os +i e
L H H L

1sg - take -tns

I took

b) twoosie
LL HL

tū +a +os +i e
L L H H L

1pl. -tns -take -tns

we took

These four forms are used to indicate past tense in MDK, that is -a, *-ie, -na..ie* and -*a..ie* show a very narrow boundary between them. Their usage, especially when used in conjunction with time adverbials illustrate this fact. Examples (114)- (117) below show that there is an overlap between the four forms of the past tense.

(114)

noosa # oyu/ syuoo/ īyoo/ kwakya kioko
L L HL L SH H H L LHL H HL L L

I took (something) now/ today/ yesterday / this morning.

(115)

nosie # syuoo/ īoo/ kwakya kioko/ īso
H HL HH L LH L HL SH L L L H

I took today/ yesterday/ this morning/ the day before yesterday.

(116)

ninoosie syuoo/ īoo / kīoko/ īso/ mwaka mūthelu
L LH L HHL LL L L H L L L H H

I took now/ yesterday/ this morning/ the day before yesterday / last year.

(117)

nīnoosie syuoo/ īoo/ kioko/ īso/ mwaka mūthelu
LH HL HHL HL LL L LH L L L H H

I took today / yesterday / this morning / the day before yesterday / last year.

As said earlier in this section, there is a lot of overlap between the different forms of the past tense. The examples above clearly show this. The immediate past form *-a* is used to show time between now and some other time today. The near past form *-ie* is used to show past time today and yesterday, while the far past form *-na..ie* is used for time ranging between yesterday and last year. The remote past form *-a ...ie* is used for time past yesterday, beginning with the day before yesterday.

4.3.4 Future tense

The future tense locates time subsequent to the present moment and thus begins immediately after the present moment. It has been argued that the difference between the future and the present is not one of tense but rather of mood, the future tense being more speculative (Comrie 1985).

In their study of Kīkamba, Whiteley and Muli (1962) identified only one type of future tense which according to them "may be translated by a general future tense in English and occurs for events occurring subsequent to the time of speaking upto a period of some months or so" (pg 41). They cite no example to this claim. However, it is observed in this study that for some verbs, the future tense occurs with an immediate future connotation (1962: 73). This study concurs with Whiteley and Muli (1962) on the onset of future time and also on the claim that for some verbs the future tense has an immediate tense interpretation. However, it is observed in this study that future time ends in the infinity, the unknown remote.

Three types of the future tense of the MDK have been identified in this study. The first is *-ka-*. This is the future form used in describing situations located in the time span of tomorrow, for example:

118)

a)	nī + n + ka + ūk +a H HL H SL	-	I will come	(tommorow)
b)	nī + n + ka + som +a H HL H SL	-	I will read	(tommorow)
c)	nī +n +ka +semb +a H HL H SL	-	I will run	(tommorow)
d)	nī + n + ka + til + a H HL H SL	-	I will cut	(tommorow)
e)	nī + n + ka + īm + a H HL L SL	-	I will cultivate	(tommorow)
f)	nī + n + ka + y + a H HL SH	-	I will eat	(tommorow)
g)	nī+ n +ka + t + a H HL SH	-	I will sell	(tommorow)

On this form of the MDK future tense, the H-L tone is mapped on the tense segment so t is the tense tone marker. The stem tone however is not affected by the tense tone in his form. The tone patterns of other forms of the verb here, the verb root and the verb inal vowel, undergo a tone intensification with the H root becoming SH and the L tone f the verb final vowel becoming SL in all the examples cited above except (f and g) where the verb final vowel is H so it becomes SH.

he second MDK future form is marked as –ka and it covers the period that
ncludes tomorrow and the day after. This form is exemplified below:

Tense	aspect
ka	Ø
L	H

119)

a) nī + n + ka + ūk +a -I will come (tommorow or the day after)
L L HL

b) nī +n + ka + som +a -I will read "
L HL HL

c) nī + n + ka + semb +a -I will run "
L HL HL

d) nī + n + ka + til + a -I will cut "
L L HL

e) nī +n +ka + īm +a -I will cultivate "
L L HL

f) nī +n +ka +y +a -I will eat "
L HL

g) nī+n + ka + t +a -I will sell "
HL

The tense in future form is marked by a L tone. This tone seems to be accompanied by a pattern which affects the verb stem tone as well as that of the final vowel. This tense seems to have an underlyingly L tone which would give it a LL tone pattern. One of the L tones seems to spread rightwards attaching itself to the stem tone. When this happens to the L tone verb roots, there is no effect on them. In the H tone verb roots however, the attachment of the L tone produces a HL tone as seen in (119 b and c). The HL tone at the final position is due to what we would propose to be a floating H tone of the aspect (it is floating because in this form of the future tense, aspect is not segmentally marked), which attaches itself to the final L tone of the final vowel thus creating a falling tone.

The third future form is marked by *-ka-*. This is the form that covers the remote as well as the unknown future. It is shown in the following example.

tense	aspect
ka	Ø
H	H

120)

a) n + ka +ūk + a - I shall come (in the remote and unknown future)
L H HL

b) n + ka +som + a - I shall read "
L H HL

c) n + ka +semb + a - I shall run "
L H HL

d) n + ka + til + a - I shall cut (in the remote and unknown future)
L L HL

e)	n + ka + īm + a L L HL	-	I will cultivate	in the remote and unkown future
f)	n + ka + y + a L HL	-	I will eat	"
g)	n + ka + t + a L HL	-	I will sell	"

The tense segment in this form is marked by a L tone. There is also the H tone associated to the aspect. The aspect itself is not segmentally marked. In both the H verb root and the L verb root the L tone of the tense does not seem to produce any effect but the H of the unmarked aspect surfaces and attaches itself to the final vowel which is L tone so a falling tone is created in all the cases of this future tense form.

We have noted from examples provided for the future tense that, of the three future forms, the remote is the only form which can occur without the focus marker. For all the other forms, it is obligatory for the sentence to be marked for prepositional focus, as shown in the above mentioned examples. When the future form is used in a sentence with a focus marker, the future form has a dual function, the first one being to locate the described situation in the future while the second function is to express certainty about the occurrence of the event.

The difference between a sentence in which a future form is used alongside a focus marker and one without the focus marker is that the described event in the former is more certain than the event described in the latter, where the sentence using the focus

narker has a more certain interpretation while the one without it is only speculative. So, ne remote future marker is only speculative and has no certainty whatsoever.

.4 The Tonal Structure of the MDK Verb

our investigations on the verb root of the MDK, we found that the most common type root is bi-syllabic. The mono-syllabic type of root is represented fairly well but the tri-llabic and the quadri-syllabic roots occur only scarcely. However, through the ocess of derivation these and even longer types of verb stems are produced.

ur observations on MDK verbs concur with Ford (1976) who distinguishes between H ne verbs and L tone verbs in Kīkamba on the basis of the tone of the initial vowel of e verb root. The tone patterns of the verb roots in our data point to a classification of and L verbs and general condition of a L tone in the verb final position.

4.1 Tone patterns of infinitives

ccording to Kenstowicz and Kisseberth (1990), the easiest introduction to the tone stem of a Bantu language is through examining the tone patterns of the infinitives, ecause they clearly show the basic contrast between H and L morphemes aracteristic of this family of languages. Kīkamba (and MDK in particular) fits in this eneralization. The data given below will illustrate the fact that some verb infinitives are -tone while others are L-tone.

(121) MDK Infinitives: H-toned roots.

a) kū +ūma - to bite
L H L

b) kū +tūma - to see
L H L

c) kū +tava - to scoop
L H L

d) kū + semba - to run
L H L

e) kū +vanga - to arrange (something)
L H L

f) kū + tema - to cut
L H L

g) kū +mena - to hate
L H L

h) kū + koma - to sleep
L H L

i) kū +tūma - to send
L H L

122) MDK Infinitives: L- toned roots

a) kū + tila - to cut
L L L

b) kū +mea - to grow
L L L

c) kū + ita - to thatch
L L L

d) kū +kita - to fight
L L L

e) kū +veva - to breath
L L L

f) kū +thamba - to bathe
L L L

g) kū + voya - to pray
L L L

The infinitive marker prefix *kū* - is invariably L-tone in all cases while the final vowel -*a* is also L-tone as a general condition as stated earlier in this chapter (see section 4.3.0).

n the data, the H-tone roots are distinguished as H because of the H tone on the first stem vowel and the L tone ones as L because of the L tone on the first stem vowel.

n this discussion we take the H tone of the infinitives as a surface tone and applying the Association Conventions (AC) of Clements and Goldsmith (1990) which states "Map a equence of tones onto a sequence of tone bearing units (tbu) one-to-one from left to ight", we will attempt to investigate the underlying tones of the infinitives. We will also ttempt to investigate the association of the surface tones to the tbus.

As we have already stated in Chapter three the tbu of MDK is the vowel in the syllable, nd so using AC, we will try to find out how the H tone of the verb root is linked to the rst syllable of the root.

n MDK, monosyllabic H tone verbs type b (see Chapter 3) the H tone associates with nal syllable of the stem where it surfaces with a falling tone because of the already xisting L tone at word final position found in MDK (see ch. 3). Examples illustrating his behaviour are as follows:

123) Final H tone monosyllabic infinitives with phrase-final tones.

a) kū +ne - to give
L HL

b) kū + ta - to sell
L HL

c) kū + ya - to eat
L HL

owever, if another word follows a H-toned monosyllabic, changing it from being at ord-final position to a non-final position, the final syllable of the following word will be -tone as shown in the example (124).

24)

a) kū +ne # mūndū → kūne mūndū
L HL L L L H L L

to give a person to give a person something

b) kū + ta # kīndū → Kūta kīndū
L HL L L L H L L

to sell something to sell something

c) kū +ya # maiu → kūya maiu
L HL LH L L H LHL

to eat bananas to eat bananas

e expected the H-tone to spread rightwards to the next syllable, but this seems to ave been blocked by the L tone at phrase-final position; we therefore conclude that the L tone at the monosyllabic final-position is changed to H when the monosyllabic verbs ccurs at phrase-medial position since the HL tone is in actual fact a L tone and a H ne mapped together on one tbu where MDK has a L tone at all final positions. This nal L tone is then deleted when this same position changes from phrase final to hrase-medial.

The following rule (125), proposed by Kisseberth (1984), which introduces a L tone at word final, would account for this phenomenon. This rule is followed by another (126), which shows how the L tone attaches to the final syllable of the phrase, creating a falling tone when that final syllable is otherwise H toned.

(125) Phrase-Final L Insertion.

Ø => L/- phrase final position where ø is any level MDK tone.

And

(126) Falling tone Creation

The above rules (125) and (126) work together in the monosyllabic type of MDK infinitives creating a HL tone in all of them. The data in (127) further shows another phenomena where in surface monosyllabic infinitives an underlying H tone is not lost in the event of vowel coalescence but rather it spreads and attaches itself to the next and only vowel on the syllable, so that an underlying H attaches itself as a surface tone on the next tbu after vowel coalescence. So does the the final position which automatically has a L tone then HL tone, then a HL tone is created. Therefore instead of having a H toned monosyllabic infinitive 'Kūkwa' after the coalescence of -ū and -a in the case of losing the final tone or having a L toned Monosyllable, a HL tone is created.

the case of the infinitive 'kūkwa' because of the presence of L tone at word
L H
nal position in the language, we end up with a HL tone because the underlying H taches itself and spreads to the next vowel rightwards, which next vowel, due to its osition at word final is automatically L tone, thus creating a HL tone. That is the case bserved in all the other monosyllabic infinitives in MDK including:

27)

a) kū + thi - to go
L HL

b) kū + ka - to take
L HL

c) kū + nywa - to drink
L HL

4.2 Tone patterns in the verb inflections

this section our aim is to examine tone patterns of the inflectioned forms drawn from e verbs in our examples. We hope to establish the tone patterns of such verbal fixes as tense, concordial agreement forms and forms of derivatives.

4.2.1 Tone in the verb tenses

ur objective in this section is to show the tone patterns of MDK tense forms. We aim provide this by drawing from examples of the verbs we have given in the earlier

sections of this chapter. These examples listed in (128) will form our discussion on the tones found in the tenses.

(128)

Underlyingly HH verb roots

a) ūm- bite
H

b) tav- scoop
H

c) tum- sew
H

d) ya- eat
H

e) ne- give
H

Underlyingly H tone verb roots

a) som- read
H

b) semb- run
H

c) vang- arrange
H

Underlyingly LL tone verb roots

a) til- cut
L

b) ukit- fight
L L

c) i t- thatch
L

d) im- cultivate
L

Underlyingly L verb roots

a) vev- (L) breath

b) thab- (L) bathe

c) voy- (L) pray

2.2 *Past tense*

stated in section 4.2.3, MDK marks four types of past tense. In this section we will mine each one of them to determine the tonal patterns exhibited in each type.

Past tense 1

s is the past perfect form. It expresses action that has taken place a short while ago.

tense	Aspect
a	Ø
H-L	H

9)

a) nī+n+a+ūka (H HL H HL) - I came (a short while ago)

b) nī+n+a+t um+a (H HL H HL) - I sew (a short while ago)

c) nī+n+a+it+a - I thatched (a short while ago)
H HL L HL

d) nī+n+a+īm+a - I cultivated (a short while ago)
H HL L HL

e) nī+n+a+thamb+a - I bathed (a short while ago)
H HL L HL

f) nī+n+a+y+a - I ate (a short while ago)
H HL HL

g) nī+n+a+vev+a - I breathed (a short while ago)
H HL HL

ne past perfect tense is marked by the vowel -a and has a HL tone. Also found in this nse form is a H stem tone which falls on the last tbu and thus combining with the final tone and producing a HL tone.

Past tense II

his form is the near past, the past tense that covers today and yesterday, and is made of the following:

Tense	aspect
Ø	Ī
H	LH

30)

a) nī+n+ūk+i e - I came
H H L HL

b) nī+n+tum+i+e - I sew
H H L HL

c) nī+n+it+i e - I thatched
H L L HL

d) nī+n+īm+i+e - I cultivated
H L L HL

e) nī+n+thamb+i+e - I bathed
H H L HL

f) nī+n+ī+e - I ate
H H HL

g) nī+n+t+e+e - I sold
H H HL

h) nī+n+vev+i+e - I breathed
H H L HL

/e have noticed that this form is marked by an initial H tone which is mapped together
n the same tbu with the L tone for the stem final position. In the verbs that we have
nalyzed as underlyingly LL this H tone is mapped on the second tbu, replacing the L
ne of that tbu; as shown in (130 b & c) above. Here, the H tone changes the basic
ne of the verb root from the original LL to LH.

he L tone of this form is found on the segment representing aspect and the H is
apped on the verb final vowel together with the L tone of the final position producing a
L tone.

verbs that have been found to be underlyingly L tone, the initial H to e is found to
elete this tone which is the only tone in the stem thus making them H verb at the
urface level. Example (131) is a good illustration of this:

(131)

nī + n + vev+ i + e - 'I breathed'
H H L HL

When the initial H occurs on the H verbs it does not affect the tone of the stem, herefore the tone of the verb remains unchanged.

c) ***Past tense III***

This is the far past tense. This tense form is marked by the following:

Tense	Aspect
na	i
HL	L

as seen in the examples below:

132)

a) nī + n + na +som + i + e - 'I read'
H HL H L L

b) nī + n +na +os + i + e - ' I took'
H HL H L L

c) nī + n +na + tum + i + e - ' I sewed'
H HL H L L

d) nī + n +na + īm + i + e - 'I cultivated'
H HL L L L

e) nī + n + na + it + i + e - 'I thatched'
H HL L L L

f) nī + n + na +vev + i + e - 'I breathed'
H HL L L L

g) nī + n + na + t + e +e - 'I sold'
H HL H L

h) nī + n + na + ī + e - 'I ate'
H HL H L

As shown in (132) above, this tense is marked by the segment *na* which has a HL tone pattern while a L tone falls on the segment marking aspect. This however, happens only on the H verbs. The L verbs have a different tone pattern as shown in (125f). Here, the penultimate vowel carries the tone of the stem. The final vowel in this verb form changes from L toned to SL. This can be attributed to the application of the Tone Intensification Rule discussed in chapter three, (section 3.2.1).

d) ***Past tense IV***

This tense describes the remote past in MDK and is represented as follows:

Tense	Aspect
a	I
HL	H

as seen in the following examples:

(133)

a) nī + n + a + som + i + e - 'I read'
H HL H H HL

b) nī + n + a + os + i + e - 'I took'
H HL H H HL

c) nī + n + a + tum + i + e - 'I sew'
H HL H H HL

d) nī + n + a + īm + i + e - 'I cultivated'
H HL L H HL

e) nī + n + a + īt + i + e - 'I thatched'
H HL L H HL

f) nī + n + a + vev + i + e - I breathed'
H HL H H HL

g) nī + n +a + t + e + e - 'I sold'
H HL H HL

h) nī + n + a + i + e - 'I ate'
H HL H HL

In this tense form, the H+L tone is mapped on the tense segment. The H tone of the verb root moves rightwards replacing the rightmost stem tone. In verbs that we have analysed as underlyingly H, it replaces the stem tone which in this case is also H and so produces no change at all (see 133a). In the verbs analysed as underlyingly L, it replaces the stem and so makes the tone of the stem H instead of L, as seen in (133e). The verbs that are underlyingly LL are affected by the H tone as well. Here, again the H tone replaces the stem tone at the rightmost but leaves the L tone of the left of stem. Examples of these patterns would be found in (133c) and (133d) above.

The H tone of this pattern is found to spread right rightwards mapping itself to the last tbu and so producing a falling tone due to the presence of a L tone at the verb final

position in MDK verbs. While the H tone is spreading rightwards to the last tbu it also associates with the penultimate vowel of the MDK verb, the aspect marker –i.

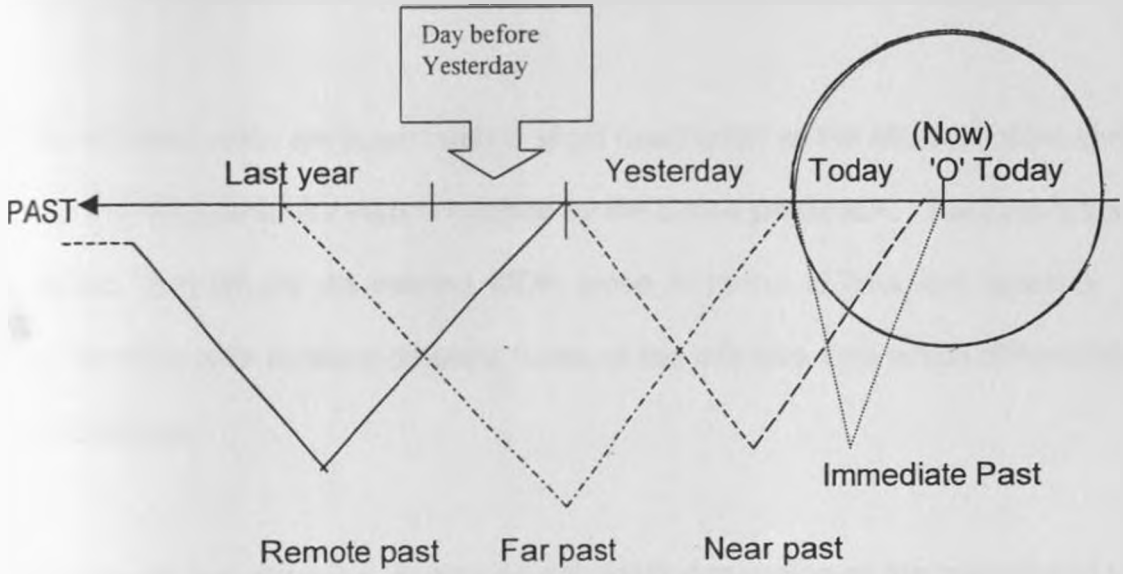
The four types of the MDK past tense are marked segmentally as well as tonally ad are also accompanied by aspectual form which too is marked both segmentally and tonally as shown in (134):

(134) Table Showing Types of MDK Past Tense

	Verb form	Segmental form	Tonal pattern
1.	Past tense 1 (past perfect/ immediate past)	+a+	HL
	Aspect form	Ø	H
2.	Past tense II (Near past)	Ø	H
	Aspect form	+i+	LH
3.	Past tense III (Far past)	+na+	HL
	Aspect form	+i+	L
4.	Past tense IV (Remote past)	+a+	HL
	Aspect form	+i+	H

It is evident from the above discussion that the four forms of the MDK past tense overlap. This phenomenon is captured below in the following diagram.

(135) A Diagram Showing MDK Past Tense (Based on Comrie 1985:2)



Thus what determines the differences is the back limit of time: near past ends with yesterday; far past ends with last year and the remote past ends anytime after last year. But the starting points are as follows: far past starts within the domain of near past and remote past starts within the domain of far past. Tonally, however, these different past tenses are marked differently: near past is H, far past is HL and remote past is H.

4.5 Summary

We began this chapter with a simple description of the MDK verb. We saw the tone that the verb takes and also the tones of its prefixes and suffixes. We observed the different forms of the imperative verb: the negative imperative and the positive imperative both in their singular and plural forms. The tones of these types of imperatives were also

observed including the tones of the objects they take. We noted that the differences in the types of imperative verbs is basically found in the tone each form may take.

For the infinitive verb, we began with a short description of the MDK infinitive verb and showed that this particular verb is marked by the L tone prefix *kū+*. We then introduced the tensed verb where we defined MDK tense in terms of time and location. Here again, we were able to show different forms of the infinitive verb which differentiate the different tenses.

The past tense, we observed, is marked differently depending on the type of past that it is. The immediate past form is marked by $+a_{L}$ and is used to show between now and today; the near past by $+ie_{LH}$ and is used to show past time of today and Yesterday, while the far past is marked by $+na_{L}...ie_{HL}$ and shows time ranging between yesterday and last year. The remote past form $+a_{L}..ie_{LH}$ is used for the past of yesterday and the day before.

Other than the different affixes used to mark the different forms of past tense in MDK, the tone is also used to differentiate these.

In the future tense, three types of future tense forms are identified. $+ka_{HL}$ marks the future of the today, $+ka_{L}+$, the future of tomorrow and the day after and $+ka_{H}+$ marks the remote and the unknown MDK future.

Regarding the type of tones found in the MDK verb, our observation is that MDK like other Bantu languages differentiates between H and L tone verbs on the basis of the tone of the initial vowel of the verb root. We also noted that there is a general condition of a L tone in verb final position. The infinitive marker prefix *kū* (L) is found to be invariably L tone.

Our observations on the tone behaviour shows that the H tone of the monosyllabic H toned verbs associates with the final syllable of the stem and surfaces as a falling tone because it merges with the already existing L tone at word final position, thus getting mapped together on the same tbu with the L tone, creating a falling tone.

However, if another word follows a H tone monosyllabic infinitive, thus changing its final position to a non+final position, then the expected falling tone does not occur but instead, a H tone replaces it. Another phenomenon is that an underlying H tone in a monosyllabic infinitive is not lost when vowel coalescence takes place, rather it spreads and attaches itself to the only other vowel on the syllable and since it is also the phrase+final position, and automatic L tone surfaces, creating a falling tone.

By identifying and describing the tone patterns of MDK verbs and showing their functions in marking tense, Chapter four fulfils objectives one and two, which are to identify and describe the tone patterns of MDK and to establish the function of the identified tones, respectively.

CHAPTER FIVE

FUNCTION AND ASSOCIATION PATTERNS OF TONE IN MDK

5.0 Overview

In Chapters three and four we saw that MDK has four contrastive surface tones namely: High, Low, Superhigh and Superlow. We also saw that the falling tone is a surface mapping of a high tone and a low tone on one tone-bearing unit. All these are realized on the vowels, which are the tone bearing units in this dialect.

In this Chapter we will look at some of the functions of tone in MDK words. Our main concern here will be to further look at how the tonal system of the verbs and that of the nouns in MDK function and using Autosegmental analysis we will try to explain that these four surface tones have been derived from underlying H and L tones.

Our concern will be the tonal and the segmental tiers. The segmental changes that occur when morphemes are derived and syllabified will be referred to in the process of explaining tone association in both nouns and verbs.

We shall restrict ourselves to simple verbs and simple nouns in conjugation covered in the chapters three and four.

5.1 The Tonal Tier

The Well-Formedness condition and the Association Conventions are universal principles that govern the tonal tier in an Autosegmental Analysis of tone. A well-Formedness condition, as proposed by Goldsmith (1990), has the following conditions:

1. Each tone is associated with at least one tbu
2. Each tone-bearing unit is associated with at least one tone.
3. Association lines do not cross.

While the Association Convention as proposed by Clements (1990) states that:

1. Tones are associated with tbus in a one-to- one basis from left to right until all the tones or tbus are exhausted in a construction.
2. All the remaining tones are associated with the last tbu.
3. The remaining tbus are associated with the last tone.

From our analysis of MDK nouns and verbs, it is apparent now that for each Autosegmental tier the associating segment would associate with the associating segments on the other tier. For the tonal tier the associating segments are the tones while for the segmental tier, the associating segments are the vowels only, and these are the ones we have referred to before and hereafter as tbus

5.2 Nominal Tone

As already shown in Chapter 3 the four primary tone levels of the MDK nominal are (L), (H), (SL) and (SH). Syllabic nouns as shown in (136) illustrates these.

(136)

a) mbu (H) - screams

b) mūndū (L SL) - person

c) mū - twe (L SH) - head

The HL tone is in actual fact a H tone and L tone mapped on one tbu as discussed in Chapter four.

5.2.1 The function of tone in MDK nouns

The primary function of tone in MDK nouns is what Hulst (1982) called a lexical function. This is a system where several different tones are used for semantic or grammatical contrast. Semantic differentiation as shown in Chapter three (section 3.1), is where sets of nouns which are otherwise identical segmentally differ in meaning, these differences in meaning being shown only because of the differences in tonal types. As we already discussed in Section 3.2 MDK nouns, which are made of a prefix,

a root and an optional suffix, may have a vowel initial or a consonant initial making a morpheme composition as shown in (137):

(137)

Prefix	Root	(Suffix)
Ø	+C	+V
C	+V	+V
V	+C	+V
V	+V	+V

These morphemes are concatenated to form the nouns and tones are realized over the entire noun. The concatenation of the noun may cause changes in the tone. Some of these concatenations are coalescence of vowels or formation of new syllables as shown in both Chapters two and four. These changes may affect tone in the noun as well as in the verbs where they occur.

5.2.2 Low tone association

The L tone in MDK is realized Autosegmentally on monosyllabic nouns, bisyllabic nouns, trisyllabic nouns and any others that may be longer than these. Examples of these are illustrated in (138) below.

(138)

a) ngo - 'leopard'

b) nondo - 'breast'

c) nzo ko lo - 'cockerel'

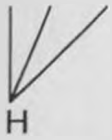
In the above example (138) we see that the AC has been applied to give us the association to the left most tbu of each of the above nouns. The association of the H tones in MDK nouns be they monosyllabic, bisyllabic trisyllabic or larger, works in the same way as that of the L tones. The following example (139) helps to illustrate this.

(139)

a) ngū - firewood

b) n z o n g o - mono-eyedness

c) n z a k a m e - blood



d) n z ū k ū l ū l ū - great grand child

5.2.3 HL tone association

The HL tone can be realized on any tbu in MDK nouns, be they monosyllabic or longer roots. This is illustrated in example (140) below:

(140)

a) ngwa - thunder

b) manya - know (imp.)

c) m ũ t ĩ nĩ - at the tree

d) n za k a m e n ĩ - in the blood

The HL tone is realized either on the final vowel or the penultimate vowel of the word.

As we see in example (140) above, the AC has led to the association of the left most tone to the left most tbu. This process usually goes on one to one basis from the left to the right until all the tones and all the tbus are exhausted. In many instances in MDK, the tones match the tbus. However, there are cases as illustrated in (140) above where after initial association of tone to tbu has been made, there is a shortage of tone bearers leaving the L tone of the MDK word-final position unassociated. The specific application of AC in MDK indicates that all tones must be associated and that tbu may be associated with a maximum of two tones. Therefore cases of the nature seen in (140) above occur, where MDK associates the remaining L tone to the last tbu thus creating a HL tone.

5.2.4 MDK tone initial association rule

5.2.4.1 *Apparent violation of the obligatory contour principle* (OCP)

The OCP states that sequences of identical segments such as two H tones or two L tones do not occur together, and that any such occurrence is assumed to be a marked type (Hulst 1982). According to Hulst OCP has been interpreted so strictly that any language found to violate it has been thought to be more of a pitch-accent system rather than a lexical tone system. In recent times, the inviolability OCP has been tested, and Goldsmith (1990) asserts that identical adjacent tonal segments are not universally reduced to one as would be the predication of OCP. Goldsmith stated that the OCP is a strong tendency in a language but it is not unviolatable.

According to our observation, MDK has some surface tonal patterns that seem to violate OCP. Some of these are found in bisyllabic nouns as H, HL and also on trisyllabic nouns as illustrated in Example (141) below:

(141) a) ma - sungwa - oranges

mū - tambo - railway

b) m w a i t u - mother

H H H

The two representations of tone in the above example (141-a) and (141-b) are obvious violations of OCP and should be reduced to HL associations, which is a normal association as far as OCP goes. However, the so-called normal OCP association would produce incorrect surface forms in some nouns in MDK as would be the case in those illustrated above.

In an effort to solve the OCP violation created by the above-mentioned association, Goldsmith (1990) suggested that an Initial Association Rule (IAR) takes place. This he found more suited to pitch accent languages. This is where the special tone melody, which would otherwise violate the OCP, is associated to the last tbu in the word, and in this case, the noun, after this, the AC is applied to the rest of the tbus in the word. This kind of association is illustrated in (142) below:

(142) a) ngoo - heart

*H L

b) ngũthī - pride

*H L

This kind of association makes the initial association by linking the special tone (the starred one in this case) with the last vowel in the word (this is indicated by the solid line).

5.2.4.2 Suffixed nouns

The domain of tone in our analysis has been observed to be the word. The locative marker syllable - *nī* has a surface L tone. It however has an underlying HL tone, (see Section 3.2.2). When this suffix is added to MDK H tone nouns, the H tone of the noun spreads rightwards according to the AC creating a surface form of a HL tone on penultimate vowel of the noun, thus changing the tone of the word. This is seen in Example (143):

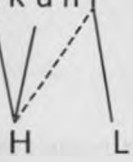
(143)

a) m ū t ī → tree
L H

Mūtī + nī → m ū t ī n ī - at/ on the tree
L H L

b) n g ū k ū - chicken

ngūkū + nī → n g ū k ū n ī - at/ on the chicken



All these changes take place in the word, changing its tone and thus also affirming that the domain of tone in MDK is the word.

5.2.5 Glide-formation and tone association

Glide formation is one of the phonological processes found to operate in MDK words. It involves the changing of vowels into consonants (semi-vowels). As explained in Section (2.1.1.1), certain vowels occurring adjacent to each other glide to form semi-vowels, these include:

(144) /a/, /i/ and /ɔ/→[j],

/i/, / a /→[j]

/i/ and /u/→[j]

Also,

(145) /u/ and /o/ →[j]

/i/ and /u/ →[j]

/u/ and /ɛ/ →[ω]

/u/ and a →[ω]

The most affected environment is the word-initial position but word final word-medial and phrase medial possessions are other candidates for this phonological process. Since tone in MDK is carried by the vowel, when this vowel then glides with the next one and a consonant is born in the place of the first vowel, the tone of the first vowel is not lost, and rather it is mapped onto the second vowel. Where the two vowels have the same tone, then OCP is applied, deleting the first tone, so the surface tone of the second vowel remains as the one but not the two. Example (146) below illustrates:

(146)

a) / sī + ɔa / → [sjɔa] - 'frogs'
L L H LH

b) / sī + ɔɔ/ → [sj ɔ ɔ] - 'toilets'
L HL SH L

However, when the adjacent vowels do not share the same tone, the tone of the changed vowel, for example when the tone of the changed vowel is L and that of the remaining vowel is H, the L tone spreads to the H-tone vowel creating an underlying LH tone pattern. Now MDK does not have a rising tone pattern and so deleting the left most tone and thus the remaining correctively changes this situation vowel has a High tone pattern. Example (147) illustrates this phenomenon.

(147)

a) / si + ītwa / → [syītwa] - 'names'/
L H SH H SH

b) / me + aka / → [myaka] - 'years'/
L H L SH L

Therefore, in the glide-formation process, where a consonant, a non-tone bearer replaces a tbu, the tone is not lost but it underlyingly spreads leftwards to the adjacent tbu where language specific rules are applied before a surface structural pattern is produced. This is in conformity on with the stability and the floating tone argument of Autosegmental phonology. The process is further discussed later in section (5.3.3) of this Chapter.

5.3 Verbal Tone

5.3.1 The function of tone in MDK verbs

The basic function of MDK tone on the verbs is largely for grammatical distinction as opposed to semantic distinction found in the nouns. Among the distinctions that tone makes in MDK include: person, number and a lexical difference in certain verbs, as shown in Example (148) below:

(148)

a) we - you 1st person sg.
L

we - you 2nd person sg.
SH

b) -ka (HL) - today's future

-ka (H) - future of tomorrow and the day after

-ka (L) - remote and unknown future

c) ua (H L) - cook (imp.)

u a (L HL) - bleed (imp.)

d) thea (HL) - be clean (imp.)

thea (L HL) - sort out (imp.)

These examples indicate cases where tone is very significant in the distinction of verbs. In (148-a) we see the contrast in person expressed only in tone, with 1st person singular being marked with L tone while the 2nd person singular is marked with a SH tone (as shown in (148-a above).

The future tense is differentiated only by the variation of tone in MDK. Here a HL tone marks today's future tense, H tone, the future of tomorrow and the day after while the remote and the unknown future tense is marked by the L tone (see section 5.2.4).

Tone in the MDK verbs is also used to differentiate meaning in different verbs as is shown in (148-c) above. Tone in MDK as (stated earlier in Chapter 2) is used to distinguish between nouns and verbs as seen in Example (149) below.

(149)

a) manya - know (imp.)
L HL

manya - spaces
H H

b) vota - enter (imp.)
L HL

vota - powder
H LL

5.3.2 Verb tone association

5.3.2.1 Imperatives

MDK imperatives are monosyllabic and because they have no prefix they display no segmental changes. The imperatives are marked by a HL tone. This tone is considered to be a replacive tone because its presence causes the deletion of the tone at the word final position of the verb. Association then will take place with AC thus assigning a HL tone to the monosyllabic root, as shown in example (150) below:

(150)

a) ku + ya → ya - to eat
L H HL

b) ku + ta → ta - to sell
L H HL

5.3.3.2 *Glide- formation that changes vowels to consonants*

The formations of glides (discussed in Chapter 2) changes vowels to consonants. This process creates morphophonemic changes and affects tonal association in MDK because it changes vowels which are syllabic to consonants which are non-syllabic; vowels are tone bearers but glides which are semi-vowels do not bear tone on their own.

This process takes place when particular vowels occur adjacent to each other in a word. This may occur in any word of MDK. Examples of glide-formation in the MDK verbs are illustrated in example (150) below:

(150)

a)	kū +osa L H L	→	kwosa SH L	-	to take
	kū + enza L H L	→	kwenza SH L	-	to shave hair
	kū + ita L H L	→	kwi:ta SH L	-	to strangle
b)	kū + enda L L L	→	kwenda L L	-	to love
	kū + a mba L L L	→	kwamba L L	-	to hung up (as of a tent)

Glide formation occurs when two similar vowels next to each other in a word coalesce to form a glide. After this process has taken place, the prefix vowel and the initial vowel of the root coalesce, in the H tone verbs, the L prefix tone and the H toneinitial vowels of the root merge and the result is a SH initial vowel on the verb. What has happened here is that the prefix vowel is deleted but its L tone does not get lost, rather it moves right and attaches itself to the initial vowel of the root which is already H, thus creating a LH melody, but since MDK does not allow a LH melody the L tone gets deleted and the H tone get intensified (see Chapter 3, pg. 70) to became SH.

On the other hand, the L tone verbs do also undergo the same processes of glide formation. The L tone of the prefix vowel moves rightwards and attaches itself to the initial vowel of the root, but in this case both vowels carry L tones, so in accordance with the rules of MDK, two identical tones do not get mapped together on one tbu, so the second L tone gets deleted and thus we end up with a L tone verb as illustrated in (150b) discussed above.

5.4 Verb Tone Patterns

Our observations show that the behaviour and pattern association of tone in the verbs is not different from that of the nouns. When the OCP is applied on any sequence of identical tones for example, the effect is the same in both the nouns and the verbs. This happens in spite of the verbs being classified into lots of L tone and the H tone, unlike the nouns which are not classified and may have any pattern of the four tones identified

in MDK. Thus, we have seen the patterns HL, H, L, SH, SL in monosyllabic verbs and this patterning is found exhibited variously in verb longer than monosyllables, such as bisyllables, trisyllable and even longer ones, as the case may be.

However, the SL tone is observed only at the word final position where words are analysed in isolation, or at the phrase or sentence final position, not at the initial or the medial position. This happens to be the case in the nouns as well.

5.5 Summary

Our task in this chapter has been to identify the behaviour and association patterns of the MDK tones identified in Chapters three and four. We saw that the four contrastive surface tones identified in both the verbs and the nouns are significant lexically in that they distinguish lexical items semantically, and grammatically, in that they distinguish usage.

We observed that by applying Autosegmental rules of tone analysis to these tones we could discover their underlying behaviour. We further observed that the tones that may be present on the surface are basically from underlyingly H and L tones. These form tonal patterns, which expand or contract depending on the associations they take.
We also noted that the MDK tonal system can be explained using the Association Convention found in Autosegmental Phonology.

The tone behaviour of MDK agrees with the Well-formedness Condition in that each tone is associated to a minimum of one tbu and a maximum of four and that each tbu is associated to a minimum of one tone and a maximum of two tones (three tones are found in rare cases such as Superhigh Falling (SHF)).

In MDK, any tbus left unassociated are all associated to the last tone in accordance to the Well-formedness Condition. This is what causes tone spreading in MDK. HL tone patterning, the only contour tone patterning in MDK is made possible by the rule that states that any tones left unassociated are then associated to the last tbu, again in harmony with the Well-Formedness Condition.

CHAPTER SIX

SUMMARY AND CONCLUSIONS

6.0 Overview

In this chapter we provide an overall summary of all the chapters of this research, from chapter one to five. We will also make concluding remarks regarding our observations of the MDK tone, indicate the contribution this study makes to literature and finally, we will make suggestions for further research in MDK.

6.1 Summary

In chapter one, we presented the research problem and the objectives of our research. The problem was to identify and describe the tonal shapes of MDK nouns and verbs. Our task was to investigate, identify and describe the tone patterns found in MDK in order to determine: their phonological significance and role in the composition of morphemes, their lexical and grammatical function; and association patterns in terms of how they are assigned to tbus within the words.

We chose to research on MDK because it is specific and hence a more reliable source of data as opposed to the vaguely defined Standard Kīkamba. In order to determine the patterns and functions of tone in MDK, we had to define what a tone language is; that a

tone language is a language in which both tonal and segmental phonemes are used in the composition of all the morphemes or at least some of the morphemes.

We had five objectives namely to:

1. identify and describe the tone patterns of MDK;
2. establish the functions of tone in MDK nouns and verbs;
3. identify the tone bearing units in MDK in terms of association principles of Autosegmental phonology;
4. determine the tonal processes of MDK in given phonological; and morphological environments, and

We had five hypotheses that were tested in our research namely:

1. MDK has a distinguishable tonal system;
2. tone has both lexical and grammatical functions in MDK;
3. the tone bearing units of MDK are the vowels
4. observable characteristics of tonal elements in MDK are governed by a set of generalizable morphological and phonological processes; and

Chapter two gives a phonological and morphological background relevant to this research. Here, we identified the seven vowels of MDK and also observed their different qualities that double the number. Also observed here is the stringing-up of vowels

whereby some words are made up of vowel clusters only. This clustering, however, much as it is a phenomenon due to a historical loss of certain consonants' does not affect all the MDK words. These consonants, namely [ɤ] and [r] are present in some of the words thus breaking away from the expected vowel- only words found in other Kĩkamba dialects.

The mutable and non-mutable behaviour of MDK vowels was also observed in this chapter. Here, the mutable vowels are responsible for vowel coalescence, which leads to glide - formation thus replacing vowels with consonants (semi-vowels in this case, [j] and [w]). The immutable vowels on the other hand block this phonological processes thus creating vowel cluster. Vowel harmony discussed in this chapter is a morphological process within the language in which certain morphemes are copied on others for harmonization purposes. This process may cause a consonant deletion, thus creating vowel clusters.

Vowel deletion and vowel coalescence are other processes examined here that may explain changes in an MDK word structure and may affect the assignment of tone.

Further in this chapter we examined the MDK consonant system again. Here, it became clearer that phones [ɤ] and [r] together with [ʦ] are found in MDK and not in any other Kĩlkamba dialect. MDK's simple and compound phonemes were examined and found to be distributed fairly well and in any word position.

We gave a detailed analysis of the nouns by basically describing the noun class system and showing the relationship between the different classes. MDK is found to have an open syllable structure. Each syllable must end in a vowel. There may be one or as many as four consonants in a syllable but only one vowel. On the other hand, syllables may consist of a single vowel.

Chapter two is important in this study because it forms the basic phonological and morphological domain from where the information on verbs and the nouns of MDK is drawn for discussion in the chapters following it.

In chapter three, the nominal structure of MDK is re-examined with the purpose of identifying the tonal patterns of nouns. In this chapter, we noted that there are four contrastive surface tones in MDK: H, L, SH and SL. A falling tone (HL) is also found to exist and is analysed as being underlyingly a H tone followed by a L tone whereby the falling effect is a result of mapping on one tbu a H and a L tone.

The SL tone is found in word-final position and in no other place in the word. The above mentioned tones are clearly evident in nouns appearing in isolation. The prefixes marking the noun classes are found to be toned and there are cases where they do not carry any tone because they do not constitute a tbu. Where this is the case, the initial tone is found in the noun root but where the prefix carries a tone, other tone patterns are found in the stem.

Noun tones change giving rise to their allotones due to the influence of the syntactic environment the particular nouns are found in. Some of the allotones are the extreme versions of L and H as they become SL and SH at word and clause-final positions.

A L floating tone is observed to get introduced at word final position of some nouns. This results in a HL tone in nouns ending with a H tone, a SH tone, in nouns that are underlyingly HH and SL on nouns that are underlyingly LL.

Tone deletion is found to take place when tone intensification has occurred. Here, after the tone has been introduced at word final position marking particular tbus to bear three tones. The deletion rule then takes effect deleting the right-most tone where a series of three tones are found associating to one tone bearer. This, as we have already said only happens to a special High toned subtype of nouns (see chapter 3).

The tone intensification and the deletion rules in MDK seem to suggest the presence of derived tones, which occur at word final and penultimate positions.

The affixations of the noun class marker to the nouns and the locative marker are the only two affixes found in MDK. The class marker prefix has no effect on the tones of the nouns but the locative marker does affect the tones of the nouns it affixes to.

We observed that the locative marker has a L tone that associates HL with the tbu at word-final position. Where the word final tone is H, a HL tone is created, but when, on

the other hand, only the surface tone is L but underlyingly H, again a HL tone is created as the L tone triggers a surfacing of the H underlyingly tone.

In this chapter we observed that when a noun ending with a L tone is modified with a demonstrative, possessive or associative, the L tone is raised to a H, if the noun ends with a SL this is raised to a L tone. Here the explanation we put forward is that a H tone is inserted between the last tone of the noun and the first tone of the modifier, and linked to the last tone of the noun. This changes the SL at the noun final position to L but when the last noun tone is L the inserted H raises it to a H. In cases where the final tone of the noun is H, the inserted H is deleted or neutralized in accordance to the 'Twin Sister' principle as explained in the chapter (see 3.2.1).

Further in chapter three, we observed that whenever a SL tone in the noun phrase is preceded by a long vowel, it spreads leftwards and attaches itself to the preceding vowel. Also that whenever a SL in the noun-phrase is suffixed to a H tone, it changes to a SH. In this chapter we concluded that tone has a lexical function in nouns.

Chapter four begins with a description of the imperative and infinitive verbs. It is observed that the imperative verb has two forms: a singular marked by a segment - a and a L tone and a plural marked by a segment -i and a HL tone. The segment -e and a HL tone mark the imperative mood itself.

The positive and negative imperative are marked by - e, with the negative consisting of the second person subject marker, the negative prefix, the future tense marker, the verb root and the mood-marking vowel.

The infinitive is marked by a L tone prefix kū- in all cases. The present tense in MDK is marked by a progressive form - īte and the gerundive form -kū, a present moment
L H H
interpretation of the action "coming'. The past tense has four types. We have showed that the immediate past referred to as past perfect is marked by –a, the near past is
L
Marked by ie, the far past is marked by –na....ie and the remote marked by –a .... ie.
H L HL HL L HL
We also described the future tense and identified three types, the first being –ka- for
HL
the future of today, the second one –ka- covers the remote and the unknown future.
H

Our observation places MDK infinitive verbs into two categories, the H tone and the L toned. The H tone roots are classified that way due to the H tone of the first stem-vowel while the L tone ones are classified L because of the L tone on the first stem-vowel. We observed that in MDK, a certain H tone verb type (discussed in chapter two as H type b) associates with the L tone of the final syllable of the stem and creates a HL tone. When this same position changes from phrase-final to phrase-medial the L tone is deleted, but the H tone is left on that same syllable.

Another phenomenon found in the MDK verbs in this chapter is that in a monosyllabic infinitive, the underlying H tone is preserved during vowel coalescence. This H tone

spreads attaching itself to the only other vowel on the syllable and since this is at phrase-final position, a HL tone is created.

In chapter five, our aim was to determine the association and patterns of MDK tones identified in the nouns and in the verbs as shown in chapter three and chapter four. In these chapters we saw that the four contrastive surface tones identified in the MDK nouns and verbs have a lexical function in nouns and a grammatical function in verbs. This conclusion meets objective number three. It shows the function of tone as we hypothesized. In this chapter we also observed that by applying Autosegmental rules we are able to discover the underlying association behaviour of the tones. Here we observed that the surface tone presentations are derived from the underlying L and H tones which expand to form SH and SL or contract to form a HL depending on the association makeup. These tone patterns are found realized on the whole of MDK word. All these tone manifestations are shown of the MDK vowel as these are the tone carriers in MDK.

We also noted that MDK tone system agrees with the Association Conventions found in the Autosegmental theory. The language specific behaviour of MDK agrees with the Well-Formedness Condition in that every tone in MDK is associated to a minimum of one tbu and a maximum of four; and that each tbu is associated to a minimum of one tone and a maximum of two to three tones as in the case of SH-L. The Obligatory Contour Principle here seems to be violated in some tone associations and an IAR found more suited to MDK.

Glide-formation is found to take place in verbs just as it does in nouns and under similar environments and with similar results. The behaviour of tone in the verbs is not found to be different from that of the nouns discussed in chapter three.

6.2 Conclusions

Our conclusion of this research is that MDK has a distinguishable tonal system which has both grammatical and lexical function. This system is phonologically realized in that tonal phonemes enter into the composition of morphemes of the lexicon.

Tone in MDK is found to mark lexical distinctions in the nouns and grammatical distinction of person, numbers as well as certain forms of tense in verbs. Vowels are the tone bearers in MDK words. The presence of tonal minimal pairs is found in the nouns as well as in the verbs.

We found that MDK has underlyingly two extra tone patterns, SL and SH, which may not found in other Bantu languages as these have just the H and the L tones. MDK also has long vowels and short vowels. These are distributed in different tone patterns over the nouns and verbs of MDK and indeed the whole lexical system of MDK. These words take different lengths and syllabic structures and they also admit different affixes. This leads to the surfacing of contour tones. The HL is one such contour tone found in MDK, being the surface realization of a H and L tone mapped together on one tbu.

Deletions of certain vowels and the coalescencing of others are yet another cause of contour tone creation.

Our description and analysis of MDK morphemes and tone is, however, an initial attempt (indeed a maiden one). A deeper analysis is recommended. It is our hope that this description and analysis will serve as a milestone in the future undertakings of tonal studies in the rest of the Kīkamba dialects. This is indeed our contribution to the study of tone in general and to Kīkamba tone in particular.

6.3 Contribution of the Study to Scholarship and Practical Applications

This study makes a significant contribution to the study and teaching of Bantu tone generally and Kīkamba tone in particular. It presents for the first time, a systematic description and analysis of tone of one of the dialects of Kīkamba. The findings of this study bring to literature information on the tone of MDK and so it is valuable to researchers, teachers and students of Bantu Linguistics especially those interested in tonology.

This study will help researchers of the other dialects of Kīkamba to examine tone patterns in those dialects and thus it will have played an important role in spearheading the discussion of the different tonal patterns found in the different dialects of Kīkamba.

At present, the Kĩkamba orthography used in teaching and writing is based on the so-called Standard Kĩkamba, which the speakers of MDK do not use. This study has explored MDK tone as an important dialectal feature.

This study will, therefore, contribute to the discussion of basic issues such as Kĩkamba orthography and adult literacy curricula. The descriptions of Mwingĩ dialect will facilitate the understanding of the differences between the dialect used in print (the standard) and other regional dialects.

6.4 Issues for Further Research

In the course of our research we have touched on certain areas which we feel raise questions for further research. As we stated at the beginning of our research, our aim here was to provide a basic tool for description of MDK tone. We have provided many examples to explain and differentiate tonal patterns and have illustrated how they are associated to tone bearers. However, certain questions, we feel would be answered in a further research. These would include the following:

1. The presence of the extreme tone versions should be investigated. We suspect that these could be the effect of the influence of intonation and contour tone association in particular phonological and syntactic environments.

2. The doubling of tone could be explained better if deeply explored and reasons provided for tone intensification in certain nouns and verbs, our suspicion being that these are as a result of underlying identical tones.

3. Delineating Kikamba dialects on account of tone.

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