VERB TONOLOGY IN OLUNYALA

THESIS

BY

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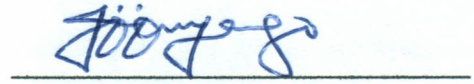
DECLARATION

This thesis is my original work and has not been presented for a degree in any University.



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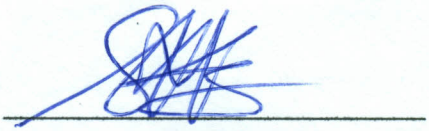
This thesis has been submitted for examination with our approval as University Supervisors.



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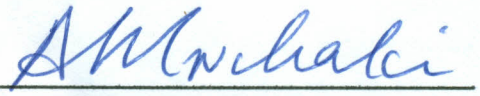

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DEDICATION

To my dear father,
The late Mr. Reuben Onyango;
And my dear mother,
Mrs. Priscah Nanjala Onyango;
Who sent me to school,
And urged me to further my studies.

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First and foremost, I thank God for blessing me with good health. Had it not been for the protection and encouragement He gave me from the beginning, this study would not have existed.

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I owe an enormous debt of gratitude to the German Academic Exchange Service (DAAD) for granting me the scholarship for this study. The scholarship enabled me to

meet the high cost of doing my research. I also express my sincere thanks to the Dean's Committee at Kenyatta University for awarding me a research grant that supplemented my research budget. The grant enabled me to buy the reading materials that I needed for my study.

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And to all my friends, relatives and colleagues whose support I have not found space to mention specifically, ***Asanteni sana, na Mungu awabariki. Amen.***

ABSTRACT

The purpose of this study was to investigate the inherent relationship between the three grammatical categories of tense, mood and aspect and the tonal pattern of the Olunyala verb. It also attempted to determine the rules and principles that govern those tonal patterns in view of the verbal grammatical categories.

Fifty-four tape-recorded interviews were conducted, from which two hundred and six verbs were sampled and classified. Lexical Phonology and Morphology theory was used to analyze the verbs by comparing the basic verb tone pattern with the derived tone pattern conditioned by the grammatical category of the verb. This was followed by the formulation of rules governing the tone patterns. The study was presented by using textual description, diagrams and tables.

It was found out that various tense and mood categories affect the tone pattern of the Olunyala verb but aspect does not. The study also showed that there are six productive tone rules that govern surface tone patterns in the Olunyala verb and that these surface tone patterns are influenced by phonological, morphological and syntactic factors. This study is an important source of information for people who need teaching materials for Olunyala language and translators of Olunyala into English. It also contributes to the stock of reference materials for researchers on Bantu tonology. The study calls for further investigation on issues related to verb tonology. These include the syntactic aspects of tone, the tonal patterns of other word categories including adjectives, adverbs and nouns, the lexical and pragmatic functions of tone in language, and the tonal similarities and differences between Olunyala and other Oluluyia dialects.

ABBREVIATIONS

C	consonant
cf:	cross-refer
G P	Generative Phonology
H	high tone (also marked as ′)
Ⓗ	floating high tone
H L	falling tone (also marked as ˆ)
L	low tone (unmarked)
L H	rising tone (also marked as ˇ)
LPM	Lexical Phonology and Morphology
pl.	plural
PM	Prosodic Morphology
sg.	singular
TM	tense marker
V	vowel
V. No.	verb number

LIST OF SYMBOLS

The presentation of this study involves the employment of special descriptive symbols and relevant phonetic symbols that pertain to the sound system of Olunyala. These symbols are listed below:

Ø	zero morpheme
--	syllable boundary
#	word boundary
{ }	morphemic representation
//	phonemic representation
[ ]	phonetic transcription
ˊ	high tone
ˆ	falling tone
ˇ	rising tone
|	association line
⫰	deassociation
	reassociation or spreading
:	lengthening
σ	syllable node
→ ←	synchronic change
*	deviant output
=	stands for…
[	stem boundary

Phonetic Symbol	Description	Orthographic Form
i	tense high front vowel	i
e	tense mid-high front vowel	e
a	low vowel	a
o	tense mid-high back vowel	o
u	tense high back vowel	u
j	palatal glide	y
w	velar glide	w
β	voiced bilabial fricative	b
l	lateral alveolar liquid	l
r	non-lateral alveolar liquid	r
f	voiceless labiodental fricative	f
b	voiced bilabial stop	b
d	voiced alveolar stop	d
ǰ	voiced palatal affricate	j
g	voiced velar stop	g
p	voiceless bilabial stop	p
s	voiceless alveolar fricative	s
t	voiceless alveolar stop	t
č	voiceless palatal affricate	ch
k	voiceless velar stop	k
m	bilabial nasal	m
n	alveolar nasal	n
ɲ	palatal nasal	ny
ŋ	velar nasal	ng'
x	voiceless velar fricative	kh

DEFINITION OF TERMS

Affix(es): all grammatical inflections attached to the verb root including suffixes and prefixes. These include subject markers, tense markers and object markers, which indicate the relationship between the verb and other words in a sentence.

Aspect: a verbal category that refers to the duration or type of temporal activity such as progressive and completive.

Base: any part of a word seen as a unit to which an operation can be applied as when one adds an affix to a root or stem. In other words, all roots are bases.

Competence: the system of grammatical rules that represent a speaker's knowledge of their language.

Descriptive adequacy: a linguistic theory meets the criterion of *descriptive adequacy* (at the morpho-phonological level) if it correctly specifies which strings of sounds do (and don't) form possible words in the language, and correctly describes the structure and interpretation of the relevant words.

Explanatory adequacy: a linguistic theory meets the criterion of *explanatory adequacy* if it explains why grammars have the properties that they do, and how children come to acquire grammars in such a short period of time.

Generative Phonology: a set of theories whose basic tenet is that there is a finite set of rules that generate an infinite number of well-formed sound structures in a given language.

Lexical Phonology and Morphology: a generative model that investigates how rules that govern the combination of sounds and formation of words interact in the words of a given language.

Mood: a verbal category which signals the meanings involved in a verb, especially the attitude of the speaker towards the factual content of their utterance.

Morphotonology: the study of how morphemes are combined together to form words and the concomitant tonal processes.

Noun tonology: the study of nominal tone patterns and their grammatical function in a given language.

Parameter: a dimension of grammatical variation between different languages or different varieties of the same language.

Principle: a potentially universal property that accounts for grammatical structures or operations of all rules and all languages.

Prosody: the scientific study of the linguistic sound system as it pertains to the speech continuum.

Rule: a property that regularly guides language use and accounts for specific aspects of one language. It may be formalised into written formula.

Stem: the part of a verb that consists of a verbal root, derivational suffixes (also referred to as extensions) and the final vowel.

Surface tone pattern: a regularly repeated arrangement of tones on specific tone bearing units in each word or intonation phrase. Different surface tone patterns of verbs may arise from a common arrangement of tones (underlying tone melody) if those verbs express the same grammatical category, for example past tense.

Tense: a verbal category that relates the time of an action, event or state to the moment of speaking.

Tier: a level of one phonological feature of which sound segments are composed.

Tonal downdrift: a lowering process whereby a sequence of high-low-high (H-L-H) tones in a word results in the realization of the last H tone at a slightly lower pitch level than the first H tone.

Tone: an aspect of prosody that refers to the pitch level of a syllable relative to a contiguous syllable.

Tone language: a language that uses relative pitch on syllables to distinguish lexical and grammatical meanings of words.

Tonology: the linguistic study of tone that mainly addresses tonal patterns in the verb.

Verb: a category of word whose morphological property is that it can carry a range of inflections including tense, mood, aspect and person.

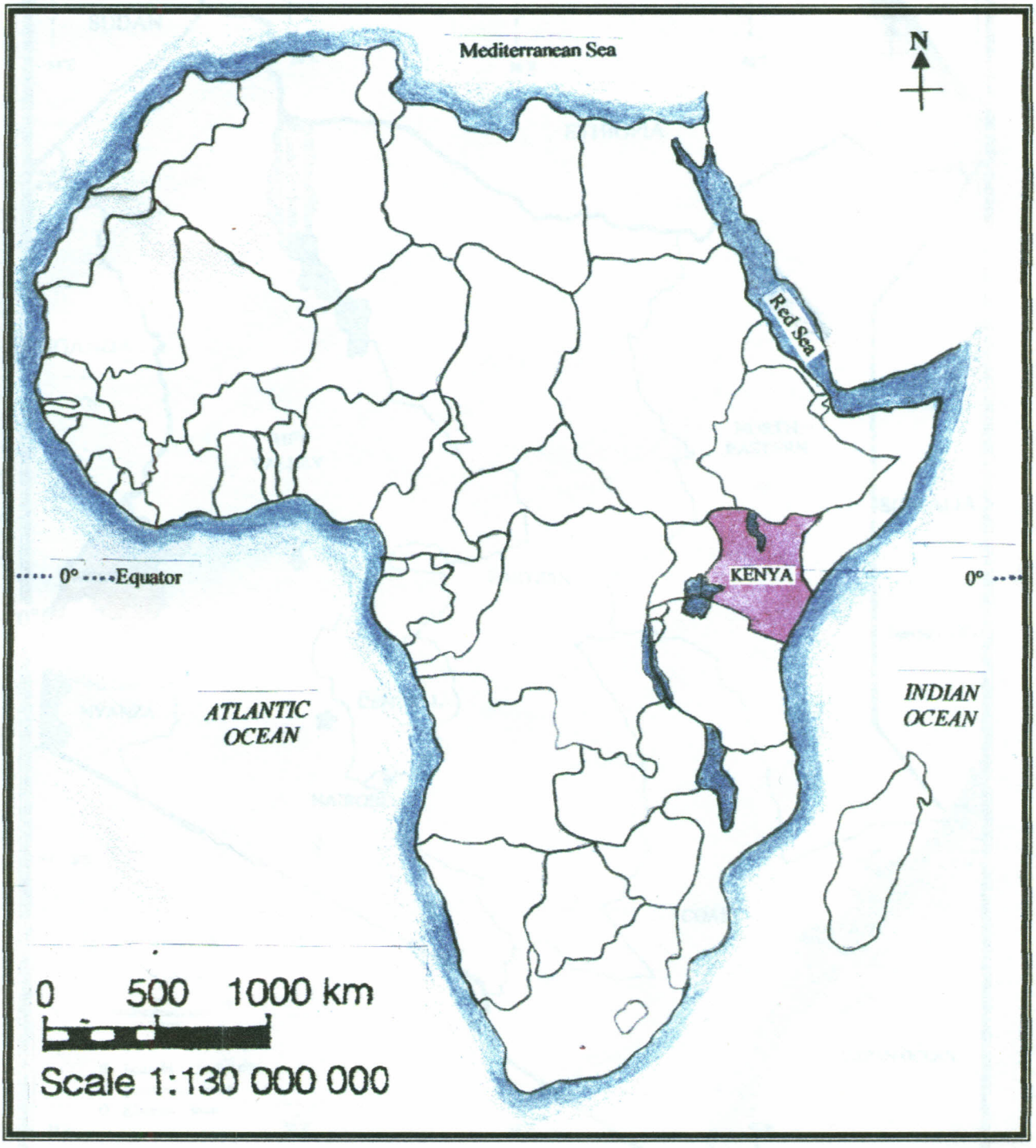
Verb Tonology: the study of verbal tone patterns and their grammatical function in a given language.

Underlying tone melody: a common or basic arrangement of tones that generates diverse tone patterns in a class of verbs that express the same grammatical category. Underlying tone melodies generate surface tone patterns through the operation of specific tone rules.

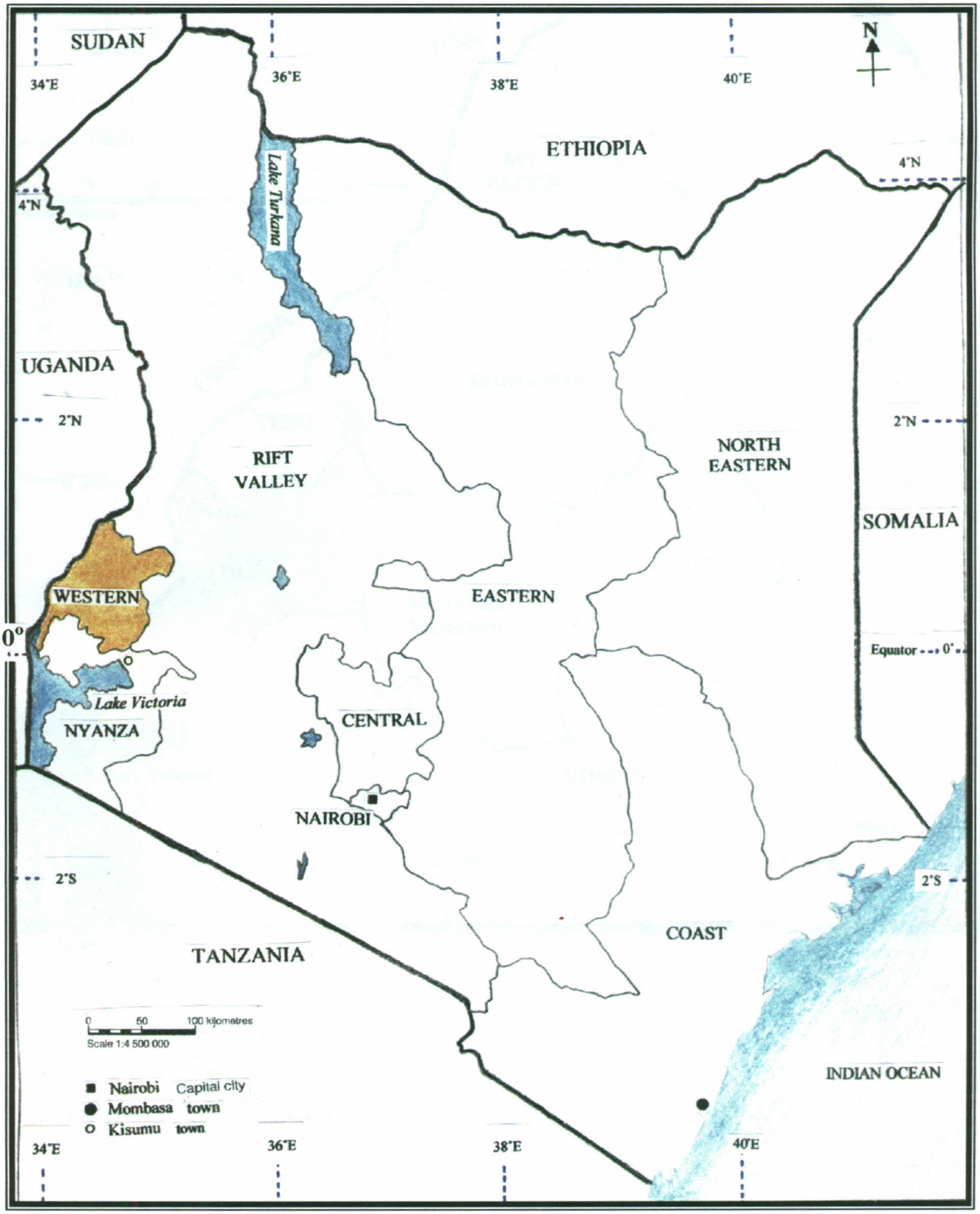
Universal Grammar: the study of the common grammatical properties shared by all natural languages and of the parameters of variation between languages.

MAPS OF THE AREA OF STUDY

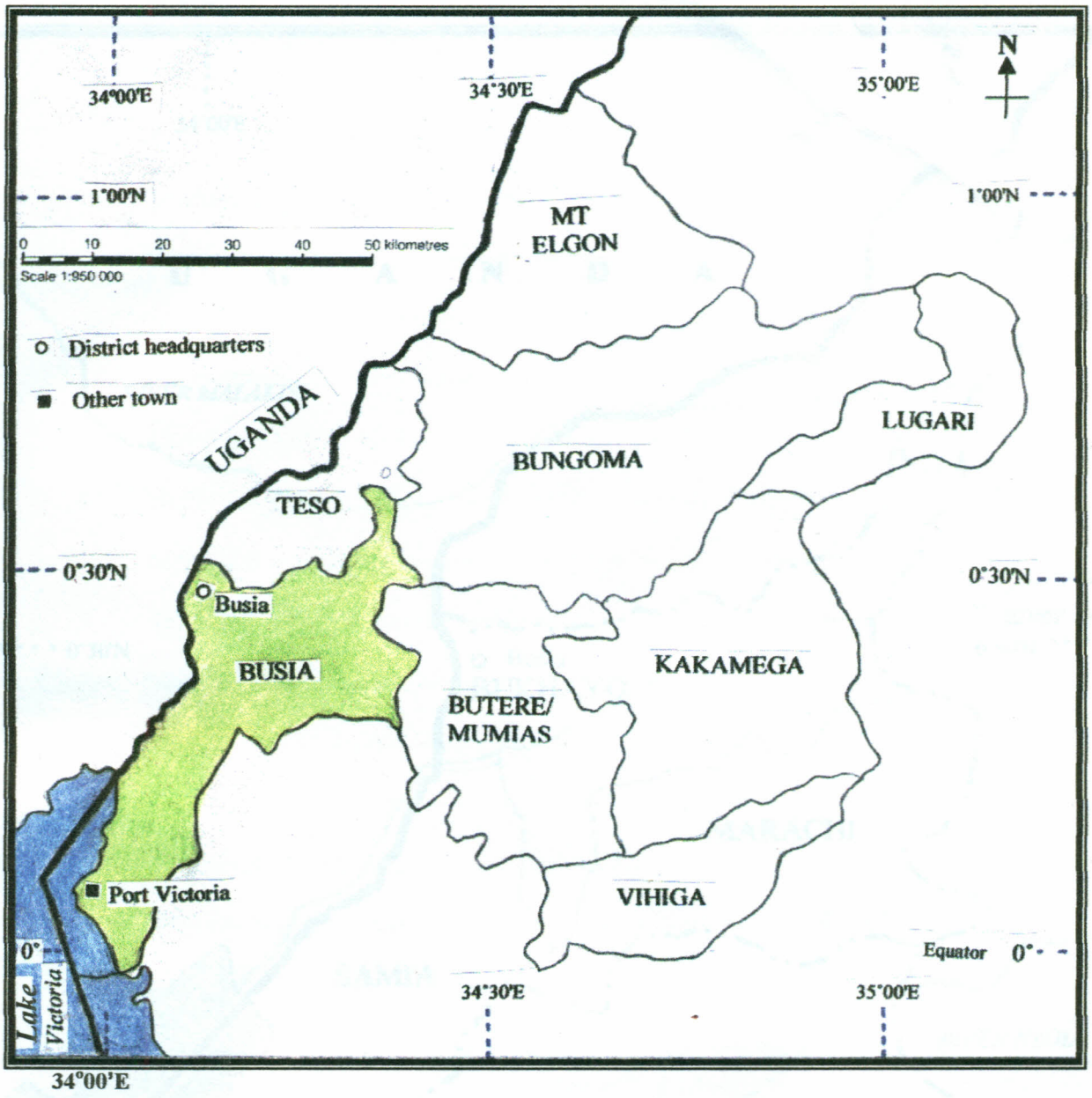
Map 1: Location of Kenya in Africa



Map 2: Location of Western Province in Kenya



Map 3: Location of Busia District in Western Province



Map 4: Bunyala Location in Busia District

At the time of collecting data, Bunyala Location consisted of six Sub-Locations namely:

BULEMIA, BUKOMA, LUGALE, MAGOMBE, BUOFU, OBARO.

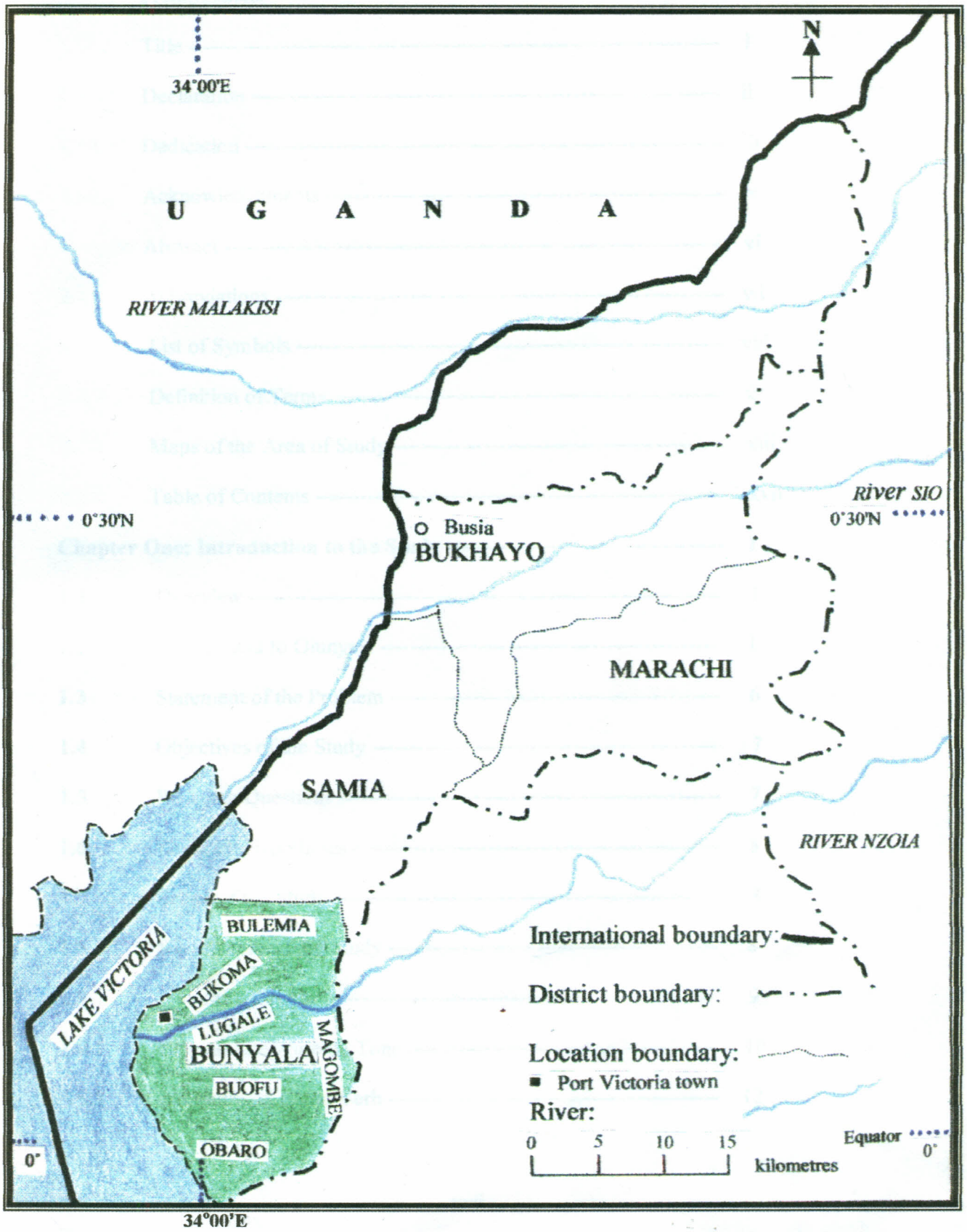


TABLE OF CONTENTS

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Overview

This chapter introduces the background information on Olunyala verb morphology and tone system. It also presents the research problem, objectives of the study, hypotheses, scope of the study, significance of the study, literature review and research methodology.

1.2 Background to Olunyala

Olunyala is a dialect of Oluluyia, a Bantu language spoken on the northern shores of Lake Victoria, south of Busia District in the Western Province of Kenya[1]. In Guthrie's classification, Olunyala (Nyala) is identified as number **E.18** (Guthrie, 1967:42). Johnston (1919:73ff) classifies Olunyala in the Nyanza language group and specifically in the Masaba sub-group. Olunyala is mainly related to other Oluluyia dialects in terms of its basic vocabulary, as shown in example (1.1) that compares some cognate words in four Oluluyia dialects.

(1.1) Orthographic forms of cognates.

Gloss	*Olunyala*	*Lwitakho*	*Olusaamia*	*Lubukusu*
'walk'	kenda	chenda	kenda	kenda
'hear'	bulira	hulila	bulira	ulila
'water'	amachi	matsi	amachi	kamechi
'woman'	omukhasi	mukhali	omukhasi	omukhasi

A dialect may be defined as a form of speech used by a group of people in a particular area and differs from the speech of other historically related groups of people who speak the same language. The speech differences occur especially in pronunciation and vocabulary but rarely in grammar. In this context, therefore, a language is a group of speech forms used by people of a particular geographical area and which are historically and grammatically related.

Oluluyia is a term that is generally used to refer to a group of such related speech forms used by most people of western Kenya. Olunyala is one of the speech forms hence it is a dialect of Oluluyia language. However, for convenience purposes, this study will consistently refer to Olunyala as a language but not a dialect because it has the grammatical and lexical features that characterize Oluluyia language. The maps of the area of study show the geographical location of Olunyala speakers in the context of Kenya (cf: pp. xiii - xvi).

Olunyala is a tone language, like most Bantu languages. It also manifests the following definitive features of a Bantu morphological system: verbal inflection, nominal derivation and agglutination of morphemes:

Verbs can be inflected in various forms, including the future tense, progressive aspect and second person form, as shown in example (1.2).

(1.2)

kiŋgá 'carry' (basic form)

ndaxákiŋgé 'I will carry' (first person singular future tense form)

kiŋgaŋgá 'be carrying' (progressive/habitual form)

mukiŋgá 'you carry' (second person plural present tense form)

Verb stems form a basis for deriving other grammatical categories like nouns as shown in (1.3).

(1.3)

Verb			*Noun*	
naaβá	'fish'	→	omúnááβí	'fisherman'
kaná	'narrate'	→	olúkánó	'narrative'

Morphemes are agglutinated to form complex verbs through the process of prefixation and suffixation as illustrated in (1.4).

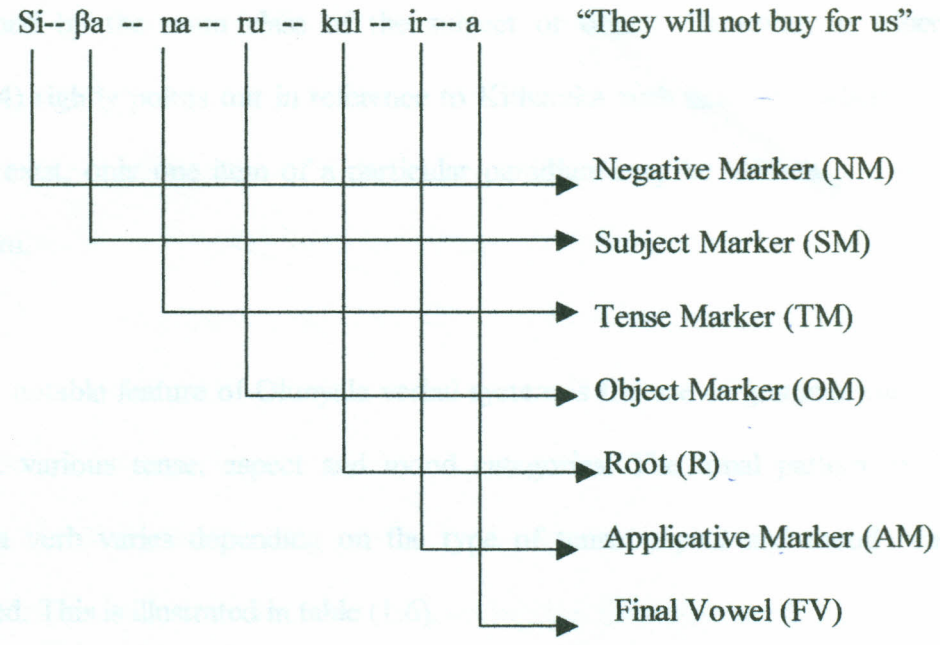
(1.4)

kul-á	'buy'	→	βa-ná-kul-áŋg-á	'they will be buying (something)'
βal-á	'count'	→	nda-xá-mu-βal-ír-á	'I have counted for him/her.'

The morphemes that form the structure of the Olunyala verb complex are regularly agglutinated in the sequence shown in (1.5):

(1.5) Olunyala verb complex

NM--SM-- TM -- OM -- R -- AM--FV



The full range of the Olunyala verb structure does not consist of these seven slots only. More slots can be added during suffixation of morphemes that convey different meanings. These include the following:

(i) Reversive morpheme {-ul-}/{-ol-}

(ii) Stative morpheme {-ix-}/{-ex-}

(iii) Causative morpheme {-i-}

(iv) Applicative morpheme {-ir-}/{-er-}

(v) Progressive morpheme {-ŋg-}

(vi) Mood morpheme {-e-}/{a}

Some of the slots have only one possible morpheme but others such as those of the subject marker, object marker and tense/aspect marker have a range of choices determined by the noun class of the subject or object. However, as Mberia (1993:74) rightly points out in reference to Kitharaka verb structure, where such choices exist, only one item of a particular paradigm may be utilized in a given verb form.

Another notable feature of Olunyala verbal system is the use of grammatical tone to mark various tense, aspect and mood categories. The tonal pattern of the Olunyala verb varies depending on the type of tense, aspect and mood being expressed. This is illustrated in table (1.6).

(1.6)

VERB	TENSE		
	'Present' S/he's Verbing	'Immediate Future' S/he will Verb	'Remote Past' S/he Verbed
fua 'die' koná 'sleep' sixulá 'exhume'	afua akoná asixúlá	anáfua anákoná anásixúlá	jáfua jákona jásixula
	ASPECT		
	'Completive' I've Verbed	'Progressive' I've been Verbing	'Iterative' I've Verbed Frequently
lia 'eat' limá 'cultivate' xololá 'cough'	ndaxália ndaxálimá ndaxáxolólá	ndaxáličáŋgá ndaxálimáŋgá ndaxáxolóláŋgá	ndaxáličálíčáŋgá ndaxálimálímá ndaxáxolóláxólólá
	MOOD		
	'Indicative' They've Verbed	'Possibility' They might Verb	'Desirability' They should have Verbed
sia 'grind' kulá 'buy' funaká 'break'	βaxásia βaxákulá βaxáfunáká	βaxasia βaxakulá βaxafunáká	βaxasieré βaxakulíré βaxafunáké

The table shows that the tone-bearing unit (tbu) in Olunyala is the syllable, hence this language is similar to other Bantu languages like Kikuyu (Clements, 1984) and the Chimaraba dialect of Makonde (Odden, 1990). The data shows that the placement of high and low tones in the verb stem seems to follow a particular order whereby high tones are regularly placed in three verbal domains. These are the pre-stem initial syllable, the second stem syllable and the stem final syllable domain. This order suggests that the tonal variation in the verb is rule-governed, so this study investigates the inherent relationship between verbal tense, mood, aspect and the tonal pattern of the verb, and also the rules governing those patterns. Therefore, the thesis that the present study seeks to validate is that: there is a relationship between tense, mood, aspect and the tonal pattern of the Olunyala verb, and this relationship is rule-governed. Although this tendency is not unique only to Olunyala, the rules that govern the relationship may operate differently in Olunyala grammar.

1.3 Statement of the Problem

This study investigates the inherent relationship between the three grammatical categories of tense, mood and aspect and the tonal pattern of the Olunyala verb. It also attempts to determine the rules and principles that govern those tonal patterns. To date, there is no detailed or systematic study on Olunyala that has attempted to analyze its verb tonology, yet the change of tone is significant for tense, mood and aspectual distinctions.

Most recent studies on Oluluyia have described the general grammar without showing how tone is related to verb morphology (see Appleby, 1961; Angogo, 1980; Ingonga, 1991; Kebeya, 1997; Onyango, 1997; and Owino, 1999). Moreover, most tonal studies on Bantu languages have focused on noun tonology (see Asongwed and Hyman, 1976; Elimelech, 1976; Hombert, 1976; and Trithart, 1976). Therefore, there is a gap to be filled in relation to verb tonology in particular and morphological tonology in general.

1.4 Objectives of the Study

The present study seeks to achieve the following four objectives:

(i) Determine the basic verb stem tone patterns.

(ii) Identify and describe Olunyala verbal categories.

(iii) Define the interrelationship between verbal categories and tonal patterns.

(iv) Determine the rules and principles that govern tonal patterns in the verb.

(v) Evaluate the significance of these rules in the language.

1.5 Research Questions

The following research questions guided the study:

(i) What are the basic verb stem tone patterns in Olunyala?

(ii) What are the verb categories identifiable in Olunyala?

(iii) How do Olunyala tense, mood and aspect relate to tonal patterns?

(iv) What are the rules and principles governing the tonal patterns?

1.6 Research Hypotheses

The research is based on the following hypotheses:

(i) Tense, mood and aspect affect the tonal patterns of the Olunyala verb.

(ii) Specific rules and principles govern tonal patterns in the verb.

(iii) Verbal tonology is significant for the understanding of Olunyala language and its usage.

1.7 Scope of the Study

The study is mainly concerned with verb morphology. It covers three categories of the verb, namely, tense, mood and aspect in view of their relationship to the tonal pattern of the verb. The study addresses grammatical questions. This means that social variables such as age, sex, occupation or education standard are not considered significant. The study does not investigate syntactic aspects of tone since it is mainly concerned with morphological issues. In addition, the present research is restricted to the Olunyala language spoken in Busia district. The researcher is conversant with this language, and therefore applies native speaker's linguistic intuition about grammaticality and interpretation.

1.8 Significance of the Study

The present research is important for various reasons: Olunyala is chosen as the focus of the study because it is a tone language which has received very little research on its grammatical structure as compared to other Oluluyia languages, and secondly, tone is an aspect of Olunyala grammar that had not been studied;

yet to describe the grammar of a tone language fully, tone must be included. This research therefore provides invaluable information concerning the tonal structure of Olunyala and thus forms an important source of reference.

This study contributes to linguistic knowledge in general and to verb tonology in particular. It sheds light on the grammatical function of tone in language and also on the operation of tonal rules with specific reference to Olunyala. It therefore enhances our understanding of tonal systems.

The study also helps to evaluate the descriptive adequacy and validity of theoretical claims of Lexical Phonology and Morphology that are discussed in chapter two. The relevant claims relate to the motivation for the application of phonological rules and the operation of morphological variation.

The present investigation differs from those done before in the sense that it analyzes in detail the grammatical function of tone in the verb and determines the rules and principles that govern tonal patterns.

1.9 Literature Review

This section reviews previous studies on Bantu verb, then Bantu tone and finally Oluluyia tone.

1.9.1 General Literature on Tone

There are many general reference texts on phonology but the following three are of particular importance to the present study. Hyman (1975) gives the theoretical and practical background necessary for the understanding and analysis of phonological phenomena. Chapter six of the book, which discusses suprasegmental phonology, is particularly important to the present study as it examines various aspects of tone. These aspects include: the definition of a tone language, the segmental and suprasegmental representation of tone, distinctive features of tone, various phonetic and morphophonemic tone rules, the relationship between consonant types and tone, downdrift and downstep, and also tone and intonation. Most critical to the present study, is the statement by Hyman (1975:214) regarding the function of tone in language, that is:

> … in many if not most tone languages tone also has a grammatical function … tone is used to distinguish between a main and a relative clause … tone serves to mark different verb tenses, possession and even negation.

Fromkin (1978) is a comprehensive collection of nine research papers written by different linguists who have investigated various aspects of tone in language. These aspects include: the interaction of tone with various consonants and vowels, the physiological and perceptual characteristics of tone, controversies surrounding the definition of a tone language, identification of universal tone features, the representation of tone in the lexicon, various types of tone rules found in language, the principles governing historical tone changes, and how children acquire the tone systems and tone rules of their first languages. The speculation by Schuh (1978:251)

in relation to the function of tone is of critical significance to the present study. The writer speculates that:

> In African languages, tone takes on a heavy grammatical load. In fact there are very few African languages with a full-fledged tonal system where at least one or two grammatical functions are not marked by tonal alternations.

Generally, the research papers in this volume provide the present study with useful reference data concerning the phonetics and phonology of tone.

The controversial issue of the phonological representation of tone, which featured in earlier studies, was taken up and developed into what is known as autosegmental model by Goldsmith (1990). Before the advent of autosegmental model, phonologists viewed segments as arranged in a linear order. The Autosegmental model breaks this tradition and proposes that segments are arranged in tiers, whereby tone constitutes a separate tier from the segmental tiers. Goldsmith proposes that each tone is coarticulated with specific segments on other tiers, and these tiers are related through the well-formedness condition and Association Convention. Apart from autosegmental model, Goldsmith also introduces the central ideas of two other recent models of generative phonology, namely, metrical phonology and lexical phonology, and applies them to the analysis of phonological phenomena in various languages. This study is important because it provides the formal apparatus for analysing phonological tone.

The foregoing review of general literature on tone reveals that previous studies have mainly addressed the phonetic and phonological aspects of tone and how tone

should be represented. The grammatical function of tone has not been given much attention, hence the need for the present study to investigate the morphological function of tone in language.

1.9.2 Literature on Bantu Verb

Several studies have been done on the Bantu verb with reference to specific languages, notably: Gathenji (1981), Kioko (1994), Wambua (2000) and Mwangi (2001).

Gathenji (1981) analyses the morphology of verbal extensions in Gikuyu. The study discusses the meanings associated with various suffixes including the stative, applicative, causative, reversive and reciprocal. In addition, the study looks at the syntactic implications of suffixation, noting that some of the morphemes, for example the causative, can convert the intransitive verb to a transitive one. This study is relevant to the present study since it analyses suffixation. However, it differs from our study because it does not cover the tonal function.

Kioko (1994) examines some of the affixes in the verb that affect grammatical relations and discusses them in relation to the syntax of Kikamba. These affixes include the passive, the causative, the reflexive and the reversive. It also discusses other miscellaneous verbal properties such as the imperative, tense, aspect and verb root. Chapter three is particularly important to our present study because it examines the noun and verb tone patterns in Kikamba. This study provides useful information to the present study since it describes various verb categories and tone patterns.

Whereas Kioko employs a theory-neutral approach to the analysis of tone patterns, the present study employs the theory of Lexical Phonology and Morphology.

Wambua (2000) is an investigation into the valency of the Kikamba verb. The study seeks to establish the number of elaborators the Kikamba verb governs in clause structure as well as the valency structures that exist in Kikamba, for example, monovalent structures, divalent structures, tetravalent structures, among others. The study also examines four derivational affixes that affect the valency of the verb by either reducing or increasing it. This study is relevant to the present study since it describes the structure of the verb. It differs from the present study because it is not concerned with the tone patterns of the verb.

Mwangi (2001) discusses the morphosyntactic implications of four valency-changing morphemes in Gikuyu, namely, the applicative, the causative, the passive and the stative. The study seeks to explain the syntactic effects of the affixation of these morphemes within the Merger and Incorporation syntactic theories. This study also discusses the criteria for drawing the distinction between inflection and derivation in Gikuyu. The study is relevant to the present one since it provides information on the effects of affixation of various morphemes. However, it does not cover the tonal effects of those morphemes.

Generally, these studies on Bantu verb have concentrated on the formal effects of affixation processes hence the need for the present study to do research on the morphological significance of tone.

1.9.3 Literature on Bantu Tone

Bantu tonology is a field that has attracted considerable research in recent years. Most studies have addressed themselves to noun tonology. These studies include Asongwed and Hyman (1976), Elimelech (1976), Hombert (1976) and Trithart (1976). The studies have described the tone patterns of nouns in various Bantu languages and attempted to determine the morphotonemic rules required to derive the various tonal alternations. Although these studies do not deal with verb tonology, they provide the present study with useful data on tone variation.

Other Bantu studies have addressed the problems surrounding the phenomenon of tonal downstep in various Bantu languages. These studies include Hyman (1979), Clements & Ford (1979), Nicole (1980) and Stewart (1983). These studies have discussed problems related to the origin of downstep, its classification, its effects and how it can be analysed. The conclusions of these studies suggest the need for further research on this phenomenon, which may also be found in the tonal system of Olunyala. The studies, therefore, provide useful information concerning the nature of tonal downstep.

A few Bantu studies that have specifically dealt with verb tonology (for example, Bennett, 1976, Mtenje, 1987 and Mutaka, 1994) have focussed on the influence of morphological elements on the tonal pattern of the verb. Bennett (1976) analyses the tonal variation of regular and irregular verbs based on the data obtained from one speaker of Chishona, a Bantu language spoken in Zimbabwe and Mozambique. The study also identifies five simple verb tenses in Chishona, which are classified as the habitual present, the continuous (progressive), the

immediate past, the past, and the future tense. It is revealed that each tense possesses its own tonal properties, illustrating a heavy degree of interdependence between morphology and tonology. The researcher also suggests three possible reasons to account for non-regular tonal patterning in some verbs, namely, borrowing from non-Bantu languages, derivation from non-verbal origins or compounding, and lastly, infrequency of usage. This study is relevant to the present one because it provides useful data on tense and its tonal properties. However, it does not cover other verbal categories, namely, aspect and mood, which are the focus of the present research.

Mtenje (1987) has researched on Chichewa, a Bantu language spoken largely in Malawi. Working within the theory of Lexical Phonology and Morphology (LPM), the study describes the relationship between tense and the distribution of high tones in the verb. The study claims that the notion of tone melody offers an insightful explanation for tonal patterns. It is also assumed that tense markers bear underlying high tones. These claims may be verified through further research. Although this study does not cover other verbal categories, it provides useful data on the tonal properties of tense.

Similarly, Mutaka (1994) adopts the LPM model in analysing the tonal system of Kinande, a Bantu language spoken in Zaire. The study observes that Kinande has tonal melodies where high-toned suffixes are added to the stem in specific verb tenses. This study does not discuss the tonal characteristics of mood but it provides the present study with relevant information concerning tense and aspect.

Generally, the above literature review on Bantu tone shows that very few studies have investigated the interrelationship between tense, mood, aspect and the tonal pattern of the verb. It appears that tense has been given more attention as compared to the other verbal categories, that is, mood and aspect. Since these three verbal categories are inherently interrelated, there is need to investigate all of them systematically.

1.9.4 Literature on Oluluyia Tone

The early studies on Oluluyia (for example, Appleby, 1961; Guthrie, 1967) deal with this language in general as an entire group of dialects. Tones and tonal patterns are hardly mentioned at all other than to state that tones seem to be lexically significant. Lidonde (1978) focuses on the generative phonology of Lwitakho dialect. Though the study concentrates on phonology, it leaves out a lot on tone and argues that there is need to undertake an adequate description of the complicated morphology and syntactic patterning of the verb. The study however observes that Lwitakho is a register tone system with two tones: high and low.

In the last two decades, most studies on Oluluyia dialects have been comparative in nature. Some of them are sociolinguistically oriented, mainly concerned with establishing the degree of closeness between various Oluluyia dialects and how the speakers of one dialect accommodate the speech of other dialect speakers (for example, Angogo, 1980; Ingonga, 1991; Kebeya, 1997; and Owino, 1999). Other researchers have focused on the phonological processes occurring in various Oluluyia dialects (for example, Mutonyi, 1986; Magwaga, 1989; and Sumba, 1992). Onyango (1997) examines the morphosyntactic influence of Olunyala, as a first

language, on learning Kiswahili as a second language. Since these studies have not addressed tonal issues, they have left a wide gap in the description of these dialects, which is a source of concern for the present study.

The studies that specifically deal with Oluluyia tonology are Chagas (1976), Mutonyi (1992) and Savala (2005). The first two studies focussed on the relationship between tense and tonal distribution in the verb. Chagas (1976) observes that in Olusamia, tonal distribution is mainly influenced by tense, the phonological shape of the verb stem and vowel coalescence. One of the unresolved questions raised by the study is whether or not Olusamia has a lexical mid tone in addition to the high, low and falling tones. On the other hand, Mutonyi (1992) shows that tone mapping in Olukisa verbs is determined by tense and affixation. Savala (2005) identifies and describes the tone patterns of Lwitakho words, showing the function of tone in the language and the relationship between syllable type and tone. The study is guided by the theory of Autosegmental Phonology.

All these studies offer valuable data on verbal tense in Oluluyia to the present study. However, they have not discussed in detail the interrelationship between mood, aspect and the tonal pattern of the verb. Moreover, they have not examined the tonal rules that govern tonal patterns in the verb, which the present study addresses.

Several conclusions can be drawn from the above literature review: firstly, most Bantu studies have focused on the morphosyntactic aspects of affixation morphemes and noun tonology but very few have focused on verb tonology. Secondly, the few studies available on verb tonology have raised questions that suggest the need for

further research on how verbal categories like tense, mood and aspect interact with tonal patterns in the verb. Lastly. There is no linguistic study that has been done on Olunyala verb tonology hence the need to undertake the present research.

1.10 Research Methodology

The targeted data for this study was verbal forms depicting various tense, mood and aspect categories. The study used primary data that was sampled, collected, analyzed and presented as described in the following sections.

1.10.1 Sample

This study used a sample size of fifty-four respondents and each of them was interviewed for two hours to elicit the required data. The data collected from all the interviews was enough to enable the researcher achieve the objectives of the study. In order to ensure equal representation, the fifty-four respondents consisted of nine respondents selected from each of the six Sub-Locations in Bunyala Location at the time of the study. The respondents were native Olunyala speakers selected through the technique of deliberate judgment sampling. The researcher purposively selected those respondents whom he considered representative of the population (see Prewitt, 1975). They were sampled on the basis of the following criteria:

(i) That the respondents spoke Olunyala language in their childhood and still spoke it at the time of the interview.

(ii) That both the respondent's mother and father were also native speakers of Olunyala language to ensure that the respondent was brought up in a home environment where no other languages were spoken.

(iii) That the respondents had lived consistently in Bunyala (Busia District) where Olunyala language is spoken.

(iv) That the respondents did not speak other languages besides Olunyala, Kiswahili and English so as to minimize the occurrence of language interference.

(v) That nine respondents were selected from each of the six Sub-Locations that constituted Bunyala Location at the time of collecting data (in the year 2000) to ensure equal representation (See the map on pp. xvi).

The researcher used these criteria of selection after realizing that there were some Olunyala speakers who had to be excluded from the interview sample. Firstly, are those Abanyala who had lived in town for a long time while schooling or working before returning home, hence their speech accent was likely to have been influenced. Secondly, are those Abanyala who live around the border between eastern Bunyala and Siaya district; some of them have intermarried with the Luo, hence their speech accent was also likely to have been influenced by Dholuo.

The researcher selected a sample of 206 verbs, which was sufficient for the illustration and presentation of the study. These verbs were collected using the following procedure:

1.10.2 Data Collection

Data collection primarily involved conducting personal interviews and then extracting a word-list from the interview data. The researcher first prepared an interview guide that contained a questionnaire, topics for interview and elicitation questions (see Appendix A). The questionnaire was used to collect background information about the respondents so as to ensure that only native Olunyala speakers who fulfilled the sampling criteria participated in the interviews. Just before conducting the interviews, the researcher established rapport with the selected 54 respondents. This was necessary in order to avoid the possibility of some respondents being biased or suspicious about the researcher's intentions. Such biasness or suspicion would have led them to withhold some important information from the researcher or fail to produce their natural spontaneous speech.

Each respondent was interviewed for two hours while being tape-recorded in a room where there was no interference from other people. In order to ensure that data on selected grammatical categories were collected during the interviews, the researcher engaged the respondents in a variety of topics revolving around space and time. Similarly, the researcher formulated specific elicitation questions that guided the interviews so as to increase the probability of eliciting particular grammatical categories, namely, tense, mood and aspect.

The researcher conducted non-directive personal interviews by encouraging the respondents to talk about the given topic with a bare minimum of direct questioning. Being the interviewer, the researcher acted as a catalyst to a comprehensive expression of the respondents' feelings and beliefs (see Prewitt, 1975:121). This technique of data collection enabled the researcher to obtain more data and supplementary information about the respondents' characteristics and environment, which was useful in the interpretation of data. This technique also enabled the researcher to restructure easily the elicitation questions that guided the interviews thus enhancing the respondents' understanding of the questions and hence responding accordingly.

The 54 interviews that were conducted in a total of 108 hours enabled the researcher to collect a large amount of data that included various types of verbs and to capture the speakers' variation in the pronunciation of the verbs.

The tape-recorded interviews were transcribed by using phonetic symbols of the International Phonetic Association and diacritics were used to mark tones. From the transcribed interview data, the researcher extracted various types of verbs and classified them according to their grammatical category. They consisted of tensed verbs, modal verbs and aspectual verbs. The verbs expressing each grammatical category were again classified into their sub-categories. For example, tensed verbs were sub-categorized into present tense, past tense, future tense and other sub-categories.

The researcher then selected 206 verbs from the three classes of grammatical categories by using the stratified sampling technique. They consisted of 80 tensed verbs, 64 modal verbs and 62 aspectual verbs. These verbs were sampled according to their semantic characteristics, so they included transitive and intransitive verbs, finite and non-finite verbs, lexical and auxiliary verbs, stative and dynamic verbs, active and passive verbs. They were also sampled according to their phonological shape so as to include monosyllabic, disyllabic, trisyllabic and quadrisyllabic verbs.

Out of the 206 sampled verbs, 62 of them were extracted as a wordlist and presented in isolation; they were inflected in order to generate forms that express various grammatical categories. The other 144 verbs were presented in the context of surrounding words in order to corroborate the observations emerging from the verbs presented in isolation.

1.10.3 Data Analysis

The data from interviews were analyzed by observing general tonal patterns conditioned by affixation. This is in accordance with the view expressed by Mugenda and Mugenda (1999:203) that qualitative data analysis seeks to make general statements on how categories or themes of data are related. Following Goldsmith (1990:217-273), Katamba (1989:257-280) and Katamba (1993), this process of analysis involved the following stages:

(i) Determining the basic tone pattern of the verb stem.

(ii) Identifying the grammatical categories.

(iii) Identifying the tonal pattern of each grammatical category.

(iv) Categorizing affixes into their respective strata depending on their tonal variation, that is, whether they affect the tonal pattern of the verb or not.

(v) Formulating the rules governing tonal patterns.

The Olunyala data used in this study is presented in phonetic form by using phonetic symbols of the International Phonetic Association. Example (1.7) illustrates the difference between the orthographic form and phonetic form of the verbs:

(1.7)

Orthographic Form	Phonetic Form	Gloss
okhubaya	[oxúβajá]	'to play'
okhuchanga	[oxúčaŋgá]	'to contribute money'
okhukanya	[oxúkaՈ á]	'to accept'
okhubanja	[oxú βa ՈǰJ á]	'to claim money'

1.10.4 Presentation of the Study

The presentation of this study includes textual description, formulation of rules, drawing of diagrams and tables. The tonal patterns are described with reference to the specific grammatical categories. This is followed by the formulation of tonal rules that account for the observed tonal patterns. The interaction between

morphological rules of verb formation and tonal rules is described with reference to the observations of the study.

The tables are used for presenting data in the appendix whereas diagrams are used for graphic data illustration. These diagrams consist of the skeletal tiers and association lines that represent the hierarchical structure of various verb forms. This is the formal apparatus for the presentation of tonal data according to the theory of Autosegmental Phonology (Goldsmith, 1990). The description of the basic principles of this theory is the theme of discussion in chapter two.

[1] It should be noted that there are two groups of Abanyala (native speakers of Olunyala): The Abanyala of Busia district and the Abanyala of Kakamega district. According to historians (e.g. Osogo, 1966), both groups are historically and linguistically related. Were (1967a:71) notes that "...the Abakabrasi (of Kakamega)... appear to be related to the Abanyala (of Port Victoria – Busia). Their ancestors appear to have come from Bunyala (Port Victoria) via Lubinu in Wanga, Butsotso, and thence to Kabras." It is noted that the Abanyala of Kakamega migrated from Bunyala (Port Victoria) because of starvation and disputes (Were, 1967b:48). Oluluyia language consists of about sixteen dialects spoken mainly in Busia, Bungoma, Kakamega, Butere, Lugari and Vihiga districts (Itebete, 1974:89; Angogo, 1980:79; Onyango, 1997:58). They include Olunyala (of Busia and Kakamega), Lusaamia, Lukhayo, Lumarachi, Lubukusu, Luwanga, Lutsotso, Lutachoni, Lumarama, Lukisa, Lunyore, Lukabras, Lwisukha, Lulogooli, Lwitakho and Lutiriki. Most of these dialects are mutually intelligible but there are also cases where speakers of one dialect do not understand another dialect. The present study is concerned with Olunyala dialect spoken in Busia district. See the maps of the area of study (pp. xiii – xvi).

CHAPTER TWO

THEORETICAL FRAMEWORK

2.1 Introduction

This chapter outlines the theory of Lexical Phonology and Morphology that guides this study. It evaluates the descriptive and explanatory adequacy of the principles of this theory in relation to the study of verb tonology. This theory is a branch of generative grammar and it deals with the interaction of phonology with morphology.

2.2 Generative Grammar

The theory of Generative Grammar (GG) was first proposed by Chomsky (1957) in *Syntactic Structures.* GG was a reaction to the methods and goals of Structural Grammar that focussed on the collection and classification of data. Bloomfieldian structuralism was influenced by the behavioural approach to language learning. Chomsky (1957:15) disagreed with this approach, pointing out that the grammatical sentences of a language cannot be identified with any particular corpus of utterances obtained by the linguist in their fieldwork. Chomsky suggested that the linguist should attempt to formulate the rules or principles that enable a native speaker to produce and understand an infinite number of sentences. The general philosophy of GG as later expounded by Chomsky (1965) is that it represents language as a system of rules and principles.

Further revision of GG gave rise to the model of Government and Binding (GB) which was synthesized in Chomsky (1981). GB describes knowledge of language as an interlocking set of sub-theories consisting of principles and parameters. These

sub-theories include X-bar Syntax, Binding theory, Bounding theory, Case theory and Control theory. Some parts of GB model were modified in Chomsky (1986a) and Chomsky (1986b), which emphasize the fact that knowledge of language does not consist of rules as such, but of underlying principles from which individual rules are derived. Much of the work in syntax in the 1980s involved the postulation of ever more complex structures and principles. As a reaction to the excessive complexity of this kind of work, Chomsky revised GG in the 1990s and developed the theory of grammar known as Minimalist Program or Minimalism (MP) which is outlined in Chomsky (1995). The core assumption of MP is that grammars should be described in terms of the minimal set of theoretical and descriptive apparatus necessary. In other words, grammars should be as simple as possible. Radford (1997:7) states that MP is motivated to a large extent by the desire to minimize the acquisition burden placed on the child, and thereby maximize the learnability of natural language grammars.

Generative Grammar is based on the following four tenets (Horrocks, 1987:2-17). Firstly, there is a distinction between the **competence** of a speaker of a language and their **performance**. Competence refers to the speaker's unconscious knowledge of their language whereas performance refers to their actual use of the language on particular occasions. Secondly, the grammar of a language is interpreted as a model of the native speaker's competence. Thirdly, linguistics concerns itself with describing regularities observable in corpora of the spoken language of native speakers. The speaker's introspective judgments are also part of linguistic data. Fourthly, an observationally adequate grammar of a language must consist of a set of rules that generate an infinite number of well-formed structures.

The initial model of Generative Grammar, as expounded in Chomsky (1965), was disproved because it strictly focused on syntactic, phonological, and a narrow range of semantic processes. It did not recognise morphology as an independent component of grammar, hence aspects of morphology were considered under syntax and phonology.

This weakness led to the revision of Generative Grammar, hence giving rise to various alternative generative models. These models include Prosodic Morphology (McCarthy, 1981), Merger Theory (Marantz, 1984), Lexical Phonology and Morphology (Mohanan, 1986), Autosegmental and Metrical Phonology (Goldsmith, 1990) and Optimality Theory (Prince & Smolensky, 1993) among others. Each subsequent model of GG attempts to explain a particular aspect of grammar that was not properly dealt with in the initial model. Hence, today there are phonological, morphological, syntactic, semantic and lexical models of GG. However, some of them, for example Optimality Theory, claim to be departures from GG. These models attempt to come up with universal principles and rules that would cater for a large number of languages, and this is the goal of GG today. The current trend in linguistics, therefore, is to study the common grammatical properties shared by all natural languages and the parameters of variation between languages. Such a study is known as Universal Grammar.

Generative Phonology (GP) is a branch of the general theory of GG that includes those generative models that address phonological issues. The basic tenet of GP is that there is a finite set of rules that generate an infinite number of well-formed sound structures in a given language. GP was first expounded by Chomsky and

Halle and reached its most definitive form with the publication of *The Sound Pattern of English* (SPE) in 1968.

Basically, GP recognizes two levels of phonological representations: the phonemic and phonetic level. It stresses the fact that phonological analysis has to be formalized by rules that express the competence of a native speaker of a language. GP has been strongly criticized because it leads to abstractness in phonological representations, to the problem of rule ordering and it misleadingly represents phonological structure as a linear string of discrete phonemic units. In order to remedy these SPE weaknesses, linguists have proposed non-linear (hierarchical) approaches to speech representation as demonstrated by the model of Autosegmental Phonology.

Since this study is partly based on morphology, a grammatical component that was not well defined in the initial model of GG, and also partly based on phonology with regard to tone, we shall briefly review three alternative morphological models and one phonological model of GG and then justify the one that guided this study. These models are: Prosodic Morphology, Optimality Theory, Autosegmental Phonology and Lexical Phonology and Morphology.

2.2.1 Prosodic Morphology

Prosodic Morphology (PM) was initiated by McCarthy (1981) for the purpose of describing non-concatenative morphological processes. These are word-formation processes that involve infixation of morphemes, reduplication of roots, or the internal modification of the root. Basically, PM attempts to show how consonants are arranged with respect to the vowels, how the prefixes and infixes are arranged

among the root consonants, how the root consonants are arranged with respect to each other, that is, showing where clusters and geminates occur, and lastly, how one *binyan* (i.e. basic stem) is related or derived from another. McCarthy (1981:384) illustrates PM analysis by drawing examples from the classical Arabic verb system. For example, the radical *ktb*, which expresses a notion like "write," occurs in eight variant basic stems (i.e. *binyanim*) reflected by the following forms of the perfective active:

Binyan		
I	katab	'write'
II	kattab	'cause to write'
III	kaatab	'correspond'
IV	takaatab	'write to each other'
V	nkatab	'subscribe'
VI	ktatab	'write, be registered'
VII	staktab	'write, make write'

(McCarthy, 1981:384)

Each of these binyanim can be inflected into other aspects and voices, namely, perfective passive, imperfective active, and imperfective passive.

PM attempts to determine morphological rules that regulate the canonical distribution of consonants and vowels in the binyanim. This theory is not applicable to the present study because infixing and root consonant reduplication is not a characteristic of Olunyala morphology.

2.2.2 Optimality Theory (OT)

OT was expounded by Prince and Smolensky (1993). It is a generative framework that describes the grammar of a language by postulating a set of ranked constraints on grammatical form. It involves a radical departure from earlier models of

grammatical structure in that it does not posit a derivation based upon a series of ordered rules that convert an underlying input to a surface level phonetic form. Rather, an OT grammar evaluates the grammaticality of possible forms by judging them in parallel by a set of ranked constraints.

OT is based on three core principles, namely, Violability, Ranking and Inclusiveness. Violability states that possible forms may violate some constraints but violation is minimal. Ranking states that constraints are ranked with respect to one another on a language particular basis. The notion of minimal violation is defined in terms of this ranking. A form that passes a higher ranked constraint but violates a lower ranked constraint is judged as more grammatical than a form that violates a higher ranked constraint but passes a lower ranked constraint. The principle of Inclusiveness requires that the constraints should be used to evaluate the structural well-formedness of possible forms.

The term 'constraint' is defined as a structural requirement that may be either satisfied or violated by an output form. A form satisfies a constraint if it fully meets the structural requirement, while any form not meeting this requirement is said to violate it (Kager, 1999:9).

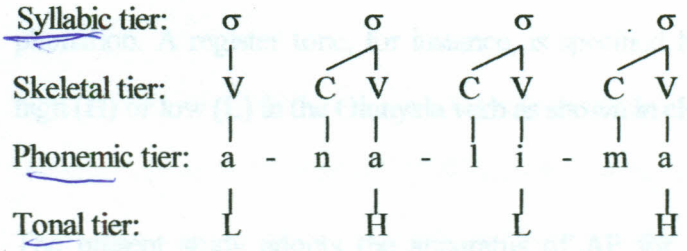
It is clear that OT is a possible model for analysing Olunyala verbal tone system. However, it is not a rule-based model. It is not concerned with derivational processes based on a series of tonal rules that transform a basic tonal structure to a surface structure, which is the focus of our study. Whereas OT deals with constraints on tonal association, the present study seeks to determine rules that explain the complex

interaction between verbal categories and surface tonal patterns. This theory therefore is not suitable for the present study.

2.2.3 Autosegmental Phonology

Autosegmental Phonology (AP) was expounded by Goldsmith (1990). It was initially developed to describe tone but was eventually expanded to accommodate other aspects of phonology like vowel harmony and others. AP represents the distinctive sound units of a language hierarchically whereby two or more separate tiers of sound units are linked by association lines. This is illustrated in example (2.1) which shows the immediate future tense form of the Olunyala verb 'analima' 's/he will cultivate.'

(2.1)



[análimá] "s/he will cultivate"

(Adapted from Goldsmith, 1990)

Mwihaki (1997:27ff) explains that the basic tier in the entire phonological representation is the skeletal tier. The later comprises the phonematic units of language. It regularly alternates syllabic (V) and non-syllabic (C) slots. This tier forms the anchor point for elements on the various other tiers. Each pair of tiers is mediated by a set of association lines, which indicate that the various parameters are

co-articulated simultaneously in time. Three basic tiers are represented: phonemic, syllabic and tonal.

The phonemic tier represents the specific sounds of the words of the particular language in question. The term phoneme is used as a convenient label for signalling the level of a minimal perceptible unit of the phonetic structure.

The syllabic tier depicts the phonotactic patterns of the phonemes of a given language. The phonotactic constraints of an open syllable system are portrayed in chart (2.1) above, which represents the word análimá as V – CV – CV – CV. The syllabic tier therefore shows that the word has four syllables (σ).

The tonal tier represents the perceptual correlates of pitch variation during phonation. A register tone, for instance, is specified for each syllable rhyme as either high (H) or low (L) in the Olunyala verb as shown in chart (2.1) above.

The present study adopts the apparatus of AP for the representation of the tonal structure of Olunyala verb. AP however, does not offer an incisive description of the intimate relationship between the tonal and morphological rules in the lexicon.

2.2.4 Lexical Phonology and Morphology (LPM)

LPM model originated as a reaction to the shortcomings of previous generativist theories, for example, the initial model of GG. As Mohanan (1986:3) notes, the early stages of generativist linguistics had no provision for morphology. The traditional notion of word played no role in linguistic theory, consequently, word structure and

sentence structure were handled under the same module of the grammar, that is, syntax. Some aspects were incorporated in phonology as morphophonemics. In addition, the lexicon was a critical component of generative grammar yet previous generativist models had paid little attention to the nature of lexical operations.

The theory of Lexical Phonology and Morphology, therefore, may be viewed as an extension of the lexicalist trend in syntax to morphology and phonology. It may also be viewed as a logical step in the course of developments sparked off by Chomsky's (1970) seminal paper entitled 'Remarks on Nominalization.' This paper reintroduced the traditional notion of word into generative linguistics. Chomsky proposed that certain regular relationships between words could be expressed in terms of lexical rules, and that these rules were different in nature from the syntactic rules that determined sentence structure.

The second significant work on this development was Halle's 'Prolegomena to a Theory of Word Formation' (1973). Halle undertook to investigate the principles governing word structure in depth, and added a new module to the grammar as part of the lexicon, namely, the word-formation component. Thus, Chomsky (1970) and Halle (1973) attributed a richer structure to the lexicon, and directed researchers' attention to the nature of lexical operations. It is against this background that subsequent researchers (e.g. Kiparsky, 1982; Mohanan, 1986; Pulleyblank, 1986; Akinlabi and Oyebade, 1987; Goldsmith, 1990; Katamba, 1993; and Mutaka, 1994) began to investigate issues concerning derivational and inflectional morphology.

LPM theory was actually propounded by Mohanan (1986) and Katamba (1993). An important feature of this theory is that it regards the word, rather than the morpheme, as the key unit of morphological analysis. A major claim made by Mohanan and Katamba is that, there is a symbiotic relationship between the rules that build the morphological structure of a word and the phonological rules responsible for the way a word is pronounced. All these rules are found in the lexicon where they are organised in blocks called strata, which are arranged hierarchically moving from stratum one to stratum two and to subsequent strata.

Mohanan explains that LPM recognises two types of phonological rule applications, namely, lexical rule application and postlexical rule application. These rules are illustrated below:

(a) Lexical rule application

These are rules that apply between morpheme boundaries within a single word.

An example from Olunyala grammar is the tone rule that maps a high tone onto the second stem syllable of a prefixed verb as illustrated in (2.2). The left bracket [is used to separate the stem 'xujá' from the prefixes. Following Poletto (2000:332) the term 'stem' is used in this study to mean the part of a verb that consists of a verbal root, derivational suffixes (also referred to as extensions) and the final vowel. Therefore, *xujá* 'beat' is a basic verb stem whereas *xu[janá* and *xu[janaŋgá* are derivational verb stems. A stem in Olunyala (or any other Bantu language) may not necessarily be the same as a stem in English since the verbal structures of these languages differ. In English, a stem is considered to be a morpheme which contains

no inflectional or derivational affixes. For example, the stem form of the verb *going* is *go* (Radford, 1997:271).

(2.2)

Prefixed verb stems
βaná[xujá 'they will beat'
βaná[xujáná 'they will beat each other'
βaná[xujánáŋgá 'they will be beating each other'

If the verb is not prefixed, the rule does not apply, as shown in (2.3).

(2.3)

Unprefixed verb stems
[xujá 'beat'
[xujaná 'beat each other'
[xujanaŋgá 'beat each other habitually'

(b) Postlexical rule application

These are rules that apply across word boundaries within a phrase or sentence.

An example is the progressive tone assimilation rule that raises a low tone (L) to high (H) when the L tone comes after H tone in word-initial position, as shown in (2.4).

# kiŋgá # 'carry'	# omúseɲe # 'sand'	kiŋgómúseɲe	'carry the sand'
# kaná # 'narrate'	# olúkánó # 'a story'	kanólúkánó	'narrate a story'
# kulá # 'buy'	# omúkéká # 'mat'	kulómúkéká	'buy the mat'

These examples show that the rule deleting 'a' before a vowel applies before the rule associating high tone. As a consequence of the distinction of types of phonological rule applications, LPM recognises two levels of representation, namely: lexical and postlexical. These levels underlie the principles that guide LPM theory. Katamba (1993) explains that LPM analysis is based on the following six major but related principles. These are: the Principle of Lexical

Strata, the Principle of Structure Preservation, the Principle of Strict Cycle Condition, the Principle of Bracket Erasure, the Principle of Elsewhere Condition, and the Principle of Underspecification.

(i) The Principle of Lexical Strata

LPM proposes that the lexicon is hierarchically organised into levels called strata, which are defined on the basis of the properties of affixes. Each stratum contains a class of affixes that manifest the same phonological behaviour. On this basis, affixes can be grouped into two broad classes, namely: neutral and non-neutral affixes. Neutral affixes have no phonological effect on the base to which they are attached. But non-neutral ones affect in some way the consonant or vowel sounds, or the location of stress in the base or the tone pattern of the base to which they are attached. The base can be the root or the stem of a verb. This principle is illustrated in (2.5).

(2.5)

Stratum 1: non-neutral affixes that affect the tonal pattern of the verb stem

They include prefixes that mark some tenses and moods, for example:

[koná [LH 'sleep' (present tense)
já[kona H[L 's/he slept' (remote past tense)
níjaxá[kona HLH[L 'if s/he has slept' (conditionality mood)

Stratum 2: neutral affixes that do not affect the tonal pattern of the verb stem

They include prefixes that mark some tenses and affixes that mark some aspects, for example:

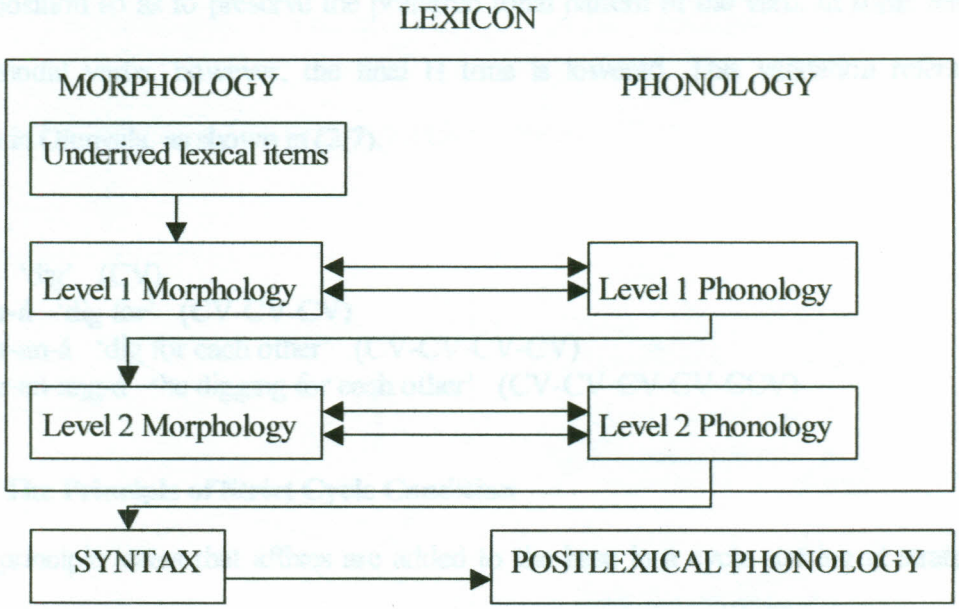
[koná [LH 'sleep' (present tense)
jaxá[koná LH[LH 's/he has slept' (have-just tense)
aná[koná LH[LH 's/he will sleep' (immediate future tense)

[kulá [LH 'buy'
[kulirá [LH 'buy for'
[kuliraŋgá [LH 'be buying for' (progressive aspect)

These prefixes and suffixes are neutral because they do not change the tonal pattern of the basic verb stem. The location of the H tone to the final vowel 'a' preserves the preferred phonological pattern of the well-formed word.

One of the main claims of LPM is that both inflectional and derivational word-formation processes can be displayed on a series of linked levels (strata). This is illustrated in diagram (2.6), which is adapted from Katamba (1989:257).

(2.6)



This principle is used in the present study to explain verbal tone patterns which are conditioned by affixes that mark various verbal categories.

(ii) The Principle of Structure Preservation

This principle of LPM theory states that the output of each morphological process must be a possible word in the language. A lexical rule may not produce a form that could not be a phonologically well-formed word in the language because there are canonical phonological patterns that must be preserved. These include constraints on the syllable structure and tonal pattern in a language. This principle can be illustrated by the fact that the suffixation of derivational morphemes always preserves the preferred consonant-vowel (CV) syllable structure. Similarly, after the suffixation of every morpheme, the high tone of the final vowel *'a'* is in most cases located in the final position and therefore associated with whichever tone-carrying unit occupies that position so as to preserve the preferred tonal pattern of the verb. In some tenses and modal verbs, however, the final H tone is lowered. This validation refers to usage in Olunyala, as shown in (2.7).

(2.7)

[limá 'dig' (CV)
[lim-ir-á 'dig for' (CV-CV-CV)
[lim-ir-an-á 'dig for each other' (CV-CV-CV-CV)
[lim-ir-an-aŋg-á 'be digging for each other' (CV-CV-CV-CV-CCV)

(iii) The Principle of Strict Cycle Condition

This principle states that affixes are added to the base in a cycle starting at stratum-one, going on to stratum-two, and so on. In a cyclic-stratum, as each affix is in turn added to the base by morphological processes, the entire set of phonological rules of that layer will have an opportunity to apply. Consider the inflection of the verb *kiŋgá* 'carry' in the following illustration of a cyclic stratum:

Stratum 1: Cyclic stratum

ni - βa - xa - [kiŋga [níβaxákíŋga] 'if they have carried'
4 3 2 1

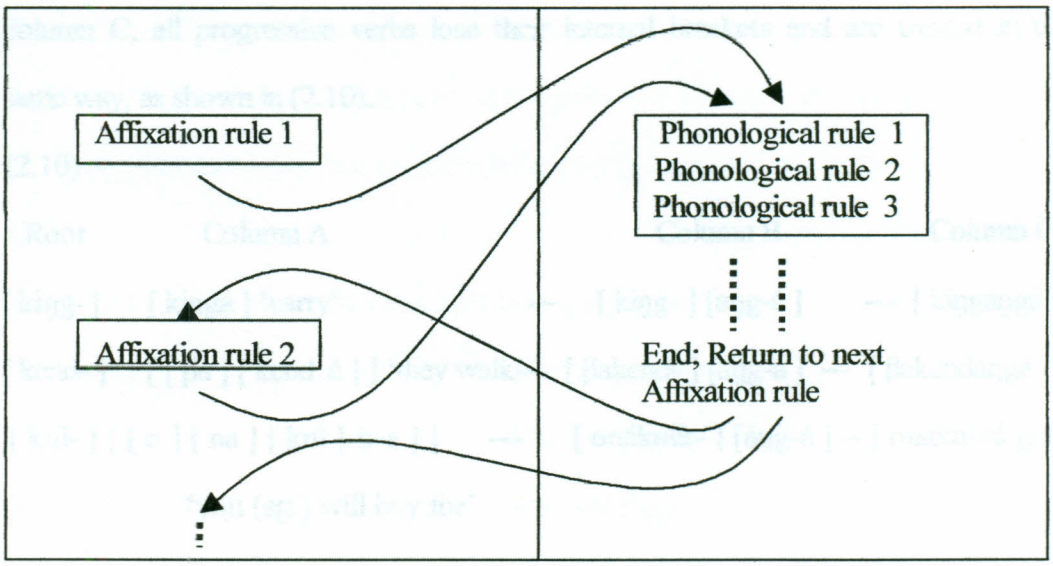
The verb stem tone for 'kiŋgá' is LH. In this stratum, tonal rules have to apply after every cycle of affixation because some prefixes have a tendency to affect the tonal pattern of the verb stem. The tonal effect of each prefix on the verb stem would be as shown in (2.8).

(2.8)

[kiŋgá] 'carry' LH
[βa-kiŋgá] 'they are carrying' LH (not affected)
[βa-xá-kiŋgá] 'they have carried' LHLH (not affected)
[ní-βaxákíŋga] 'if they have carried' HLHL (affected since kí- is H tone and final vowel '-a' is L tone).

The internal structure of a cyclic stratum is illustrated in (2.9).

(2.9)



(Goldsmith, 1990:238)

(iv) The Principle of Bracket Erasure

This principle states that as a form passes through a stratum, it is bracketed in a way that shows its history within that stratum. But at the end of each stratum, all the internal bracketing are dropped so that rules of a given layer can never make reference to any internal structure that was created on an earlier layer. What matters is that the output of each layer of derivation is a word, and therefore all words are treated in the same way when they enter the next stratum. As Mohanan (1986:24) states, the morphological structure of a word is not accessible to a rule that applies at the postlexical stratum. In the following examples, a rule such as 'add *-aŋg*' to a verb to make it express progressive aspect, will only look to see whether its potential input is a verb. All the information encoded in the brackets in column A is removed before the rule that adds '*-aŋg*' applies. When suffixing '*-aŋg*' to form the progressive aspect the internal structure and derivational history of the verb is immaterial (see column B); and once the progressive aspect has been formed as in column C, all progressive verbs lose their internal brackets and are treated in the same way, as shown in (2.10).

(2.10)

Root	Column A		Column B		Column C
[kiŋg-]	[kiŋgá] 'carry'	---	[kiŋg-] [aŋg-á]	---	[kiŋgaŋgá]
[kend-]	[[βa] [kend á]] 'they walk'	---	[βakend-] [áŋg-á]	---	[βakendáŋgá]
[kul-]	[[o] [na] [kul]-ir-a]] 'you (sg.) will buy for'	---	[onákulír-] [áŋg-á]	--	[onákulíráŋgá]

(v) The Principle of Elsewhere Condition

This principle is applied where there are two competing rules that target the same input. One rule is more general and the other more specific, in which case the more general rule gives way to the more specific. In other words, the more general one applies 'elsewhere.' This principle can also be applied to conflicts between lexical entries and rules of a language. Goldsmith (1990:222) quotes Kiparsky (1982) who suggests that lexical entries can also enter into an Elsewhere relationship with phonological rules. This means that when there is a conflict between what is specified in a given lexical entry and what a rule wants to do to that lexical entry, then the more specific of the two will win out, and the more general will cede. Kiparsky suggests that the lexical entry is the more specific of the two.

This principle can be illustrated in Olunyala verb tonology by the fact that a tone rule that maps a high tone onto the pre-stem initial syllable of most tensed verbs is blocked in verb forms that express possibility mood. The more specific lexical entry, which is the modal verb, therefore takes priority over the more general tone rule which applies elsewhere. This is illustrated in (2.11).

(2.11)

Tensed Verbs [The pre-stem initial tone rule applies]

'Have-Just'	:	jaxá[karáŋgá	's/he has just fried'
Remote Past	:	já[kulaŋga	's/he was buying'
Immediate Future	:	aná[koná	's/he will sleep'
Future	:	jaxá[siŋgíré	's/he will arise'

Modal Verbs – possibility mood [The pre-stem initial tone rule is blocked]

jaxa[karáŋgá 's/he may fry'

jaxa[kuláŋgá 's/he may be buying'

jaxa[koná 's/he may sleep'

jaxa[siŋgírá 's/he may arise'

This principle can also be used in Olunyala to explain the order in which affixation rules apply in the verb. The applicative rule always applies before the progressive rule. If they are interchanged, the output becomes semantically deviant, as shown in (2.12).

(2.12)

siká 'roast' --- sik-ir-á 'roast for' --- sik-ir-aŋg-á ' be roasting for'

sik-aŋg-á 'be roasting' --- * sik-aŋg-ir-á (not acceptable)

This deviant derivation may occur as a result of metathesis. Therefore, "sikaŋgá" and "sikiraŋgá" are well formed but "sikaŋgirá" is not. This implies that the application of a progressive rule blocks the applicative rule; hence the later is left to apply elsewhere. The principle of the Elsewhere Condition therefore helps to resolve conflicts in the application of competing tone rules and affixation rules in Olunyala verbs.

(vi) The Principle of Underspecification

The primary objective of this principle is to enable us to write the most economical grammar possible. Essentially, this principle eliminates redundant features in the rule specification. For example, stress is not specified in Olunyala grammar because

it invariably falls on the penultimate syllable. Similarly, only high (H) tones are specified in the underlying representation but low (L) tones are not. This is because the H tone is the marked feature whereas the L tone is the unmarked feature that is filled in by default rule.

2.2.5 Appraisal of LPM

Although LPM advocates disagree on the exact number of strata that are required, Halle and Mohanan (1985:58) say that this depends on the morphology of a particular language. For eaxample, Olunyala has two lexical strata as illustrated in (2.13).

Stratum 1: non-neutral affixes

[kaβul-á [LH 'separate'

βa-[kaβúl-e L[LHL 'let them separate'

níβa-[kaβúl-a HL[LHL 'if they separate'

The basic stem 'kaβul-á' was LH. It becomes LHL (kaβúl -e) and (kaβúl -a).

Stratum 2: neutral affixes

[kul-á LH 'buy'

[kul-ir-á LH 'buy for'

[kul-iran-á LH 'buy for each other'

[kul-iranaŋg-á LH 'be buying for each other'

The basic stem 'kul-á' was LH. It remains LH.

It is important to note that Olunyala does not make a lexical contrast between H tone and L tone verb stems. A similar observation is made by Marlo (2006:2). The

present study shows that all verbs have a H tone but its realization on the surface depends on the phonological shape of the root. Monosyllabic verb stems are L toned on the surface but they have an underlying H tone that only surfaces on the second syllable and subsequent syllables when derivational suffixes are added to the monosyllabic root. Generally, all basic verb stems in the infinitive have a H tone on the ultimate syllable except monosyllabic stems. This is illustrated in example (2.14).

(2.14) Basic Verb Tone Patterns in the Infinitive verb form.

(a) Monosyllabic Stems (basic and derived)

o-xú-[fu-a	[L	'to die'
o-xú-[fuir-á	[LH	'to die for'
o-xú-[li-a	[L	'to eat'
o-xú-[liir-á	[LH	'to eat for'
o-xú-[ŋu-a	[L	'to drink'
o-xú-[ŋuer-á	[LH	'to drink for'

(b) Disyllabic Stems (basic and derived)

o-xú-[lim-á	[LH	'to cultivate'
o-xú-[limír-á	[LHH	'to cultivate for'
o-xú-[βek-á	[LH	'to shave'
o-xú-[βekér-á	[LHH	'to shave for'
o-xú-[imb-á	[LH	'to sing'
o-xú-[imbír-á	[LHH	'to sing for'

(c) Trisyllabic Stems (basic and derived)

o-xú-[βukúl-á	[LHH	'to take'
o-xú-[βukúlír-á	[LHHH	'to take for'
o-xú-[kalúx-á	[LHH	'to return'
o-xú-[kalúxír-á	[LHHH	'to return for'
o-xú-[iŋgir-á	[LHH	'to enter'
o-xú-[iŋgírír-á	[LHHH	'to enter for'

From these examples, we can isolate LH as the basic verb stem tone pattern. It is possible to infer from the tonal behaviour of monosyllabic roots that this final H was

part of the verb root but it has moved rightwards by one syllable. Apparently, there is a tendency to avoid associating a H tone on the initial syllable of the root.

The infinitive verb form is used in this study to observe the basic tone patterns of the verbs because it is not marked for tense and therefore it has no effect on the basic verb stem tone. In Olunyala, the infinitive prefix is H toned.

2.3 Conclusion

The foregoing discussion shows that unlike other generativist models, LPM theory is most suitable for analysing languages with concatenative morphology like Olunyala. Concatenation is the process of combining morphemes in a sequence to form words. LPM theory offers more fruitful insights into the interaction between morphological and phonological rules in the lexicon. Although some criticisms have been levelled against it, most of them have been satisfactorily answered. By adopting the LPM theory, therefore, this study hopes to validate some of the above theoretical claims. In chapter three, therefore, the LPM principles will be used to analyse and describe the tense system of Olunyala.

THE RELATIONSHIP BETWEEN VERBAL TENSE AND TONE

3.1 Introduction

The previous chapter discussed the theory that guided the present study in analyzing the interaction between various verbal categories and tone. The overall objective of the present chapter is to describe the interaction between the tense of the Olunyala verb and its tonal pattern. The chapter seeks to fulfill two specific objectives, namely:

(i) distinguish the primary tenses that are marked in the Olunyala verb.

(ii) analyze data and determine the rules that govern tone patterns in the verb.

3.2 Tense in the Olunyala Verb

Tense may be defined as a category of the verb which relates the time of an action, event or state being talked about to some other time, usually to the moment of speaking (see Comrie, 1976:2). It is the grammaticalised expression of location in time (Comrie, 1985:2). The commonest tenses found in many languages are present, past and future. A situation described by the present tense is located temporally as simultaneous with the moment of speaking; one described by the past is located prior to the moment of speaking; and one described by the future is located subsequent to the moment of speaking.

It is important to note that some Bantu languages distinguish between different types of past and future tenses. The terms that are used to refer to these tenses,

however, differ from one researcher to the other. For example, Ashton (1944:35ff) observes that the Swahili verb distinguishes between six primary tenses and seven secondary tenses named below:

Primary tenses	Secondary tenses
▪The -LI- of past time	▪KA for consecutive actions
▪The -TA- of future time	▪KI for incomplete, imperfect or …
▪The -NA- of definite time (mostly present)	…continuous action
▪The -A- of indefinite time	▪SIPO the negative form of KI tense
▪The -ME- of completed action/state	▪The -NGA-; -JAPO-; -NGE-; …
▪The HU- of habitual or repetitive action	… -NGALI-

Ashton (ibid, pp. 35) notes that some of these tenses do not refer specifically to time, but merely to some aspect of the action or state. It appears that Ashton's classification of tenses is not adequate since it does not make a clear distinction between tense, aspect and mood. Our understanding of these grammatical categories is that -ME-, HU-, -KA-, KI and SIPO are basically aspectual morphemes, whereas -NGA-, -JAPO-, -NGE- and -NGALI- are basically modal morphemes. However, we are aware of the fact that tense, mood and aspect are closely interrelated verbal categories.

Mutiga (2002:117-122) observes that Mwingi dialect of Kikamba marks four types of past tenses, a present tense and three types of future tenses. This is in

relation to the distance in time a particular situation is from the moment time point. These tenses are:

(i) the past perfect (*sic*)

(ii) the near past

(iii) the far past

(iv) the remote past

(v) the present

(vi) tomorrow

(vii) tomorrow and the day after

(viii) remote and unknown future

Mutiga notes that these four forms of past tense tend to overlap in usage.

Angogo (1980:46) and Savala (2005:118) consider Luyia tense as being distributed into the past in three degrees and into the future in four degrees, that's:

(i) far past

(ii) intermediate past

(iii) near past

(iv) present

(v) near future

(vi) immediate future

(vii) remote future

Although Olunyala appears to have almost similar types of tenses as the ones identified by Mutiga, Angogo and Savala, the present study distinguishes them more clearly by using terms that are slightly different from the ones used by the three researchers. The verb system in Olunyala, therefore, distinguishes seven tenses named below:

(i) present tense,

(ii) 'have-just' tense

(iii) immediate past tense

(iv) past tense

(v) remote past tense

(vi) immediate future tense

(vii) future tense

3.2.1 Present Tense and Verbal Tone

The present tense is used to describe actions, states or events that take place at the moment of speaking. It is not marked by any particular morpheme, hence it is represented by a zero morpheme {ø}. The present tense is marked by a LH tone pattern which is not different from the tone pattern of the basic verb in the infinitive form. This suggests that this tense does not affect the tone pattern of the verb. This is illustrated in example (3.1).

(3.1)

	oxú[somá	LH[LH	'to read'
V.No. 2	a-ø-[somá	[LH	's/he's reading'
	oxú[saβá	LH[LH	'to ask for (something)'
V.No. 8	a-ø-[saβá	[LH	's/he's asking for (something)'
	oxú[βulírá	LH[LH	'to hear'
V.No. 15	a-ø-[βulírá	LH	's/he's hearing'
	oxú[sokóՂ álá	LH[LH	'to squat'
V.No. 1.A	mu-ø-[sokóՂ álá	[LH	'you (pl.) are squatting'
	oxú[ikálá	LH[LH	'to close (the door)'
V.No. 15.A	βa-ø-ikálá → βeekálá	[LH	'they are closing (the door)'

The data also show that a H tone is mapped onto the second stem syllable and subsequent syllables of the present tense verb. This rule is violated in non-suffixed monosyllabic verbs since they are L toned on the surface. Although the passive verbs map a falling tone onto the ultimate syllable, the H tone is still realized as shown in (3.2):

(3.2)

Non-suffixed monosyllabic verbs

	oxú[lia	LH[L	'to eat'
V.No. 1	a-ø-[lia	[L	's/he's eating'
	oxú[ŋua	LH[L	'to drink'
V.No. 7	a-ø-[ŋua	[L	's/he's drinking'
	oxú[fua	LH[L	'to die'
V.No. 13	a-ø-[fua	[L	's/he's dying'
	oxú[kua	LH[L	'to fall'
V.No. 16	a-ø-[kua	[L	's/he's falling'

The L tone on these present tense monosyllabic verbs may be a result of H tone deletion since the basic verb stem in the infinitive ends in a glide. Word final glides are usually associated with L tones as shown in example (3.3).

(3.3) Passive verbs

	oxú[sia	LH[L	'to grind'
V.No. 4	ka-ø-[sieβwâ	[LHL	'it is being ground'
	oxú[limá	LH[LH	'to cultivate'
V.No. 5	βu-ø-[limwâ	[LHL	'it is being cultivated'
	oxú[funáká	LH[LH	'to break'
V.No. 6	či-ø-[funákwâ	[LHL	'they are being broken (e.g. sticks')
	oxú[kajá	LH[LH	'to separate (fighters)
V.No. 8.A	βa-ø-[kajwâ	[LHL	'they are being separated'

The difference in tonal patterns is even much clearer when we consider the following passive variants of (3.1):

V.No. 2	si-ø-[somwâ	'it is being read'
V.No. 8	a-ø-[saβwâ	's/he is being asked (for something)'
V.No. 15	a-ø-[βulírwâ	's/he is being heard'

The data above show that the tone pattern of the present tense passive verb differs from the one observed in present tense active verbs. This implies that the passive carries its own tone pattern (HL) which is motivated by the presence of a glide as a final consonant.

The suffixation of derivational morphemes onto monosyllabic present tense verbs results in the mapping of the high tone onto the ultimate syllable as illustrated in (3.4).

(3.4)

V.No. 1	a-ø-[lia	[L 's/he's eating' ---	a-ø-[liirá	[LH 's/he's eating for'
V.No. 7	a-ø-[ŋua	[L 's/he's drinking'---	a-ø-[ŋwerá	[LH 's/he's drinking for'
V.No. 13	a-ø-[fua	[L 's/he's dying' ---	a-ø-[fwirá	[LH 's/he's dying for'
V.No. 16	a-ø-[kua	[L 's/he's falling' ---	a-ø-[kwirá	[LH 's/he's falling for'

The tonal variation in the above data sets can be summarized in form of the following rule:

Rule 1: The Stem Final Rule (SF Rule)

A high tone (H) is mapped onto the ultimate syllable of the verb stem except in non-suffixed monosyllabic verbs.

It is possible that non-suffixed monosyllabic verbs are exceptional to this rule because they have an underlying H tone which cannot be realized on the surface unless the verb stem has a second syllable on which the surface H tone associates to. It has been noted in Bantu studies (e.g. Batibo, 1976:245) that final syllables of various word categories, including verbs, are usually associated with considerable prominence, notably in a form of high intensity. In Sukuma, for example, Batibo notes that final L tone is realized with a falling contour or 'downglide.' In Mwingi dialect of Kikamba, the Super Low tone (SL) is assigned only at the word final position where words are analysed in isolation, or at the phrase or sentence final position (Mutiga, 2002:160). Kioko (2005:4) also observes that in final position a L tone is realized as extra L while a H tone is realized as extra H in Kikamba. Kioko calls this process tone intensification.

Khoisan languages spoken in Namibia and Botswana are also characterized by a pitch fall at the right edges of words (Miller-Ockhuizen, Undated: pp. 30). The occurrence of verb final H tone in Olunyala could probably be a result of the reversal of tones from their values in Proto-Bantu (PB). According to Maddieson (1976:162), PB had a H toned pre-prefix (initial vowel or augment), a L toned infinitive prefix and a L toned final vowel. Yet the basic verb stem tone patterns observed in example (2.14) showed that Olunyala has a L toned pre-prefix, a H toned infinitive prefix and a H toned final vowel. Apparently, this confirms our claim that tones in Olunyala verb have been shifted rightwards by one syllable from their original PB positions. A similar phenomenon is attested in Ciluba where Maddieson (1976:162) observes that PB high tone has become Ciluba low tone and PB low tone has become Ciluba high tone.

It is interesting to note that while in Ciluba and Olunyala a H tone is typically associated to the verb final syllable, the opposite seems to be the case in Sukuma and Gikuyu. Mwihaki (1997:159 – 160) notes that a verb-final L-tone seems to be the basic well-formedness requirement of the Gikuyu verb. Bennett (1976:289) contends that the tone of Bantu final vowel is characteristically L, but where a H-toned suffix appears, it can be accounted for by a general rule of tone spreading that in certain cases spreads a H-tone onto an adjacent (following) L-toned syllable. This observation is significant because it shows one way in which Bantu tone languages may differ despite certain similarities. The occurrence of verb-final H or L tone is a parameter of variation among tone languages. It is therefore

our contention that the H tone appearing in the verb final position is a case of spreading and so it is part of the verb root tone. Therefore, although monosyllabic verbs appear to be L toned on the surface, they have an underlying H tone.

It is important to note that the exception in Rule 1 stated above confirms the LPM's Principle of Elsewhere Condition which predicts that some specified lexical entries may block the application of more general rules, which therefore apply elsewhere (Goldsmith, 1990:222). The non-suffixed monosyllabic verbs and passive verbs, therefore, take priority over the more general stem final tone rule.

The data also show that the mapping of high tones in the Olunyala present tense verb mostly occurs between the second stem syllable and the ultimate syllable. It appears that there is one rule that maps a H tone onto the second stem syllable and another rule that copies this tone recursively, that is, reduplicates it to subsequent syllables. The data set in example (3.5) illustrates this observation:

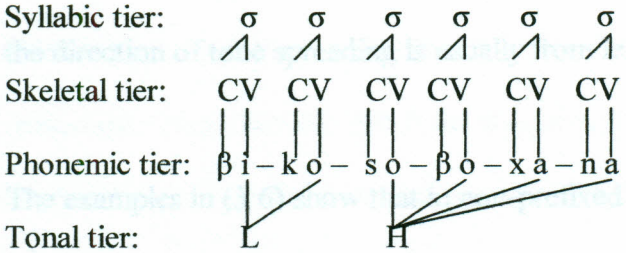
(3.5)

	oxú[seβúlá	LH[LH	'to bid farewell'
V.No. 9	a-ø-[se*βú*lá	[LH	's/he's bidding farewell'
	oxú[sukújúxáná	LH[LH	'to get annoyed'
V.No. 12	a-ø-[su*kú*júxáná	[LH	's/he's getting annoyed'
	oxú[kua	LH[L	'to fall'
V.No. 16	a-ø-[kuič*á*ŋgá	[LH	's/he falls'
	oxú[kulá	LH[LH	'to buy'
V.No. 17	a-ø-[ku*lá*ŋgá	[LH	's/he buys'

	oxú[βukúlá	LH[LH	'to take'
V.No. 18	a-ø-[βu*kú*lá**ŋ**gá	[LH	's/he takes'
	oxú[kosóβóxáná	LH[LH	'to miss'
V.No. 22.A	βi-ø-[ko*só*βóxáná	[LH	'they (things) are missing'
	oxú[re**ŋ**géréxá	LH[LH	'to tremble'
V.No. 36.A	βa-ø-[re*ŋgé*réxá**ŋ**gá	[LH	'they tremble'

V.No. 18 is used below to illustrate the mapping of tones by using association lines:

V.No. 22.A (oxú[kosóβóxáná [LH 'to miss') → βi[kosóβóxáná [LH 'they (things) are missing'



The present study contends that there is one rule that maps H tone onto the *italicized* second stem syllable and another rule that spreads it progressively to subsequent syllables. This contention is based on the fact that there are other languages where tone spreads or doubles from left to right, for example, Taita (see Odden, 2001), Ekegussi (see Bickmore, Undated A: pp. 40; Undated B: pp. 8) and Chichewa (see Mtenje, 1987). Hyman and Schuh (1974:88) also made a similar observation after studying West African Bantu languages. They state that:

> … the spreading of tones takes place always to the right and apparently never (or at least rarely) to the left … Spreading is an assimilatory process of the progressive or perseverative type, rather than of the regressive or anticipatory type.

Poletto (2000:333–335) also notes a similar phenomenon in Olusamia and argues that the multiple adjacent high-toned vowels are the result of the multiple linking of a single high tone across several syllables. However, Poletto argues that tone spreads leftwards from the stem final syllable up to the second stem syllable. This argument is based on the fact that when a high tone associates to the second stem syllable in some positive and negative subjunctive verb forms, it does not spread rightwards to other syllables (see Poletto, 2000:343–344). While we are not yet in a position to give a conclusive statement regarding this argument, it is notable that the direction of tone spreading is usually from left to right.

The examples in (3.6) show that in non-prefixed verb stems, that is, verbs without nominal concord (NC) markers, only the Stem Final Rule applies:

(3.6)

NC-ø-[seβu*lá*	'bid farewell'
NC-ø-[sukujuxa*ná*	'get annoyed'
NC-ø-[kuiča*ŋgá*	'be falling'
NC-ø-[kula*ŋgá*	'be buying'
NC-ø-[βukula*ŋgá*	'be taking'
NC-ø-[kosoβoxa*ná*	'be missing'
NC-ø-[reŋgerexa*ŋgá*	'be trembling'

These examples suggest that the additional H tones observed in (3.5) are triggered by the presence of a prefix. In accordance with the LPM principle of Lexical Strata, this prefix belongs to stratum 2 since it does not phonologically affect the tonal pattern of the basic verb stem. The tonal variation observed in the above data sets can therefore be stated in the following two rules:

Rule 2: The Second Stem Syllable Rule (SSS Rule)

A high tone (H) is mapped onto the second stem syllable of a prefixed verb stem.

Rule 3: The Copying Rule (Co Rule)

A high tone mapped by the SSS Rule is copied repeatedly to each subsequent syllable of the verb stem including the ultimate syllable.

Since the Co Rule copies a H tone to all subsequent syllables including the ultimate syllable, the application of the Stem Final (SF) Rule is rendered redundant. Therefore the SF Rule should not be specified where the Co Rule applies but it can be specified elsewhere. This fulfils the LPM Principle of Underspecification which eliminates redundant features and rules from the grammar of a language.

It is also observed that in disyllabic basic verb stems like "a-ná-[limá," the domain of application of the Stem Final rule coincides with the domain of application of the Second Stem Syllable rule. This conflict in rule application is resolved by the LPM Principle of Elsewhere Condition which requires the more specific rule to apply first and the more general rule to apply elsewhere. The Stem Final (SF) rule is more general than the Second Stem Syllable (SSS) rule because the SF rule can also apply on the third or fourth stem syllable if those syllables are found in the verb final position. Therefore, in this example and similar subsequent

examples involving disyllabic verb stems without derivational suffixes, the more specific SSS rule will apply first.

It is important to note that in the absence of prefixes, the verb stem only retains the high tone on the ultimate syllable regardless of the number of suffixes that have been attached. This observation is illustrated in the following examples of data set (3.7).

(3.7)

Basic Verb (Infinitive form)

oxú[somá 'to read' [LH
oxú[kulá 'to buy' [LH
oxú[ixálá 'to sit' [LH
oxú[βulírá 'to hear' [LH

Applicative Suffix

oxú[som-ér-á	'to read for'	[LH	[som-er-á	[LH	'read for'
oxú[kul-ír-á	'to buy for'	[LH	[kul-ir-á	[LH	'buy for'
oxú[ixál-ír-á	'to sit for/on'	[LH	[ixal-ir-á	[LH	'sit for/on'
oxú[βulír-ír-á	'to hear for'	[LH	[βulir-ir-á	[LH	'hear for'

Applicative + Reciprocal Suffixes

oxú[som-ér-án-á	'to read for each other'	[LH	[som-er-an-á	'read for each other'
oxú[kul-ír-án-á	'to buy for each other'	[LH	[kul-ir-an-á	'buy for each other'
oxú[ixál-ír-án-á	'to sit for/on each other'	[LH	[ixal-ir-an-á	'sit for/on each other'
oxú[βulír-ír-án-á	'to hear for each other'	[LH	[βulir-ir-an-á	'hear for each other'

It is evident that after every cycle of the suffixation of a morpheme, the high tone of the final vowel *-á* is always shifted to the last syllable so as to preserve the preferred ascending tonal pattern of the verb. This tone therefore functions as a phonological word boundary. This tonal variation fulfils the LPM principles of

structure preservation and strict cycle condition. According to the LPM principle of lexical strata, these suffixes can be categorized in stratum 2 since they do not affect the tonal pattern of the basic verb stem. It has been noted frequently that verbal extensions in many Bantu tone languages are tonologically neutral in that their tones will depend on the tense of each verbal construction (see Batibo, 1976:252 –253; Chagas, 1976; Mtenje, 1987; Mutonyi, 1992; Mutaka, 1994 and Bickmore, Undated B: pp. 9). This observation is significant to the present study because it confirms the validity of tonal patterns that emerge from Olunyala data.

Since Olunyala verbal system makes a tonal contrast between H versus L tone, this implies that there is a rule that maps L tones onto all the syllables that have not been specified for tone. This is in accordance with the LPM Principle of Underspecification, which requires unmarked feature specifications to be eliminated; it states [partly] that only one value of a feature (H or L) may be specified underlyingly, the opposite value may be filled in by a default rule. In Olunyala grammar, the L tone is an unmarked (more common or expected) feature, hence it is not specified in the underlying representation. It is therefore mapped onto the syllables at the end of the derivation by the following rule:

Rule 4: Tone Default Rule (TD Rule)

At the end of the derivation, a low tone (L) is mapped onto all syllables unmarked for tone.

The foregoing discussion therefore argues that the mapping of H and L tones in the Olunyala present tense verb is governed by a set of four tone rules summarized as follows: The Stem Final Rule maps a H tone onto the ultimate syllable; the Second Stem Syllable Rule (SSS Rule) maps a H tone onto the second stem syllable (if the basic stem is disyllabic, trisyllabic or polysyllabic); the Copying Rule (Co Rule) copies the H tone mapped by the SSS Rule onto subsequent syllables; and the Tone Default Rule (TD Rule) maps a L tone onto all syllables that are not marked for tone. Other tone rules will be stated as they emerge from the data presented in the following discussion.

It is important to note that although the Copying rule and SF rule are responsible for the spreading of H tone rightwards, these rules apply in different contexts. Cassimjee and Kisseberth (Undated A: pp. 26) and other tonologists like Odden and Hyman have noted that in a rule-based model of Bantu tone analysis, there are often two or even three separate rules spreading H tone as noted in Taita. These are: the rule which turns underlying final H-L into HH-H; the Cross-junctural Spreading rule which spreads a H tone to a second syllable on the right; and the Phrasal Tone Spreading rule which spreads H tone from a monosyllabic verb rightwards into a disyllabic noun that follows it (Odden, 2001:79-87).

A similar phenomenon has been attested in other Bantu languages including Shambaa and Kibondei spoken in Tanzania and Xitsonga spoken in Mozambique and South Africa. In these languages, it has been observed that spreading extends

a H tone onto the penultimate syllable but no further due to the fact that spreading cannot go onto a word final syllable (Cassimjee & Kisseberth, Undated A: pp. 26). In Olunyala, however, the Copying rule spreads a H tone onto a word-final syllable in order to mark the phonological word boundary and hence pre-empts the application of the more general SF Rule.

In addition to the above tone mapping rules, this study was guided by the following two general rules that govern tone association:

(i) Every tone must be attached to a tone-bearing unit.

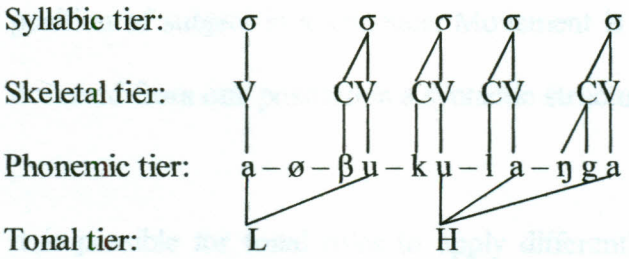
(ii) Association lines should not cross each other.

There are two levels of application of the rules: the phonological level, which includes tone rules, and the morphological level, which includes prefixation and suffixation rules. Affixation rules apply before tone rules. In accordance with the LPM theory, the affixation rules that change the tone pattern of the verb stem belong to stratum one whereas those that do not change the tone pattern belong to stratum two. These phonological and morphological rules interact to generate the surface forms of Olunyala verbs.

In order to avoid unnecessary repetition in the description of tone patterns for individual verbs, this study uses one chart for illustration purposes in each subsequent section. The tone pattern of the illustrated verb is a typical representation of the tone patterns of the remaining verbs in each data set. Hence, the examples in data set (3.8) are presented accordingly to illustrate the relevant

The diagrammatic representation of the above verbal tone patterns is as illustrated for V.No. 18 below.

V.No. 18 (oxú[βukúlá [LH 'to take') → a[βukúláŋgá [LH 's/he takes'



Applicable Rules: 1 = Second Stem Syllable Rule
2 = Copying Rule
3 = Tone Default Rule

The data show that the basic verb stem tone pattern is LH and the derived verb stem tone pattern is also LH. Therefore, the present tense has no effect on the verb stem tone pattern. The above diagram shows that the present tense is characterized by the derived LH tone melody, which undergoes three rule applications to generate the surface tone pattern of this trisyllabic dynamic verb. This verb form is considered to be trisyllabic with regard to its basic structure, that is, without prefixes or suffixes.

In conclusion, the pattern emerging from the data is that the present tense is characterized by a derived LH tone melody except in non-suffixed monosyllabic and passive verbs. Non-suffixed monosyllabic verbs are exceptional because they don't have a surface H tone which would have enabled them to manifest a similar tone melody. They have an underlying H tone which is recovered on the second

stem syllable and subsequent syllables through suffixation. The passive present tense form ends in a gliding falling tone (HL) instead of H because it is a derived pattern conditioned by the movement of a noun from the position of object to the position of subject in a sentence. Movement is an operation by which an element is moved from one position in a syntactic structure to another (Cook, 1988:17).

It is possible for tonal rules to apply differently for the same present tense and even other tenses. A similar observation has been reported in other Bantu languages including Shimakoonde in Tanzania (Liphola and Odden, 2000:177ff) and Namwanga in Zambia (Bickmore, 2000:143). These studies show that the presence of a glide as the final consonant has the effect of deleting the rightmost H tone of the verb. Liphola and Odden (ibid, pp. 186) attribute this anomalous tonal pattern to the fact that glides are underlyingly derived from vowels. Perhaps this also explains the missing final H in example (3.2) of the present study. Commenting on a similar phenomenon in Dholuo, Okoth-Okombo (1982:26) notes that a derived gliding tone pattern may also be realized where two different adjacent tone patterns are not separated by a syllable boundary.

It is further evident that the mapping of H and L tones onto specific syllables in the verb is governed by the tone rules noted above. This observation implies that when writing a tonal grammar of Olunyala, the basic LH tone melody needs to be specified in the tonal structure of the present tense verb (with the two exceptions – monosyllabic and passive verbs). The relevant tone rules, which constitute the

competence of the native speaker, will then operate on this basic tonal structure to generate an infinite number of present tense verbs with diverse surface tone patterns, as illustrated in example (3.9).

(3.9)

Present Tense Verb	*Surface Tone Pattern*	*Basic Tone Melody*
a-[lia	L-[L	L (exceptional tone pattern)
a-[so-má	L-[L-H	LH
βa-[i-ká-lá	L-[L-H-H	LH
a-[βu-kú-lá-ŋgá	L-[L-H-H-H	LH
βi-[ko-só-βó-xá-ná	L-[L-H-H-H-H	LH

The following section analyzes the relationship between the 'Have-Just' tense and the tone pattern of the verb.

3.2.2 'Have-Just' Tense and Verbal Tone

The 'have-just' tense is used to describe actions, states or events that have happened today but just before the moment of speaking. The data shows that the 'have-just' tense is morphologically marked by the H-toned prefix {-xá-}. This prefix occurs immediately after the subject marker but before the object marker, if present, and the stem-initial syllable. The H tone of this tense marker spreads onto the second stem syllable and subsequent syllables. This tense marker can be categorized as a stratum two affix because it does not affect the tone pattern of the verb stem.

In spite of the prefixation of the H-toned {-xá-} morpheme to the verb stem, the preferred mapping of H tone onto the final vowel is still maintained. This is a fulfillment of the LPM Principle of Structure Preservation. This principle also applies in Verb Number 3 {jaxéerúxá} 's/he has just ran away' whereby the canonical CV-syllabic structure in Olunyala tends to be preserved. This verb may be derived as shown in example (3.10).

(3.10)

[iruxá → ja-xá-[irúxá → ja-xée-rúxá

Therefore, in accordance with the LPM Principle of Strict Cycle Condition, the addition of the prefix {-xá-} triggers the application of vowel coalescence rule, compensatory lengthening rule and also tone rules. These processes are motivated phonetically by the need for ease of articulation of the low vowel [a] followed by the high vowel [i] during speech production. The coalescence of these vowels results in the preferred CV-syllabic structure.

The gliding falling tone is a result of the combination of the H and L tone on the lengthened vowel. The HL therefore is on two tone-bearing units. As Okoth-Okombo (1982:26) has noted with reference to Dholuo, the occurrence of such derived gliding tone patterns, is governed by the principle that any two different adjacent tone patterns, which are not separated by a syllable boundary are realized as a gliding tone. The mapping of a H tone onto the 'have-just' tense marker can be stated in the following rule which also applies to immediate future and future tenses:

Rule 5: The Pre-Stem Initial Rule (PSI Rule)

A high tone (H) is mapped onto the pre-stem initial syllable of a verb stem in 'have-just', immediate future and future tenses.

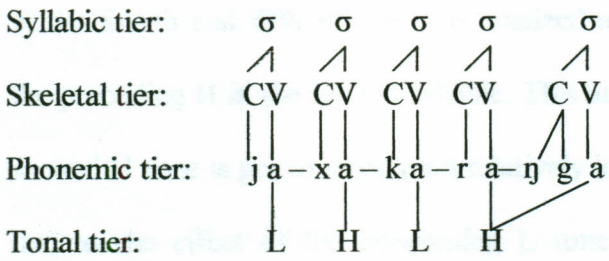
The examples in (3.11) illustrate the basic and derived surface tone patterns of selected 'have-just' tense verbs.

(3.11)

	oxú[irúxá	[LH	'to run'
V.No. 3	jaxé[erúxá →	jaxê:rúxá	[LH 's/he has just ran away'
	oxú[sia	[L	'to grind'
V.No. 4	kaxá[sieβwâ	[LHL	'it has just been ground (e.g. grain)'
	oxú[ŋua	[L	'to drink'
V.No. 7	jaxá[ŋua	[L	's/he has just drank (e.g. water)'
	oxú[karáŋgá	[LH	'to fry'
V.No. 12	jaxá[karáŋgá	[LH	's/he has just fried'
	oxú[pará	[LH	'to think'
V.No. 37B	esié *ndáá[paráŋgá* mbu…	[LH	'me I have just been thinking that…'
	oxú[aláβá	[LH	'to protest'
V.No. 44B	ŋíná *jaxá[aláβá* múno.	[LH	'his mother has just protested very much.

V.No. 12 is used to illustrate the diagrammatic representation of the above verbal tone patterns as shown in the following chart:

V.No. 12 (oxú[karáŋgá [LH 'to fry') → jaxá[karáŋgá [LH 's/he has just fried'



Applicable Rules: 1 = Pre-Stem Initial Rule
2 = Second Stem Syllable Rule
3 = Copying Rule
4 = Tone Default Rule

The data show that the basic verb stem tone pattern is LH, except in monosyllabic verbs, and the derived verb stem tone pattern is also LH. Therefore the have-just tense has no effect on the basic verb stem tone pattern.

From the above chart, it is also observed that the 'have-just' tense is characterized by a derived LH tone melody, which undergoes four rule applications to generate its surface tone pattern. This tone melody is not observed in the passive verb (see V. No. 4) because it is a structural change of the active verb, and this implies that derivation can affect the tone pattern of a verb. The data also shows that a contour tone occurs when a high toned vowel is followed by a L-toned vowel at syllable boundary (see V.Nos. 3 and 44B). The occurrence of contour tones in Olunyala is not sensitive to syllable weight or the number of syllables in the word. This is not the case in other languages. In Lwitakho, for example, heavy syllables attract contour tones (Savala, 2005:110) whereas in Ngamambo and Mende, contour tones mostly occur on monosyllabic words (Zhang, 2001:118).

In addition, the perception of tones in V.No. 12 reveals that the last two H tones in the fourth and fifth syllables are realized at a relatively lower pitch level than the preceding H in the second syllable. This automatic lowering process where the second H tone is pronounced on a relatively lower pitch level than the first H tone due to the effect of the intervening L tone is known as tonal downdrift (see Hyman, 1975:226; Hyman, 1979:18). This means that a sequence of L-H-L-H-H is not realized as *[_ ¯ _ ¯ ¯] but rather as [_ ¯ _ – –]. In numbers, we could represent this tonal downdrift as [1-3-1-2-2]. This phenomenon applies progressively to each H tone preceded by a L tone. Though the first H and subsequent H's are not pronounced on the same pitch level, they are all *phonologically* identical. This phenomenon, which also applies to V.Nos. 3, 4, 37B and 44B, has been observed in other Bantu languages including Igbo, Hausa (Hyman, 1975:226) and Lwitakho (Savala, 2005:99).

Olunyala tone system, however, does not manifest a related phenomenon known as tonal downstep, which has been observed in other languages including Kikuyu (Clements and Ford, 1979:202), Dschang dialect of Bamileke (Hyman, 1979:12), Nawdm (Nicole, 1980:137) and Adioukrou (Stewart, 1983:57ff). Tonal downstep is a non-automatic process where a lowered H tone receives phonemic status when a L tone which "conditions" downdrift is lost either through deletion or through assimilation (Hyman, 1975:227).

In conclusion, the pattern emerging from the data is that the 'have-just' tense is typically characterized by a derived LH tone melody except in non-suffixed monosyllabic verbs and passive verbs. It is evident that these melody tones are mapped onto various syllables by a series of tone rules hence generating the surface tone pattern of the verb. It has also been observed that sometimes the tone pattern of a 'have-just' tense verb may be influenced by the tone of the preceding word (see V.No. 37B). The H tone of the preceding word is copied to the first L-toned syllable of the subsequent word hence modifying its surface tone pattern from LHLHH to HHLHH. This process is known as tone sandhi (Vermeer, 1986:591). It has been noted that sandhi rules take word boundary into account (Mberia, 1993:33; Bussmann, 1996:413). The following section focuses on the tonal processes that operate in the immediate past tense.

3.2.3 Immediate Past Tense and Verbal Tone

The immediate past tense is sometimes referred to as the past tense today. It is used to describe actions, states or events that happened today but many hours from the moment of speaking. This tense form is constructed by suffixing the morpheme {-ir-} or {-er-} to the verb root with an accompanying final vowel {-e} depending on the syllabic structure of the root. This underscores the significance of sampling verbs of different syllabic structures for analysis. Basically, {-ir-} morpheme is used when the vowel found in the disyllabic verb root is either /a/, /i/ or /u/. Similarly, {-er-} morpheme is used when the vowel found in the disyllabic verb root is either /e/ or /o/. This shows that suffix

variation is motivated by vowel harmony. Some monosyllabic verb roots use {-ir-} whereas others use {-er-}. Trisyllabic verb roots only suffix the morpheme {-e} which also becomes a word final vowel.

It is important to note that in Olunyala, syntax does not motivate suffix variation during the expression of immediate past tense. In other Bantu languages, however, syntax determines suffix variation. For example, Ngunga and Victorino (2002:62-73) observe that in Emakhuwa, a Bantu language spoken in Mozambique, the recent past tense can be formed by the prefix morpheme or the suffix morpheme. Each of these morphemes has three allomorphs whose variation in the verb is motivated by the morphological shape of the verb root and also syntax. The prefix tense morpheme only occurs in affirmative sentences and yes/no questions but the suffix tense morpheme is only used in negative and emphatic sentences.

Data set (3.12) illustrates the interaction between suffix variation and tone in the expression of immediate past tense in Olunyala.

(3.12)

Monosyllabic Verb roots

[fua 'die' ----- a[fw-îr-é 's/he died today'

[lia 'eat' ----- a[lí-ir-é 's/he ate today'

[ŋua 'drink' ------- a[ŋw-êr-é 's/he drank today'

[sia 'grind' ------- a[sí-er-é 's/he ground today'

Disyllabic Verb roots

[kaná 'narrate' ------ a[kán-ir-é 's/he narrated today'

[limá 'cultivate' ------ a[lím-ir-é 's/he cultivated today'

[kulá 'buy' ------ a[kúl-ir-é 's/he bought today'

[moká 'blink' ----- o[mók-er-é 'you (sg.) blinked today'

[kerá 'measure' ----- o[kér-er-é 'you (sg.) measured today'

Trisyllabic Verb roots

[seβulá 'bid farewell' ----- mu[séβul-é 'you (pl.) bade farewell today'

[iruxá 'run' ----- mu[írux-é 'you (pl.) ran today.

[funaká 'break' ----- mu[fúnak-é 'you (pl.) broke (something) today'

This observation can be stated in the following tone rule:

Rule 6: The Stem Initial Rule (SI Rule)

A high tone (H) is mapped onto the stem initial syllable of a verb stem in the immediate past tense.

The final vowel H tone is still preserved in accordance with the Principle of preferred Structure Preservation. The examples in (3.13) illustrate the basic and derived surface tone patterns of selected immediate past tense verbs.

(3.13)

	oxú[funáká	[LH	'to break'
V.No. 6	βa[fúnaké	[HLH	'they broke (something) today.'
	oxú[saβá	[LH	'to ask for (something)'
V.No. 8	a[sáβiré	[HLH	's/he asked for (something) today'

oxú[fua [L 'to die'
V.No. 13 a[fwîré [HLH 's/he died today'

oxú[βalírá [LH 'to look at'
V.No. 3C *m[báliriré* ísa … [HLH 'I looked at the watch today'

oxú[fuŋgúlá [LH 'to open'
V.No. 17C aβákéní *βa[fúŋgulé* …[HLH 'the visitors opened (something) today'

oxú[malá [LH 'to finish'
V.No. 24C I bági [*máliré* óra …' [HLH 'the bag I finished loading (it) today…'

The diagrammatic representation of the above verbal tone patterns is as illustrated for V.No. 8 below.

V. No. 8 (oxú[saβá [LH 'to ask for') → a[sáβiré [HLH 's/he asked for something today'

Syllabic tier:	σ		σ		σ		σ		
	|		⋀		⋀		⋀		
Skeletal tier:	V		CV		CV		CV		
	|		| |		| |		| |		
Phonemic tier:	a	– ø –	s	a –	β	i –	r	e	
	|		|		|		|	
Tonal tier:	L		H		L		H		

Applicable Rules: 1 – Stem Initial Rule
2 – Stem Final Rule
3 – Tone Default Rule

The data show that the basic verb stem tone pattern is LH except in monosyllabic verbs and the derived verb stem tone pattern is HLH. Therefore, the immediate past tense affects the verb stem tone pattern. This shows that the mapping of tones onto the verb is sensitive to the morphological structure (i.e. the grammatical categories) of the verb. This is in accordance with the principle of structure dependence in Universal Grammar. This principle states that grammatical operations are sensitive to grammatical structure, so that whether or not a

particular grammatical operation can apply to a particular expression depends on the syntactic (or morphological) structure of the expression (Radford, 1997:8).

The above chart also shows that in this disyllabic transitive verb, the immediate past tense is characterized by the derived HLH tone melody, which undergoes three rule applications to generate its surface tone pattern. It is also noted that the underlying L-toned first person singular subject marker {n-} becomes assimilated to the H-toned stem initial syllable {βá} in order to ease articulation and therefore generates the syllable cluster {mbá}. The first person plural, the second person and third person subject markers, however, do not undergo such homorganic assimilation in the immediate past tense verb as shown in (3.14).

(3.14)

1st person singular: {n –[βálir-ir-é}→mbálir-ir-é 'I looked at (something) today'

1st person plural: xu-[βálir-ir-é 'we looked at (something) today'

2nd person singular: o-[βálir-ir-é 'you (sg.) looked at (something) today'

2nd person plural: mu-[βálir-ir-é 'you (pl.) looked at (something) today'

3rd person singular: a-[βálir-ir-é 's/he looked at (something) today'

3rd person plural: βa-[βálir-ir-é 'they looked at (something) today'

It is important to emphasize the fact that Olunyala clearly distinguishes morphologically the 'have-just' tense and the immediate past tense despite the fact that both tenses refer to events that happen 'today.' If the moment of speaking is evening, for example, an Olunyala speaker cannot refer to an event

that happened in the morning (the same day) by using a 'have-just' tense form; they will definitely use an immediate past tense form. But if the event happened in the afternoon, they will refer to it by using the 'have-just' tense form. While Olunyala uses different morphological forms of the verb to distinguish between the immediate past, past and remote past tense, English uses the same morphological form of the verb in conjunction with adverbs of time, for example:

'Have-Just' Tense:	Juma ja-xá-[lim-á	--- 'Juma has just cultivated'
Immediate Past Tense:	Juma a-[lím-ir-é	--- 'Juma cultivated (*today*)
Past Tense:	Juma jaa-[lim-ír-é	--- 'Juma cultivated (e.g. *yesterday*)
Remote Past Tense:	Juma já-[lim-a	--- 'Juma cultivated (e.g. *last year*)

This illustration implies that the translation of Olunyala tense categories into English can be a problem if the translator does not add the English time adverbials onto the verb so as to specify the exact time when an event occurred. These examples show that Olunyala data does not fit into the tense model suggested by other scholars (e.g. Wald, 1973) who claim that most Bantu languages have three degrees of past tense, namely: past tense today, past tense yesterday, and past tense before yesterday. It is evident that what we are calling 'have-just' tense is not just a sub-set of immediate past tense since these tenses are morphologically and semantically distinctive in Olunyala. Therefore, they cannot simply be lumped together as 'past tense today.' This is a point of departure between Olunyala and those Bantu languages that may fit into the tense model of Wald.

In conclusion, we have observed from the data that the immediate past tense is characterized by a derived HLH tone melody. This melody therefore differs from

the one observed in the present tense and 'have-just' tense. Another notable difference is that the immediate past tense uniquely maps a H tone onto the initial stem syllable on the surface verbal structure. In the following section, the interaction between past tense and verbal tone is analyzed.

3.2.4 Past Tense and Verbal Tone

The past tense is used to describe actions, states or events that happened yesterday or a few days ago. It is sometimes referred to as past tense yesterday. The past tense is morphologically marked by the tense marker (TM) prefix {-a-} and the suffix {-ir- or -er-} in accordance with vowel harmony constraints. The morpheme {-ir-} is used when the vowel found in the disyllabic verb root is either /a/, /i/ or /u/. Similarly, the morpheme {-er-} is used when the vowel found in the disyllabic verb root is either /e/ or /o/.

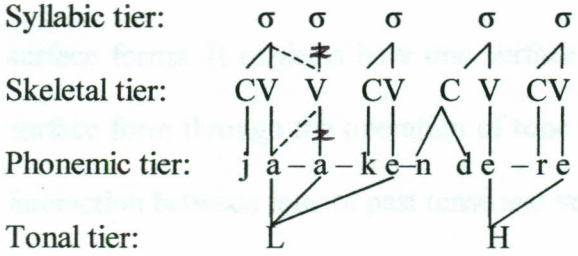
The TM prefix occurs immediately after the subject concord marker but before the object marker and the stem initial syllable. This tense does not affect the basic tone pattern of the verb, hence its TM is a stratum two affix. Just like in the previous tenses, the preferred H tone on the final vowel is also preserved in the past tense verb in accordance with the Principle of Structure Preservation. The examples in (3.15) are presented to illustrate the basic and derived tone patterns and also the relevant tone rules that determine the mapping of H and L tones in selected past tense verbs:

(3.15)

	oxú[seβúlá	[LH	'to bid farewell'
V.No. 9	ja:[seβúlé	[LH	's/he bade farewell (to somebody)'
	oxú[kwa	[L	'to fall'
V.No. 16	ja:[kwiréŋgé	[LH	's/he was falling'
	oxú[kendá	[LH	'to walk'
V.No. 20	ja:[kendéré	[LH	's/he walked'
	oxú[miká	[LH	'to strangle'
V.No. 11D	*ja:[mikírwê* ní…	[LHL	'he was strangled as …'
	oxú[xomérá	[LH	'to become fat'
V.No. 32D	omúxaana *ja:[xoméré* pó	[LH	'the girl became fat'
	oxú[xerá	[LH	'to milk e.g a cow'
V.No. 39D	aúndi *βa:[xeréŋgé* číŋómbe	[LH	'may be they were milking cows'

The above tonal patterns can be represented diagrammatically as illustrated for V.No. 20 below:

V.No. 20 (oxú[kendá [LH 'to walk') → ja:[kendéré [LH 's/he walked'



Applicable Rules: 1 – Second Stem Syllable Rule
2 – Copying Rule
3 – Tone Default Rule

The data show that the basic verb stem tone pattern is LH, except in monosyllabic verbs, and the derived verb stem tone pattern is also LH. Therefore the past tense

does not affect the verb stem tone pattern. The above chart shows that the derived LH tone melody that characterizes the past tense undergoes three rule applications to generate the surface tone patterns of V.Nos. 9, 16, 20, and 32D. These rules are the Second Stem Syllable rule, the Copying rule and the Tone Default rule. The Falling tone in V.No. 11D is conditioned by the passive voice hence its tone melody is LHL; otherwise the tone rules that are applicable in this verb are similar to those that apply in other verbs.

It is further noted that the mapping of the H tone onto the stem final syllable fulfils the LPM Principle of Structure Preservation. Following the LPM Principle of Underspecification, a tonal grammar of Olunyala needs to specify LH for all past tense verbs except passive verbs, which should be specified for LHL in their representation. The tone pattern of the surface form need not be specified because it will be generated by the basic melody after the operation of the relevant tone rules. This follows from the fact that LPM theory dwells on relationships among surface forms. It explains how one surface form is derived from another (basic) surface form through the operation of tone rules. The next section focuses on the interaction between remote past tense and verbal tone.

3.2.5 Remote Past Tense and Verbal Tone

The remote past tense is sometimes referred to as past tense before. It is used to describe actions, states or events that happened in the distant past. This tense is not marked by any particular morpheme but it is signaled tonally by a pre-stem

initial H tone and syllabic quantity. Apart from this H, this tense also interacts with the tone pattern of the verb by mapping L tone onto all the remaining syllables including the verb stem final vowel {-a}. Hence, this prosodic structure appears to violate the LPM Principle of preferred Structure Preservation and therefore confirms a claim by Harris (1987) that some lexical rules are non-structure preserving.

The data set in example (3.16) and the following chart illustrate the basic and derived tone patterns and also the relevant tone rules that map H and L tones in selected remote past tense verbs. Different types of verbs, for example, simple and progressive verbs have been selected for analysis to find out whether they manifest the same tone pattern or not. It is observed that there is no difference in their tone patterns despite the fact that progressive verbs are marked for progressive aspect.

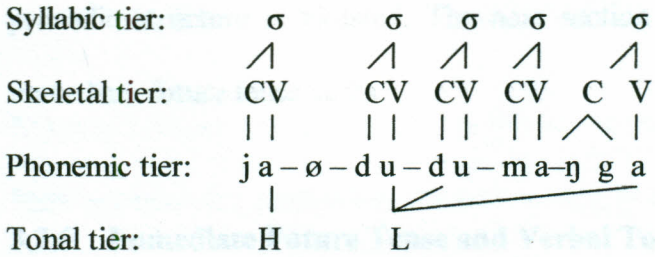
(3.16)

	oxú[xiná	[LH	'to dance.'
V.No. 10	jáxina	[L	's/he danced'
	oxú[kulá	[LH	'to buy'
V.No. 17	já[kulaŋga	[L	's/he was buying'
	oxú[βa	[L	'to be'
V.No. 22	*já[βa* alirá	[L	's/he was crying'
	oxú[bwogá	[LH	'to frighten'
V.No. 12E	*já[bwogwâ* síro …	[LHL	'he was frightened at night'
	oxú[fukírírá	[LH	'to agree'
V.No. 26E	esjé *ndá[fukirira*	[L	'me I agreed'

oxú[dudúmá [LH 'to roar'
V.No. 40E amwéŋene *já[dudumaŋga* ... [L 'her husband was roaring ...'

The typical diagrammatic representation of the above verbal tone patterns is as illustrated for V.No. 40E below:

V.No. 40E (oxú[dudúmá [LH 'to roar') → já[dudumaŋga [L 'he was roaring'



Applicable Rules: 1 – Pre-Stem Initial Rule
2 – Tone Default Rule

The data show that the basic verb stem tone pattern is LH, except in the monosyllabic verb, and the derived tone pattern is L except in passive verbs where LHL tone pattern is manifested. Therefore, this shows that the remote past tense affects the verb stem tone pattern by deleting the verb stem final H tone and replacing it with a L tone.

The pattern emerging from the above chart therefore shows that the remote past tense is characterized by a derived L tone melody and it maps only one H tone onto the pre-stem initial syllable. It is also observed that only two rule applications are needed to account for the surface tone patterns of remote past tense verbs, namely, the Pre-Stem Initial rule and the Tone Default rule. In

passive verbs, however, the passive maps a Falling tone onto the word-final syllable. These processes are ordered as follows:

já[bwoga	→	já[bwog-ú-a	→	já[bwog-w-â
(remote past tense)		(passivization)		(gliding)

So far, it is evident that this is the only tense in which the preferred final-vowel-H prosodic structure is violated. The next section discusses the tonal patterns of immediate future tense verbs.

3.2.6 Immediate Future Tense and Verbal Tone

The immediate future tense is used to describe actions, states or events that will take place in a few hours or days to come including tomorrow. The data show that the immediate future tense is morphologically marked by the TM prefix {-na-} which is H toned. This TM is a stratum two affix since it does not affect the tone pattern of the verb stem. The preferred final vowel H is also preserved in this tense, in accordance with the LPM Principle of Structure Preservation.

The data set in example (3.17) and the chart below illustrate the basic and derived tone patterns and also the relevant tone rules that map H and L tones in selected immediate future tense verbs:

(3.17)

	oxú[koná	[LH	'to sleep'
V.No. 11	anákoná	[LH	's/he will sleep'
	oxú[xeerá	[LH	'to like'
V.No. 14	aná[xe:rá	[LH	's/he will like'

oxú[ɲalá [LH 'to be able'
V.No. 23 *aná[ɲalá* oxúkendá [LH 's/he will be able to walk'

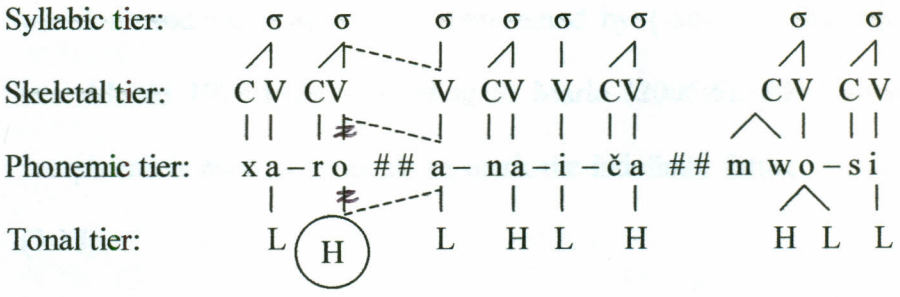
oxú[ičá [LH 'to come'
V.No. 6F *xarâ:nê:čá* mwôsi kwa ...[LH 'now he will come in the month of ...'

oxú[račá [LH 'to kick'
V.No. 13F ... *oná[račwâ* sá ... [LHL '... you will just be kicked ...'

oxú[βoolá [LH 'to tell'
V.No. 41F čísa čia *ináxu[βo:léráŋgá* ...[LH 'the time that it'll be telling you...'

V.No. 6F below typically illustrates the above verbal tone patterns. This verb has been selected for illustration because it clearly shows the effect of surrounding words on the tone pattern of the verb. As expected, the derived LH stem tone melody for this tense is still selected with the relevant tone rules. However, the coalescence of /a+i/ to yield /e:/ creates a Falling tone on the tonal tier. Similarly, the deletion of the final vowel /-o/ in the word {xaró} 'now' through the process of apocopation, creates a floating H tone which becomes reassociated to the next L-tone syllable {a}, thus resulting in a Falling tone. Apocopation is a common phonological process in connected discourse through which separate lexical items may be fused into a compound word in a sandhi-like phenomenon as shown in the following example.

V.No. 6F (oxú[ičá [LH 'to come') →xaró aná[ičá →xarâ:nê: čá [LH 'now s/he will come'



Applicable Rules: 1 – Pre-Stem Initial Rule
2 – Second Stem Syllable Rule
3 – Tone Default Rule

The data show that the basic verb stem tone pattern is LH and the derived verb stem tone pattern is also LH except in passive verbs. This implies that the immediate future tense has no effect on the verb stem tone pattern. It is observed from the above chart that the immediate future tense is characterized by a derived LH stem tone melody except in passive verbs where LHL stem tone melody is manifested (cf: V.No. 13F). The LH stem tone melody undergoes three rule applications indicated above to generate the surface tone patterns of V.Nos. 11, 14, 23 and 6F. It is interesting to note that a similar tone melody was selected by the present tense, 'have-just' tense and past tense (cf: section 3.2.1, 3.2.2 and 3.2.4). The following section focuses on the tonal pattern of future tense.

3.2.7 Future Tense and Verbal Tone

What we call here the future tense is used to describe actions, states or events that will happen after a period of one month or years to come. It is morphologically marked by simultaneously prefixing the H-toned tense morpheme {-xá-} and suffixing the H-toned aspectual morpheme {-é} to the verb root. It is important to

note that the low-toned {-ri-} is a variant for this tense but some speakers rarely use it nowadays; instead, it is represented by {-xá-} in Olunyala and Olusamia (see Mould 1976:132). According to Marlo (2006:6), this L-toned {-ri-} tense morpheme is used in Olunyala to mark the indefinite future, as shown in example (3.18).

(3.18)

a-ri-[kul-á	's/he will buy'
a-ri-[rim-á	's/he will cultivate'
xu-ri-[burúx-á	'we will fly'
xu-ri-[karááŋg-á	'we will fry'
βa-ri-[βukúl-á	'they will take'
βa-ri-[paaŋgúlúl-á	'they will disarrange'

However, we have decided to use the {-xá-} tense morpheme in the present study because it is frequently used by most speakers hence it is the unmarked form.

The future tense differs from the 'have-just' tense in the sense that the former changes the word final vowel to /-e/ whereas the latter does not. This final vowel /-e/ is used to signal an unreal situation. The future tense morpheme {-xá-} is a stratum 2 affix because it does not affect the tone pattern of the verb stem. The final vowel H tone is preserved in accordance with the LPM Principle of preferred Structure Preservation.

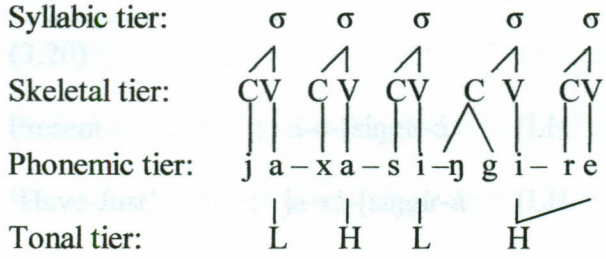
The data set and diagram in example (3.19) below illustrate the basic and derived tone patterns and also the tonal rules that govern tone mapping in selected future tense verbs:

(3.19)

	oxú[βulírá	[LH	'to hear'
V.No. 15	jaxá[βulíré	[LH	's/he will hear'
	oxú[siŋgírá	[LH	'to arise'
V.No. 21	jaxá[siŋgíré	[LH	's/he will arise'
	oxú[xojá	[LH	'the need to do something'
V.No. 24	*jaxá[xojé* oxúsiŋgírá	[LH	's/he will need to arise'
	oxú[suβírírá	[LH	'to anticipate (something)'
V.No. 14G	*βaxá[suβírírwê* páka …	[LHL	'they will be anticipated until …'
	oxú[keká	[LH	'to marry'
V.No. 28G	… amwe *jaxá[keké* úndi	[LH	'her husband will marry another one '
	oxú[asiáká	[LH	'to hew (firewood)'
V.No. 42G	… mbu *jaxâ:siákéŋgé* číxwi	[LH	'.. that he will be hewing firewood'

Consider the following typical chart of the above verbal tone patterns as illustrated for V.No. 21:

V.No. 21 (oxú[siŋgírá [LH 'to arise') → jaxá[siŋgíré [LH 's/he will arise'



Applicable Rules: 1 – Pre- Stem Initial Rule
2 – Second Stem Syllable Rule
3 – Copying Rule
4 – Tone Default Rule

The data show that the basic verb stem tone pattern is LH and the derived verb stem tone pattern is also LH, except in passive verbs. This implies that the future tense does not affect the tone pattern of the verb stem. The chart shows that the

future tense is characterized by a derived LH stem tone melody except in passive verbs (cf: V.No. 14G) where a LHL melody is manifested. The LH melody undergoes four rule applications indicated above to generate the surface tone patterns of the verbs. In V.Nos. 24 and 28G, only rule (1), (2) and (4) are applicable.

It is further noted that the future tense shares the same basic tone melody with four other tenses, namely, the present tense, the 'have-just' tense, the past tense and the immediate future tense. However, these tenses are clearly distinguished by the mapping of the underlying melody onto the surface tone bearing units. This similarity in the underlying melody does not interfere with communication of meaning because different tenses can also be distinguished morphologically by using tense morphemes that accompany the tones and modification of the final vowel. This is illustrated for the verb 'siŋgirá' (rise) in (3.20).

(3.20)

Present	: a-ø-[siŋgír-á	[LH	's/he is rising'
'Have-Just'	: ja-xá-[siŋgír-á	[LH	's/he has just risen'
Past	: ja-a-[siŋgír-é	[LH	's/he rose'
Immediate Future	: a-ná-[siŋgír-á	[LH	's/he will rise' e.g. next week.
Future	: ja-xá-[siŋgír-é	[LH	's/he will rise' e.g. next year.

It is important to emphasize that the future tense in Olunyala has a very long time span, just as it is in other languages. In Kiswahili, for example, the tense

morpheme {-ta-} in the verb "a-ta-[som-a" 's/he will read' can be used to refer to an event that will happen later today, tomorrow, next week, next month, next year or even very many years to come. The same argument applies to English. The bound tense morphemes in Olunyala {-na-; -xa-} and Kiswahili {-ta-}, and the English auxiliary verb {will}, only help to express a general idea of the future time span. The exact time can only be specified by using time adverbs, for example, 'tomorrow,' 'next month' and 'next year.' We recognize the difference between 'immediate future tense' and 'future tense' in Olunyala data because these tenses are distinguished morphologically and semantically.

3.3 Conclusion

This chapter, set out to describe the tenses that are marked in the Olunyala verb, to analyze the tone patterns emerging from the data and to determine the tone rules that govern the tone patterns. It was observed that the Olunyala verb basically allows for seven tenses that are marked morphologically and/or tonally. These are: present, 'have-just', immediate past, past, remote past, immediate future and future tense. This chapter, however, did not discuss the aspectual element of verbal tense, for instance, the simple past and the past continuous. Such distinction will be handled adequately after introducing the Aspect category in chapter five.

It should also be noted that the distinctions between various tenses are to a large extent relative and approximate. As Mould (1976:132) and Wald (1973) have

noted, the choice and usage of tense markers may be influenced by syntactic, pragmatic and dialectal factors. It is very important to note various pragmatic uses of tense markers in order to distinguish them from the grammatical use of tense. The present study, however, focuses on grammatical use of tense.

The discussion in this chapter has revealed that each of the seven Olunyala tenses is characterized by one underlying tone melody selected from a set of three melodies, namely, LH, HLH and L. Specifically, the remote past is characterized by L, the immediate past is characterized by HLH whereas the remaining tenses are characterized by LH. This implies that these tenses need to be specified for these melodies in the tonal grammar of Olunyala. The analysis shows that in some tenses, the tense tone replaces the basic verb tone but in other tenses it does not. Therefore, the tenses that take HLH and L melodies affect the tone pattern of the verb but the tenses associated with LH melody do not.

It is apparent that LH is the basic phonological property characterizing the tenses that map a H tone onto the second stem syllable, HLH melody characterizes the tense that maps a H tone onto the stem initial syllable and the L melody is for the tense that does not map a H tone anywhere on the verb stem. The common feature between LH and HLH tenses is that they map a H tone onto the final vowel unlike the L tense. Our finding is based on the assumption that the surface tone on a verb is part of the tense melodies.

These melodies are slightly altered in monosyllabic verb stems and passive verbs. This implies that the surface tone pattern of a tensed verb is also related to its syllabic structure and passive voice. It appears that when the H-toned passive morpheme {-ú-} is followed by the characteristically H-toned final vowel {-á}, it lowers the tone of the final vowel. The passive morpheme then changes into a glide {-w-} in order to ease articulation and therefore shifts its H tone to the final vowel which consequently carries a falling tone (HL).

It is also evident that the surrounding words may also affect the surface tone patterns of verbs; therefore, it is important to analyze the verbs in their immediate linguistic contexts. Another observation is that tonal downdrift operates in the verbs that have a sequence of H tones that are interspersed with L tones. However, this automatic pitch-lowering process does not affect sequences of H tones that have no intervening L tone.

The analysis shows that the underlying tone melodies are the ones that generate various surface tone patterns of the verbs through the operation of a simple set of six productive tone rules. These are: the Second Stem Syllable rule (SSS Rule), the Copying rule (Co Rule), the Tone Default rule (TD Rule), the Pre-Stem Initial rule (PSI Rule), the Stem Initial rule (SI Rule) and the Stem Final rule. This finding implies that these rules together with the tone melodies are the ones that constitute part of the Olunyala native speaker's phonological competence.

In Universal Grammar, the general principle of economy requires that syntactic (or morphological) representations should contain as few constituents and derivations and involve as few grammatical operations as possible (Radford, 1997:259). At the morphological level, this principle is fulfilled by the fact that Olunyala grammar utilizes only six tone rules to derive diverse surface tone patterns of the verb.

It is further noted that in most tenses, the interaction between phonological and morphological rules in the verb fulfils the basic principles of LPM. Following the Principle of Structure Preservation, it is revealed that the application of tone rules in most tenses preserve the preferred stem final H tone in Olunyala verbs. This finding is consistent with observations made in other languages including Olusamia, Kikamba and Kimatuumbi. Cross-linguistically, we find that tonal associations are very often to the left or right edges of particular constituents, or to syllables proximate to the left or right edges (see Poletto, 2000:346). In Olusamia, for example, there is a constraint that favors the placement of the high tone on the rightmost syllable of the verb stem (Poletto, 2000); In Kikamba, there is a constraint that assigns the Super-Low (SL) tone exclusively on the penultimate or final syllable of words (Roberts-Konho, 2000:207); and in Kimatuumbi, there is a rule that associates a high tone to the leftmost syllable of the stem (Odden, 1996).

In accordance with the proposal of Universal Grammar (Cook, 1988:1), we would like to argue that the tendency for languages to associate a H tone to the left or right edges of particular constituents, is a parameter of variation among tone languages. Olunyala, therefore, is a right-edge tone language.

In conclusion, Olunyala distinguishes between seven tenses that are characterized by three underlying tone melodies. A set of six tone rules operate on the basic tone melodies to generate diverse surface tone patterns of tensed verbs. Most tenses map a H tone onto the stem final syllable; since this is a parameter of variation, it implies that Olunyala is a right-edge tone language. At this point, it is necessary to investigate further the application of the above tone rules in other verbal categories in order to evaluate their validity. Chapter four, therefore, attempts to analyze the relationship between verbal mood and tone.

CHAPTER FOUR

THE RELATIONSHIP BETWEEN VERBAL MOOD AND TONE

4.1 Introduction

The previous chapter discussed the principles and rules that govern the interaction between tense of the Olunyala verb and the verb tonal pattern. It is necessary to investigate further the application of those principles and rules in another verbal category in order to confirm their validity. Therefore, the overall objective of the present chapter is to describe the interaction between mood of Olunyala verb and the verb tonal pattern. Specifically, it seeks to achieve the following two objectives:

(i) describe the relevant moods that are marked in the Olunyala verb.

(ii) analyze data and determine the rules that govern tone patterns in the verb.

4.2 Mood in the Olunyala Verb

Verbal mood can be defined as a grammatical category of verbs that expresses the attitude of the speaker towards the state of affairs described by the utterance (Bussman, 1996:312). Mood in Olunyala is expressed in three different ways: firstly, it is expressed morphologically by means of inflections. Secondly, it is expressed by use of modal auxiliaries such as ɲ *ala* 'can,' *xoja* 'should,' *βa* 'be' or adverbials like *aundi/nalundi/fwana* 'may be/hopefully.' Lastly, it is expressed phonologically by mapping high and low tones onto specific syllables of the verb.

This study focuses on the morphological and phonological ways of marking mood.

Mood may be classified in various ways. Nakau (1976:465-8), for instance, distinguishes four groups of moods, namely, the abrupt imperative mood, the interrogative mood, the assertive mood and the exclamatory mood. This classification, however, does not distinguish other mood categories which are relevant to the present study.

In Traditional Grammar, mood was broadly classified into three types, namely, indicative mood, subjunctive mood and imperative mood (see Crystal, 1985). The indicative mood is used to express the factual content of an utterance without any subjective judgments of the speaker. The subjunctive mood is generally used to express non-factual or relative situations. These are situations which do not really exist and which may not be realized in most cases. They may be wishes, doubts, possibilities or expectations that are expressed by the speaker. The imperative mood is mainly used for expressing commands, directives or prohibitions. It is sometimes punctuated by an exclamation mark.

Overton (1972:17) adopts this traditional typology of mood and claims that Kikuyu utilizes three moods in its verbs, namely, the indicative, the subjunctive and the optative mood. The researcher argues, however, that the frequency of the

optative is severely limited in comparison to the other two moods, as it is used mostly in ejaculatory statements of blessings and curses.

While such a typology may be used to describe the modal system of various languages, it is nevertheless too general. That means, it fails to distinguish clearly the various kinds of moods that may constitute the speaker's attitude towards the factual content of an utterance. For this reason, the present study will discuss the indicative and imperative moods as they are but split the traditional subjunctive mood into possibility, desirability and conditionality moods.

4.2.1 Indicative Mood and Verbal Tone

The indicative mood is sometimes known as the declarative, common, fact, or neutral mood. It is the unmarked form that expresses the factual content of an utterance without the speaker's evaluations. Apart from being related to the final vowel remaining {-a} within a tensed inflected verb, the indicative mood in Olunyala is not marked by any other specific morphological form since it depends on the tense-aspect configuration of the verb. This is exemplified in (4.1):

(4.1)

(i) Juma *a-[lim-á.* 'Juma is *digging*'

(ii) Juma *ja-xá-[lim-áŋg-á.* 'Juma *has been digging*'

(iii) Juma *já-[lim-ir-aŋg-a* ŋíná. 'Juma *used to dig for* his mother.'

In a 'have-just' tense verb, the indicative mood shows a tone pattern that is associated with that particular tense; a H tone is mapped onto the pre-stem initial syllable {-xá-} and the second stem syllable, then it spreads rightwards to the final vowel, except in passive verbs.

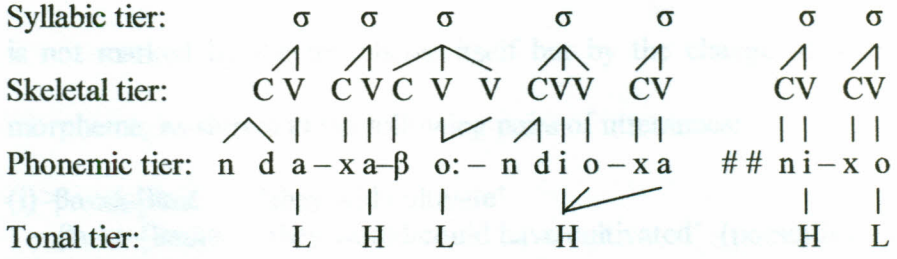
The data set in example (4.2) and the chart below illustrate the basic and derived tone patterns and also the relevant tone rules that map H and L tones onto specific syllables of selected indicative modal verbs:

(4.2)

	oxú[kesá	[LH	'to harvest'
V.No. 1	jaxá[kesá	[LH	's/he has just harvested'
	oxú[xomá	[LH	'to pierce'
V.No. 4	jaxá[xomwâ	[LHL	's/he has just been pierced'
	oxú[kisá	[LH	'to hide'
V.No. 7	jaxá[kisá	[LH	's/he has just hidden (e.g. a pen)'
	oxú[βoondióxá	[LH	'to lay ambush'
V.No. 16A	*ndaxá[βoondióxá* níxo…	[LH	'I have just laid an ambush so as to…'
	oxú[iriirá	[LH	'to snore'
V.No. 21A	omwâná *jaxá[iríírá* múno	[LH	'the child has really snored'
	oxú[raaká	[LH	'to plant'
V.No. 26A	efwé *xwaxá[raakáŋgá* βúmwó	[LH	'us we have been planting potato plants.'

The typical diagrammatic representation of the above verbal tone patterns is as illustrated for V.No. 16A below:

V.No. 16A oxú[βoondíóxá [LH → ndaxá[βoondíóxá níxo… [LH
'to lay an ambush') 'I have just laid an ambush so as to…'



Applicable Rules: 1 – Pre- Stem Initial Rule
2 – Second Stem Syllable Rule
3 – Copying Rule
4 – Tone Default Rule

The data show that the basic verb stem tone pattern and the derived verb stem tone pattern is LH, implying that the indicative mood does not affect the verb stem tone pattern. The pattern emerging from the above data set and chart also show that the indicative mood is characterized by a derived LH tone melody except in passive verbs. This melody undergoes four rule applications to generate the surface verbal tone pattern of the above-illustrated trisyllabic intransitive verb. The same rules are applicable in V.Nos. 21A and 26A. It is also noted that tonal downdrift operates by lowering the pitch of sequences of H tones that have an intervening L tone. The next section discusses the interaction between possibility mood and verbal tone.

4.2.2 Possibility Mood and Verbal Tone

This is also known as hypothetical mood and is used for expressing the likelihood of something existing, happening or being done. It is marked by the low-toned

prefix {-xa-} hence it can be distinguished from the 'have-just' tense marker {-xá-} which is high-toned. This study therefore argues that the possibility mood is not marked by the morpheme itself but by the change of tone on that tense morpheme, as shown in the following pairs of utterances:

(i) βa-xá-[limé 'they will cultivate'
βa-xa-[limíré 'they would/could have cultivated' (possibility mood)

(ii) βa-xá-[čia 'they have just gone'
ní-βa-xa-[daxíré oxúčia 'if they wanted to go' (possibility mood)

Following Palmer (1979:21ff), the present study distinguishes the following functions of possibility mood:

(a) To express proposition; a proposition is an unproved statement in which an opinion or judgment is expressed, as in (4.3).

(4.3)

(i) ífulá nîikwâ ámadímwâ *ka-xa-[mer-á.* 'If it rains *maize may grow.*'

(ii) níxusóma múno *xwa-xa-[βir-á* amáréβó. 'If we read hard *we may pass* exams.

(b) To give permission, as exemplified in (4.4).

(4.4)

(i) nímudáxa oxúčia íŋgo *mwa-xa-[xolá* murîo. 'If you (pl.) want to go home *you (pl.) may do* so.

(ii) ŋga o ɟ oŋére *wa-xa-[kon-á* xaró. 'Since you are tired *you may sleep* now.'

(c) To indicate ability, as shown in example (4.5):

(4.5)

(i) βilolóxáná axásianí xanó *xa-xa-[xujáná* emí ɲ íxá. 'It looks as though this chap *can do wrestling.*'

(ii) amá ɲiré mbu ísa nîiβíja *ja-xa-í-[xwanîa.* 'He knows that if the watch gets damaged *he can repair it'.*

(d) To indicate simply the possibility of an event, as shown in (4.6).

(4.6)

(i) mbaará mbu níxuβáβa oβúxóó ɲ í oβúxéérí *βwa-xa-e[meedá.* 'I think that if we give them assistance love *can abound.*

(ii) éβiβúla eβíwaní oβúlálá *βwa-xa-[ɲasíxá.* 'Without (giving) contributions the Co-operative *can break up.*'

The above data sets show that the possibility mood is marked by the L tone. This mood interacts with the tonal pattern of the verb by mapping H tones from the second stem syllable progressively to the final vowel. The assignment of the word-final H tone fulfils the requirements of the principle of structure preservation.

The data set in example (4.7) and the chart below illustrate the basic and derived tone patterns and also the relevant tone rules that map H and L tones in selected possibility modal verbs:

(4.7)

	oxú[rexúúlá	[LH	'to release (somebody)'
V.No. 6	jaxa[rexúúlwâ	[LHL	's/he may be released'
	oxú[serérá	[LH	'to seduce'
V.No. 12	jaxa[serérá	[LH	's/he may seduce'
	oxú[kamújá	[LH	'to rinse'
V.No. 18	jaxa[kamújáŋgá	[LH	's/he may be rinsing (clothes)'
	oxú[suxúná	[LH	'to throw away'
V.No. 17B	esié *ndaxa[suxúná* βiósi	[LH	'me I may throw away everything'
	oxú[ʃ ueréra	[LH	'to be smooth'
V.No. 32B	nô:íβaxa máfurá *jaxa[ʃ werérá*	[LH	'if you oil it, it may be smoothened'
	oxú[ʃ alá	[LH	'to be able to'
V.No. 37B	...eβó *βiaxa[ʃ alá* xû:ʃasîa	[LH	'...that may disturb me'

V.No. 12 below illustrates the typical representation of the above verbal tone patterns.

V.No. 12 (oxú[seréra [LH 'to seduce') → jaxa[seréra [LH 's/he may seduce'

Syllabic tier:	σ		σ		σ		σ		σ
Skeletal tier:	CV		CV		CV		CV		CV
Phonemic tier:	j	a	– x	a	– s	e	– r	e	– r a
Tonal tier:	L						H		

Applicable Rules: 1 – Second Stem Syllable Rule
2 – Copying Rule
3 – Tone Default Rule

Since the basic and derived verb stem tone patterns are both LH, this implies that the possibility mood has no effect on the verb stem tone pattern. It is observed from the above data set and chart that the possibility mood is characterized by a

derived LH tone melody except in passive verbs. It is evident that these melody tones are mapped onto various syllables by a series of productive tonal rules hence generating the surface tonal pattern of the verb. In V.No. 37B, only the Second Stem Syllable and Tone Default rules apply. The rules applying in the remaining verbs are the same as those applying in the above-illustrated verb. The next section examines the relationship between desirability mood and verbal tone.

4.2.3 Desirability Mood and Verbal Tone

This is also known as hortative mood and is used to express a desire, wish, want, hope, proposal or recommendation of the speaker towards the state of affairs described by the utterance. It is morphologically marked by the change from the final vowel {-a} to the subjunctive suffix {-e}. If we postulate a lexicon where affixes are entered together with the tone melodies, then H-toned {xa-} would be tense and L-toned {-xa- +subjunctive} would be mood. This is exemplified in (4.8).

(4.8)

(i) *nda-xa-[dax-íré* oxúmulolá lêero. '*I should have wanted* to see him today.'

(ii) nínda-xa-ma$_{\int}$-íré *nda-xa-[leer-éré* éβiaxúlia. 'If I had known *I would have brought* food.'

(iii) *ja-xa-[saa-βíré* amáxonó níxo jáália. '*S/he should have washed* hands before eating.'

Like in the possibility mood, the desirability mood also interacts with the tonal pattern of the verb by mapping a H tone onto the second stem syllable and

subsequent syllables, except in passive verbs where a falling tone is realized word finally. The suffix marker of this mood is a stratum two affix since it does not affect the basic tone pattern of the verb stem. It is clear that although the desirability and possibility moods are tonally similar, they are morphologically marked differently.

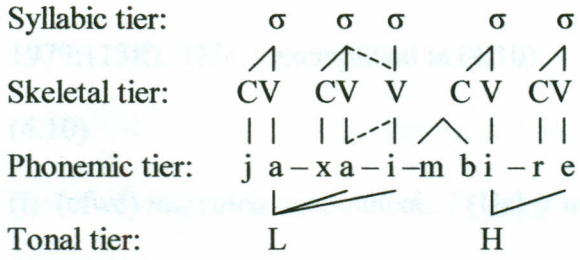
The data set and diagram in example (4.9) illustrate the basic and derived tone patterns and also the tonal rules that govern tone mapping in selected desirability modal verbs:

(4.9)

	oxú[imbá	[LH	'to sing'
V.No. 2	jaxe:mbéré	[LH	's/he should have sung'
	oxú[βalá	[LH	'to count'
V.No. 11	jaxa[βalíré	[LH	's/he should have counted'
	oxú[ixálá	[LH	'to sit down'
V.No. 21	jaxe:xálé	[LH	's/he should have sat down'
	oxú[jiká	[LH	'to force'
V.No. 8C	fwana *ndaxa[jikírwê* xúndáčia	[LH	'may be I should have been forced so as to go'
	oxú[kerá	[LH	'to measure'
V.No. 28C	xaβa *βaxa[kerérẽŋgé* čí ɲumba…	[LH	'no they should have been measuring the houses… '
	oxú[xojá	[LH	'to desire or wish'
V.No. 38C	kwéli *mwaxa[xojéré* mwê:čá…	[LH	'surely you (pl) should have come.'

V.No. 2 below typically illustrates the above verbal tone patterns:

V.No. 2 (oxú[imbá [LH 'to sing') → jaxa[imbíré → jaxe:mbéré [LH 's/he should have sung'



Applicable Rules: 1 – Second Stem Syllable Rule
2 – Copying Rule
3 – Tone Default Rule

It is observed that the basic and derived verb stem tone patterns are both LH, implying that the desirability mood does not affect the verb stem tone pattern. The above data and chart show that the desirability mood is characterized by a derived LH tone melody that undergoes three rule applications to generate the surface tone pattern of the above-illustrated disyllabic active verb.

The three rules are also applicable in V.Nos. 11, 21, 28C and 38C. As mentioned in the previous chapter, the word final Falling tone in V.No. 8C is conditioned by the passive voice. The interaction between verbal tone and conditionality mood is the focus of the next section.

4.2.4 Conditionality Mood and Verbal Tone

This mood is used to express the condition or provision on which the fulfillment of a proposition depends. That means, it expresses a possible reality by characterizing a state of affairs as conditional. In Olunyala verbal system, this mood is typically marked by the prefix {ni-} in the protasis (the *if-* clause). The

protasis indicates a hypothetical event upon which the apodoxis (the main clause) is conditional. The apodoxis, therefore, indicates a real condition (see Palmer, 1979:113ff). This is exemplified in (4.10).

(4.10)

(i) (efwé) *ní-[xuíča* onáβulúúxá. '(Us) *if we come,* you will rest.'

(ii) (aβáxasi) *ní-[βalíma* βaβa βaxákesé. '(The women) *if they cultivate,* then they will harvest.'

(iii) (omwâná) *ní-jaxá[lia* anáβajá. '(The child) *if s/he has eaten,* s/he will play.'

It should be noted that sometimes in the immediate past and past tense, the conditionality mood is expressed by a L-toned verb that has a subjunctive suffix {-e} but not the prefix {ni-}, for instance, *alimire* 'had s/he cultivated,' *akesere* 'had s/he harvested.' However, a corpus-based frequency count shows that this particular conditional verb-form has a very low functional load.

The conditionality mood in a 'have-just' tense verb is morphologically marked by a H-toned prefix {ní-} that appears word-initially. This mood interacts with the verbal tone pattern by mapping a H tone onto the conditionality marker and the second stem syllable and a L tone onto the stem final syllable. Therefore, in accordance with the LPM principle of lexical strata, the conditionality prefix can be categorized as a stratum one affix since it affects the tone of the basic verb stem. It is clear that the tonal pattern conditioned by this mood violates the LPM principle of prosodic structure preservation since the preferred word-final H tone

is not realized. However, this tonal pattern is permissible since the conditional verb is viewed as being a result of a movement from the indicative verb.

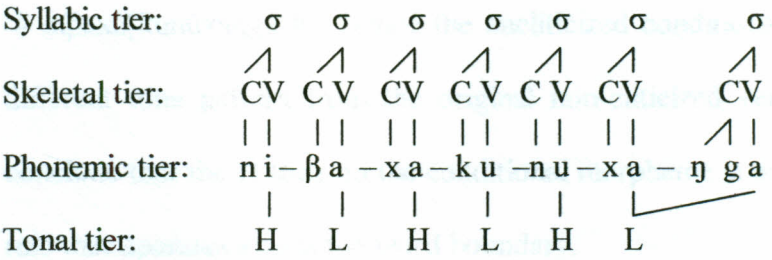
The data set and chart in example (4.11) below illustrate the basic and derived tone patterns and also the tonal rules that govern tone mapping in selected conditionality modal verbs:

(4.11)

	oxú[ɲeká	[LH	'to abuse'
V.No. 5	níjaxá[ɲekwâ	[LHL	'if s/he has just been abused'
	oxú[fukírá	[LH	'to respond'
V.No. 15	níjaxá[fukíra	[LHL	'if s/he has just responded'
	oxú[salá	[LH	'to vomit'
V.No. 16	níjaxá[saláŋga	[LHL	'if s/he has just been vomiting'
	oxú[kunúxá	[LH	'to doze'
V.No. 29D	*níβaxá[kunúxaŋga* mú:kilási	[LHL	'if they have just been dozing in class'
	oxú[βa	[L	'to give'
V.No. 34D	*nô:mú[βerésia* onándolá	[LHL	'if you give him (something) you will see me '
	oxú[βa	[L	'to be'
V.No. 39D	máni *níjaxá[βa* alia…	[L	'then if s/he has just been eating…'

The above verbal tone patterns can be represented as illustrated for V.No. 29D below:

V.No. 29D (oxú[kunúxá [LH 'to doze') → *níβaxá[kunúxaŋga* [LHL 'if they have just been dozing'



Applicable Rules: 1 – Pre- Stem Initial Rule
2 – Second Stem Syllable Rule
3 – Tone Default Rule

The data show that the basic verb stem tone pattern is LH but the derived verb stem tone pattern starts with a H tone word initially and ends with a L tone word-finally, that is, HLHLHL. This implies that the conditional mood affects the verb stem tone pattern. This finding confirms the general principle of structure dependence in Universal Grammar, which predicts that grammatical operations are sensitive to the syntactic or morphological structure. The above data and chart show that the conditionality mood is characterized by a derived HLHLHL tone melody. It is also noted that these melody tones are mapped onto various syllables by a series of productive tonal rules, hence generating the surface tone pattern of the verb.

Since the Pre-Stem Initial rule maps a H tone onto the morpheme {-xá-}, it appears that there is a different rule that maps a H tone onto the conditional morpheme {ní-}. Our argument is that this {ní-} is an enclitic arising from the

phrase 'níkari mbu' (if it is that). Therefore, '# níkari # mbu # βaxá[kunúxáŋgá #' (if it is that they have just been dozing' means the same thing as:
'# níβaxá[kunúxaŋga #.' Hence the encliticized conditional verb form acquires a different tone pattern from the original non-cliticized verb form. We therefore conclude that the H tone on the conditional morpheme is mapped by a post-lexical rule that operates across the word boundary.

It is noted that the tonal pattern motivated by conditionality mood is similar to the one conditioned by passive voice since they both lower the word-final H tone, thus violating the LPM principle of structure preservation. Violation of tone rules in Olunyala may be justified where a verb has undergone a movement, for instance, from the active voice to the passive voice, or from the indicative mood to the imperative mood. It is noted that such movements are always accompanied with deviant tonal patterns. It is further observed that tonal downdrift also operates in conditional verbs. At this point, it is necessary to examine the relationship between imperative mood and verbal tone.

4.2.5 Imperative Mood and Verbal Tone

This mood is used for expressing commands, directives or prohibitions. According to Hartmann and Stork (1972:108) an imperative is a sentence or verb form that commands, requires or forbids an action to be carried out. Mbaabu (1992:187) and Mgullu (1999:201) note that in Kiswahili, imperative verb forms consist of the verb root and the final vowel {-a} or other prefixes and suffixes

depending on whether the addressee is singular or plural. This also applies to Olunyala verb where the imperative mood is formally marked as shown in (4.12) below.

(4.12)

	Singular addressee		Plural addressee		
(i)	[kiŋgá	[LH 'carry'	mu[kíŋge	[LHL	'you (pl.) carry'
(ii)	[βeká	[LH 'shave'	mu[βéke	[LHL	'you (pl.) shave'
(iii)	[sindixá	[LH 'push'	mu[sindíxe	[LHL	'you (pl.) push'

We consider the forms with a singular addressee to be the basic imperative verb forms since they do not have inflectional and derivational morphemes. The fact that these basic forms occur in non-tense marked verbs implies that their tonal pattern is the basic verb stem tone in Olunyala. This is true because their tone pattern is similar to the tone pattern of the infinitive verb stem. The imperative mood is usually expressed by mapping a H tone onto the ultimate syllable of the verb stem except monosyllabic verbs which are always L-toned. This tonal pattern of monosyllabic verbs is slightly similar to the one observed in the Mwingi dialect of Kikamba where the monosyllabic imperatives are marked by a HL tone (Mutiga, 2002:157). The tonal tendency of imperative verbs in Olunyala clearly satisfies the requirements of the LPM principle of structure preservation by mapping a H tone onto the stem final syllable.

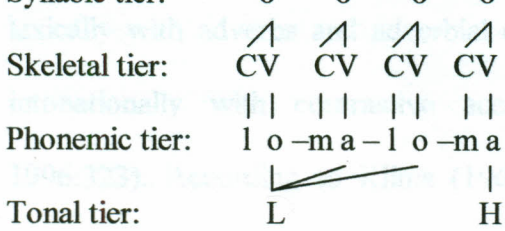
The data set in example (4.13) and the chart below illustrate the relevant tone rules that map H and L tones in selected imperative modal verbs:

(4.13)

	oxú[siβá	[LH	'to block'
V.No. 8	[siβá	[LH	'block '
	oxú[xujá	[LH	'to beat'
V.No. 17	[xujaŋgá	[LH	'be beating '
	oxú[kaná	[LH	'to narrate'
V.No. 20	[kaná	[LH	'narrate '
	oxú[kendá	[LH	'to walk'
V.No. 5E	ewé [*kendá*	[LH	'you (sg.) walk '
	oxú[lomálómá	[LH	'to talk'
V.No. 20E	[lomalomá	[LH	'talk '
	oxú[kiŋgá	[LH	'to carry'
V.No. 35E	[kiŋgá	[LH	'carry '

The diagrammatic representation of the above verbal tone patterns is as illustrated for V.No. 20E below:

V.No. 20E (oxú[lomálómá [LH 'to talk') → [lomalomá [LH 'talk '



Applicable Rules: 1 – Stem Final Rule
2 – Tone Default Rule

Since the tone pattern of the infinitive basic verb stem and that of the imperative verb form is LH, this implies that the imperative mood does not affect the verb stem tone pattern. The pattern emerging from the above data set and chart shows that the imperative mood is characterized by an underlying LH tone melody that undergoes two rule applications to generate the surface tonal pattern of the verb. These are the Stem Final Rule and the Tone Default Rule.

There may be other minor modal distinctions in Olunyala, but the ones described above are the major and most clearly recognized verbal moods. The tonal patterns of modal verbs may be altered when the verbs undergo negation. The next section therefore discusses the concept of negation and its relationship with mood.

4.2.6 Effect of Negation on the Tone Pattern of Modal Verbs

Negation has been defined generally as the process of inverting or denying the meaning expressed in a word or statement (Hartmann and Stork, 1972:150; Pei and Gaynor, 1980:145). Negation may be realized in various ways, namely: lexically with adverbs and adverbial expressions, morphologically with prefixes, intonationally with contrastive accent, and also idiomatically (Bussmann, 1996:323). According to Klima (1964:247-259), negation can be expressed at word level or sentence level, it can be explicit or implicit, and in form of declarative sentences or tag questions.

Mood is related to negation in various ways. In English, for example, Klima (ibid. pp. 249) claims that negation is sometimes expressed by adverbs of modality. While this may not really be the case, we note that the English negative marker attaches to the first auxiliary which could be a modal auxiliary. For example, 'he *can't* run,' 'he *shouldn't* have gone.' In Kiswahili, Ashton (1944:70) observes that negation is formed by prefixing the negative particle {-si-} to the verb stem in subjunctive and imperative forms, and prefixing the negative particle {ha-} before the subject prefix of the indicative forms. In Olunyala verbs that express modality, negation is marked morphophonologically by the L-toned prefix {si-} except in conditionality and imperative moods where the L-toned prefix {-ra-} is used. Generally, negation affects the tonal pattern of Olunyala verbs that express modality by replacing the word-final H tone with a L tone, as shown in example (4.14).

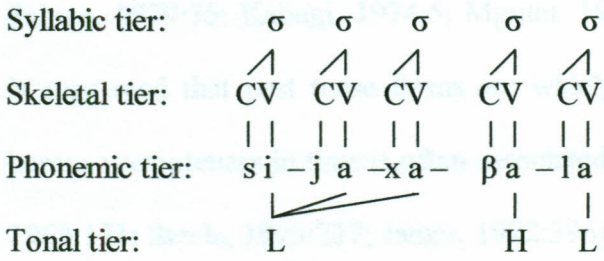
(4.14)

	oxú[imbá	[LH	'to sing'
Indicative Mood: V.No. 2	jaxá[imbá	[LH	's/he has just sung'
	sijaxá[imba	[L	's/he has <u>not</u> sung'
	oxú[βalá	[LH	'to count'
Possibility Mood: V.No. 11	jaxa[βalá	[LH	's/he may count'
	sijaxa[βála	[HL	's/he may <u>not</u> count '
	oxú[xajá	[LH	'to refuse'
Desirability Mood: V.No. 14	jaxa[xajíré	[LH	's/he should have refused'
	sijaxa[xajíre	[LHL	's/he should <u>not</u> have refused'
	oxú[kerá	[LH	'to measure'
Conditionality Mood: V.No.19	níjaxá[kerá	[HLHL	'if s/he has measured'
	níja**ra**xá[kera	[L	'if s/he has <u>not</u> measured'
	oxú[ikálá	[LH	'to shut (e.g. the door)
Imperative Mood: V.No. 9	[ikalá	[LH	'shut (e.g. the door)'
	o**re**:kála	[LHL	'<u>don't</u> shut (e.g. the door)'

We wish to argue that the application of the post-lexical rule that maps a H tone onto the conditional morpheme {ní-} blocks the application of the tone Copying rule in V.No. 19 which appears to meet the structural description. The graphic illustration of the typical tonal pattern of negative modal verbs is as shown for V.No. 11 below.

V.No. 11 (oxú[βalá [LH 'to count') → jaxa[βalá [LH 's/he may count'

Negation: **si**jaxa[βála [HL 's/he may <u>not</u> count '



Applicable Rules: 1 – Stem Initial Rule
2 – Tone Default Rule

From the above illustration, it is observed that negation affects the tone patterns of mood by typically replacing the word final H tone with a L tone. Consequently, the underlying LHL tone melody is associated with the desirability and imperative moods, the L melody is associated with the indicative and conditionality moods, whereas the HL melody is associated with the possibility mood. Each melody undergoes a productive set of tone rules to generate the surface tonal patterns of various verbs.

The data presented in this chapter reveals that it is not possible to express modality without referring to some particular tense. As Palmer (1986:209) has noted, modality is most closely and frequently related to tense apparently because tense is, in some respects, modal. The present study has chosen to analyze mood by considering Olunyala verbs that express the 'have-just' tense. This choice of tense is consistent with the findings of other studies, which have shown that in many languages, it is the past tense that is mostly interrelated with modality, and particularly with unreal, hypothetical or conditional utterances (Steele, 1975:217; Salone, 1979:75; Kabugi, 1974:5; Mgullu, 1999:195 and Brandon, 1974:204). It is suggested that past tense forms are widely used to express unreal conditions because remoteness in time is often associated with remoteness from reality (Joos, 1964:121; Steele, 1975:217; James, 1982:396).

4.3 Conclusion

This chapter set out to identify and describe various moods that are marked in the Olunyala verb. It also aimed at presenting the data and analyzing it to show how those moods interact with the tonal pattern of the verb. Five major verbal moods have been distinguished, some of which are marked either morphologically and/or tonologically. These are indicative, possibility, desirability, conditionality and imperative mood. It has been found out that these modalities are closely related to tense.

The data show that most moods in the 'have-just' tense verb are characterized by a LH tone melody except the conditionality mood, which is characterized by a LHL tone melody. This tendency to use few tone melodies fulfills the general principle of economy in Universal Grammar. It is however noted that when modal verbs are rendered in negative form, the preferred word final H tone is replaced by a L tone. Consequently, the desirability and imperative moods take a LHL tone melody, the indicative and conditionality moods take a L tone melody, whereas the possibility mood takes a HL tone melody. It is clear, therefore, that negation affects the tonal patterns triggered by various moods.

In accordance with the LPM principle of underspecification, these melodies constitute the relevant information that ought to be specified in the tonal grammar of Olunyala. It is also noted that these basic melodies generate various surface verbal tonal patterns through the operation of a simple set of six productive tone rules, which similarly ought to be specified in the tonal grammar. These are: the Second Stem Syllable rule, Copying rule, Tone Default rule, Pre-Stem Initial rule, Stem Initial rule and the Stem Final rule. It is further observed that tonal downdrift operates on some modal verbs by lowering the pitch level of sequences of H tones that have an intervening L tone.

Another observation is that, unlike other moods, the tonal variation triggered by conditionality mood violates the LPM principle of prosodic structure preservation by replacing the characteristic stem final H tone in Olunyala verbs with a L tone.

This is interpreted as being a consequence of the application of the post-lexical rule.

In conclusion, Olunyala distinguishes three main verbal moods namely, the Indicative, Subjunctive and Imperative moods. The Subjunctive has been split into Possibility, Desirability and Conditionality moods. These moods are characterized by two basic tone melodies that generate various surface tone patterns of modal verbs through the operation of a set of six productive tone rules. It is necessary to investigate further the application of the above tone rules in a different verbal category in order to confirm them. Chapter five, therefore, attempts to analyze the relationship between verbal aspect and tone.

CHAPTER FIVE

THE RELATIONSHIP BETWEEN VERBAL ASPECT AND TONE

5.1 Introduction

The previous chapter discussed the principles and rules that govern the interaction between the mood of the Olunyala verb and its tonal pattern. It is necessary to investigate further the application of those principles and rules in another verbal category. Therefore, the overall objective of the present chapter is to describe the interaction between the aspect of the Olunyala verb and its tonal pattern. Specifically, it seeks to achieve three objectives, namely:

(i) describe the relevant aspects that are marked in the Olunyala verb.

(ii) analyze data and determine the rules that govern tone patterns in the verb.

5.2 Aspect in the Olunyala Verb

Aspect can be defined as the way in which the internal temporal constituency of a situation is viewed (Comrie, 1976:3). Basically, a situation can be seen as being completed when viewed as a whole from outside or as being incomplete when viewed from within. However, there is considerable disagreement in the treatment and description of aspect categories. Bussmann (1996:39) notes that this is partly due to the diverse grammatical and lexical means of expressing aspectual notions. The interaction of lexical meaning of verbs, the morphological form of the verb, the type of syntactic argument, adverbials, auxiliaries and tenses may contribute to the aspectual character of a sentence. Aspect can, therefore, be marked

morphologically and/or syntactically, depending on the individual language. The present study is concerned mainly with morphological marking of aspect in the verb. The Olunyala verb system distinguishes four relevant aspects, namely, the completive, the progressive, the prospective and the iterative aspect.

Due to the inherent relationship between tense and aspect verbal categories, we realize that it is not possible to analyze the tonal effect of aspect on the verb stem without making reference to the tense of the verb. Therefore, in order to test the hypothesis that aspect affects the tonal pattern of the Olunyala verb, it is necessary to do a preliminary experiment by holding the tense constant and varying the aspect, as shown in (5.1).

(5.1) The Tone Melody of Aspect in Remote Past Tense Verbs

Verb Stem	**Completive Aspect**	**Progressive Aspect**
1. oxú[limá [LH 'to cultivate'	já[lima [L 's/he cultivated'	já[limaŋga [L 's/he was cultivating'
2. oxú[kaná [LH 'to narrate'	já[kana [L 's/he narrated'	já[kanaŋga [L 's/he was narrating'
3. oxú[salá [LH 'to vomit'	já[sala [L 's/he vomited'	já[salaŋga [L 's/he was vomiting'
4. oxú[kulá [LH 'to buy'	já[kula [L 's/he bought'	já[kulaŋga [L 's/he was buying'
5. oxú[βeŋgá [LH 'to float'	já[βeŋga [L 's/he floated'	já[βeŋgaŋga [L 's/he was floating'
6. oxú[sumúxá [LH 'to wake up'	já[sumuxa [L 's/he woke up'	já[sumuxaŋga [L 's/he was waking up'

Verb Stem		Prospective Aspect	
1. oxú[limá	[LH	jári ámbi oxú[limá	[LH
'to cultivate'		's/he was about to cultivate'	
2. oxú[kaná	[LH	jári ámbi oxú[kaná	[LH
'to narrate'		's/he was about to narrate'	
3. oxú[salá	[LH	jári ámbi oxú[salá	[LH
'to vomit'		's/he was about to vomit'	
4. oxú[kulá	[LH	jári ámbi oxú[kulá	[LH
'to buy'		's/he was about to buy'	
5. oxú[βeŋgá	[LH	jári ámbi oxú[βeŋgá	[LH
'to float'		's/he was about to float'	
6. oxú[sumúxá	[LH	jári ámbi oxú[sumúxá	[LH
'to wake up'		's/he was about to wake up'	

Verb Stem		Iterative Aspect	
1. oxú[lima	[LH	já[limalima	[L
'to cultivate'		's/he cultivated repeatedly'	
2. oxú[kaná	[LH	já[kanakana	[L
'to narrate'		's/he narrated repeatedly'	
3. oxú[salá	[LH	já[salasala	[L
'to vomit'		's/he vomited repeatedly'	
4. oxú[kulá	[LH	já[kulakula	[L
'to buy'		's/he bought repeatedly'	
5. oxú[βeŋgá	[LH	já[βeŋgaβeŋga	[L
'to float'		's/he floated repeatedly'	
6. oxú[sumúxá	[LH	já[sumuxasumuxa	[L
'to wake up'		's/he woke up repeatedly'	

The data show that aspect does not have its own tone melody but it takes the melody associated with the tense of the verb. In the case of remote past tense

verbs, the melody is [L. This suggests that aspect does not affect the tonal pattern of the verb. Since we have tested the hypothesis and disproved it by using verbs in isolation, we need to investigate further whether we can get the same results when we test the hypothesis by using verbs that are in the context of surrounding words. We shall do this by presenting sets of contextualized verbs in each aspect category and analyzing the emerging tone patterns and rules that apply. This is the focus of the following sections.

5.2.1 Completive Aspect and Verbal Tone

A completive aspect indicates a completed action, that is, a situation which has already been terminated. It is expressed by the perfective verb forms. The data set in example (5.2) below illustrates the tone pattern of verbs in context that manifest the completive aspect in the remote past tense forms.

(5.2)

oxú[rumá [LH 'to send'
(i) Aúma *já[ruma* omwâná. [L
'Auma sent the child (to somewhere).'

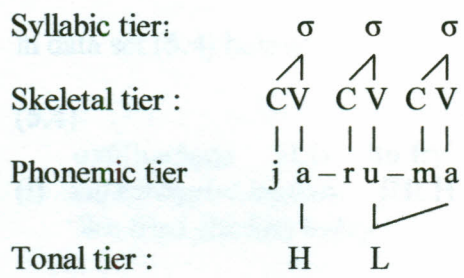
oxú[kooβá [LH 'to escort'
(ii) *xwá[kooβa* aβákéní βadarú. [L
'We escorted three visitors.'

oxú[kiŋgá [LH 'to carry'
(iii) aβásaačá *βá[kiŋga* čímbákó. [L
'Men carried hoes.'

The data in (5.2) shows that the completive aspect is expressed in the remote past tense verb by mapping a high (H) tone onto the Pre-Stem Initial syllable and selecting a L tone melody in the verb stem. This shows that the PSI rule applies to

determine the tone pattern of the verb as illustrated for verb number (5.2) (i) below:

V.No. (i) (oxú[rumá [LH 'to send') → já[ruma [L 's/he sent (somebody)'



Applicable Rules: 1 – Pre- Stem Initial Rule
2 – Default Rule

In the past tense form of the verb, the completive aspect is marked by a LH tone melody with H tones being mapped onto the Second Stem Syllable and the Stem Final Syllable. This is illustrated in data set (5.3) below:

(5.3)

oxú[βerá [LH 'to slash'
(i) *ja[βeréré* oβú ɲ así. [LH
'He slashed grass.'

oxú[laŋgá [LH 'to call'
(ii) ewé *wa[laŋgíré* aβándú. [LH
'You (sg.) you called people.'

oxú[kiŋgá [LH 'to carry'
(iii) Okumú *ja[kiŋgíré* čiŋéní. [LH
'Okumu carried fish'.

Therefore, the rules that govern the above tonal patterns are the SSS Rule and the Copying Rule.

The completive aspect manifests a different tonal pattern in the immediate past tense form of the verb. A derived [HLH tone melody is selected with H tones being mapped onto the Stem Initial syllable and the Stem Final Syllable, as shown in data set (5.4) below:

(5.4)

oxú[karáŋgá [LH 'to fry'
(i) *xu[káraŋgiré* íŋgoxo. [HLH
'We fried chicken today.'

oxú[βalá [LH 'to count'
(ii) *a[βáliré* číŋómbé. [HLH
'He counted cows today.'

oxú[raká [LH 'to plant'
(iii) Juma *a[rákiré* ámadîmwâ. [HLH
'Juma has planted maize today.'

The data above shows that the SI Rule and the SF Rule apply to determine the tonal pattern of the verbs.

In the 'Have-Just' tense form, the completive aspect is similarly marked by a derived LH tone melody by mapping H tones onto the Pre-Stem Initial Syllable and the Stem Final Syllable, as illustrated in data set (5.5) below:

(5.5)

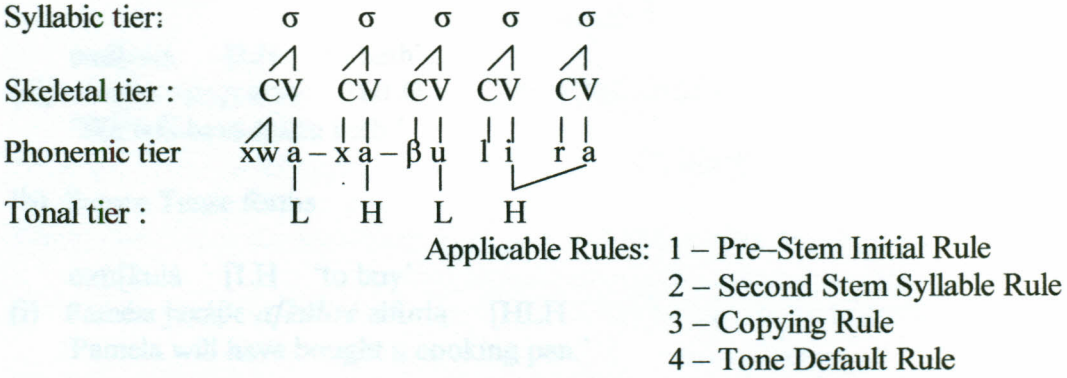
oxú[remá [LH 'to cut'
(i) *ndaxá[remá* omúsala kuríá. [LH
'I have cut that tree.'

oxú[fwalá [LH 'to put on (e.g a dress)'
(ii) *jaxá[fwalá* íŋgúβo jáje. [LH
'She has put on her dress.'

oxú[βulírá [LH 'to hear'
(iii) xwósi *xwaxá[βulírá* oβújoka. [LH
'All of us have heard noise.'

This data set shows that the PSI Rule and the SSS Rule apply in all verbs. In verb number (iii), an additional rule, the Copying Rule, applies owing to the trisyllabic nature of the verb stem. These rules can be illustrated as shown in chart (5.5)(iii).

V.No. (iii) (oxú[βulírá [LH 'to hear') → xwaxá[βulírá [LH 'we have heard'



The completive aspect does not manifest itself in the present tense form. This is because the events, actions or situations that occur in the present tense are perceived to be in progress but not complete. However, the immediate future and future tense forms manifest the same tone pattern in the completive aspect. A derived [HLH stem tone melody is selected with H tones being mapped onto the Stem Initial syllable and the Stem Final syllable of the main verb. In both tenses, the completive aspect is formed periphrastically by a verb stem plus the verb "to be." This is illustrated in data set (5.6) below.

(5.6)
(a) Immediate Future forms

oxú[siixá [LH 'to bury'
(i) oxúulá mučúri βanáβa *βa[síixiré*. [HLH
'By tomorrow they will have buried.'

oxú[koná [LH 'to sleep'
(ii) ŋíná anáβa *a[kóneré*. [HLH
'His mother will have slept.'

oxú[oká [LH 'to bath'
(iii) xunáβa *xwej[ókeré*. [HLH
'We will have taken bath.'

(b) Future Tense forms

oxú[kulá [LH 'to buy'
(i) Paméla jaxáβe *a[kúliré* sífuría. [HLH
'Pamela will have bought a cooking pan.'

oxú[fuɲa [LH 'to return'
(ii) waxáβe *o[fúɲiré* íŋgo.
'You (sg.) will have returned home.'

oxú[siŋgírá [LH 'to wake up'
(iii) mwaxáβe *mu[síŋgiré*. [HLH
'You (pl.) will have woken up.'

The above data set confirms the assertion by Hopper and Traugott (1993:9) that various tenses and aspects of verbs are formed either with auxiliary verbs or with verbal suffixes. The rules that govern the tonal patterns of the above-italicized verbs are, therefore, the SI Rule and the SF Rule.

The above analysis shows that the completive aspect uses the tone melody associated with different tenses and therefore it has no effect on the tone pattern of the verb. A situation that is not complete is usually viewed as being in

progress. Therefore, the following section examines the interaction between progressive aspect and verbal tone.

5.2.2 Progressive Aspect and Verbal Tone

A progressive aspect indicates a situation that is continuing. It is also sometimes used to express a habitual situation. This aspect is morphologically marked by the suffix {-aŋg-} or {-eŋg-} depending on the tense form of the verb. The form {-aŋg-} is used in the present, 'have-just,' remote past and immediate future tenses, whereas {-eŋg-} is used in the immediate past, past and future tenses. This suffix is attached to the stem after all other derivational suffixes but before the final vowel /–a/ or /–e/. Its main function is to express continuity; it indicates an action as taking place over a longer period of time relative to an implicitly or explicitly stated time of reference (Bussmann, 1996:384).

The progressive morpheme {-aŋg-} or {-eŋg-} is also used to express habit or repetition of an action and therefore this aspect is sometimes known as the habitual aspect. In this case, the situation referred to is viewed not as an incidental property of the moment but, precisely, as a characteristic feature of a whole period (Comrie, 1976:27). A situation can also be viewed as progressive without necessarily being habitual. The present study considers the habitual aspect as being part of the progressive aspect since they are marked by the same morphological form and manifest the same tone pattern. The data set in example

(5.7) illustrates the tone pattern of verbs that manifest the progressive (habitual) aspect in the remote past tense forms.

(5.7)

oxú[kesá [LH 'to harvest'
(i) *xwá[kesaŋga* amáβere. [L
'We were harvesting sorghum.'

oxú[saβá [LH 'to ask (for something)'
(ii) *βá[saβaŋga* oβúxóoJ́ í. [L
"They were asking for help.'

oxú[kulá [LH 'to buy'
(iii) *ndá[kulaŋga* číŋéní. [L
'I was buying fish.'

The data shows that a derived L stem tone melody is manifested and a H tone is mapped onto the Pre-Stem Initial syllable, hence the PSI Rule applies to determine the tonal pattern of verbs. In the past tense forms, a LH tone melody is selected which undergoes two rule operations, namely, the SSS Rule and the Co Rule, as shown in data set (5.8).

(5.8)

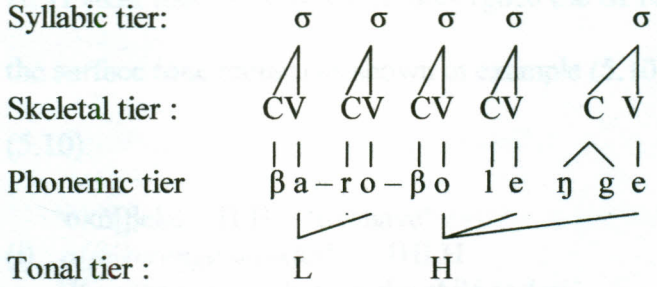
oxú[deexá [LH 'to cook'
(i) *wa[deexéréŋgé* ámabwôní. [LH
'You were cooking potatoes.'

oxú[raká [LH 'to plant'
(ii) *nda[rakíréŋgé* émikáči. [LH
'I was planting sugarcane.'

oxú[roβólá [LH 'to select'
(iii) *βa[roβóléŋgé* ámajémbe. [LH
'They were selecting mangoes.'

These rules can be illustrated as shown in example (5.8) (iii) below.

V.No. (iii) (oxú[ro βólá [LH 'to select') → βa[roβóléŋgé [LH 'they were selecting'



Applicable Rules: 1 - Second Stem Syllable Rule
2 - Copying Rule
3 -Tone Default Rule

A similar tone melody is manifested in the present tense forms where the SSS Rule and the Co Rule apply to determine the surface tone pattern of progressive verbs. The use of the morpheme {-aŋg-} is obligatory in expressing the progressive aspect in the present tense verbs since events in this particular tense are perceived as being in progress. This is shown in example (5.9).

(5.9)

oxú[βalá [LH 'to count'
(i) *o[βal-áŋg-á* číŋgoxo. [LH
'You (sg.) are counting chicken.'

oxú[βiixá [LH 'to keep'
(ii) *xu[βiix-áŋg-á* amátóŋgóló. [LH
'We are keeping money.'

oxú[loorá [LH 'to dream'
(iii) *βa[loor-áŋg-á* esíro. [LH
'They are dreaming at night.'

In the immediate past tense forms, the progressive aspect manifests a derived HLH stem tone melody which undergoes the SI Rule and the SF Rule to generate the surface tone pattern as shown in example (5.10).

(5.10)

oxú[βeká [LH 'to shave'
(i) *o[βékereŋgé* omwâná. [HLH
'You (sg.) were shaving the child today.'

oxú[suká [LH 'to plait (hair)'
(ii) *βa[súkireŋgé* erífwirí. [HLH
'They were plaiting hair today.'

oxú[funáká [LH 'to break (something)'
(iii) *a[fúnakeŋgé* ečísala. [HLH
'She was breaking sticks today.'

A LH stem tone pattern is manifested in the 'have-just' tense, immediate future and future tense forms. The rules that apply are the PSI Rule, the SSS Rule and the Co Rule. However, in the future tense forms, the progressive aspect marker becomes {-eŋg-}. This is illustrated in data set (5.11).

(5.11)

(a) 'Have-Just' Tense forms

oxú[rumá [LH 'to send'
(i) *waxá[rumáŋgá* aβâaná. [LH
'You (sg.) have been sending children.'

oxú[koo ɲ á [LH 'to look for (something)'
(ii) *βaxá[kooɲ áŋgá* eβísala. [LH
'They have been looking for chairs.'

oxú[laamá [LH 'to pray'
(iii) *xwaxá[laamáŋgá* múkanísa. [LH
'We have been worshiping in the church.'

(b) Immediate Future Tense forms.

oxú[lia [L 'to eat'
(i) *xuná[ličáŋgá* amánaganda. [LH
'We will be eating beans.'

oxú[fujá [LH 'to wash (clothes)'
(ii) *oná[fujáŋgá* číŋgúβó. [LH
'You (sg.) will be washing clothes.'

oxú[kerá [LH 'to measure'
(iii) *ndá[keráŋgá* amáčí. [LH
'I will be measuring water.'

(c) Future Tense forms

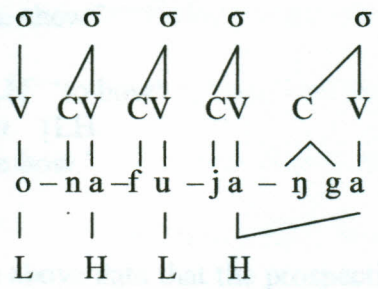
oxú[ŋua [L 'to drink'
(i) *βaxá[ŋwečéŋgé* amálwa. [LH
'They will be drinking liquor.'

oxú[xeeŋgá [LH 'to cut'
(ii) *jaxá[xeeŋgéŋgé* emíkójé. [LH
'He will be cutting ropes.'

oxú[somá [LH 'to read'
(iii) *ndaxá[soméŋgé* eβítáβó. [LH
' I will be reading books.'

The rules applying for all the selected verb forms may be illustrated as shown in example (5.11) (b) (ii) below.

V.No. (b) (ii) (oxú[fujá [LH 'to wash') → oná[fujáŋgá [LH 'you'll be washing (clothes)'



Applicable Rules: 1 – Second Stem Syllable Rule
2 – Copying Rule
3 – Pre–Stem Initial Rule
4 – Tone Default Rule

The analysis of the above data shows that the progressive (habitual) aspect shares most tonal patterns with the completive aspect, and that LH is the most frequent pattern selected. We note that verbal tense is still the determining factor for aspectual melody. Unlike the completive aspect, the progressive aspect is also realized in the present tense forms of the verb and it is not marked periphrastically in the immediate future and future tenses. The following section discusses the prospective aspect and its interaction with verbal tone.

5.2.3 Prospective Aspect and Verbal Tone

A prospective aspect is used to express a state or situation that is about to happen. In Olunyala, it is marked periphrastically by combining the main verb with an auxiliary verb. The auxiliary verb takes the present tense form, whereas the main verb takes the infinitive form, as shown in example (5.12).

(5.12)

oxú[βajá [LH 'to play'
(i) očia *oxú[βajá.* [LH
'You are about to play.'

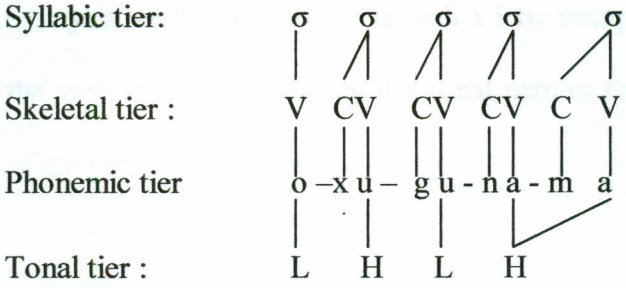
oxú[ᔑaᔑá [LH 'to chew'
(ii) očia *oxú[ᔑ a ᔑ á.* [LH
'You are about to chew.'

oxú[gunamá [LH 'to bow'
(iii) očia *oxú[gunámá.* [LH
'You are about to bow.'

It is evident from the above data that the prospective aspect manifests the LH tone melody and the rules that apply are the PSI Rule and the SSS Rule. However, in

the trisyllabic verb (see example iii), the Co Rule also applies to determine the surface tone pattern as illustrated in the following chart for example (iii).

V.No. (iii) (oxú[gunámá [LH 'to bow') → očia *oxú[gunámá.* [LH 'you're about to bow'



Applicable Rules: 1 – Pre-Stem Initial Syllable Rule
2 – Second Stem Syllable Rule
3 – Copying Rule
4 – Tone Default Rule

It should be noted that there are other phrases that Olunyala speakers may use to express the prospective aspect, for example:

(i) we ɲá *oxú[čexá.*
'You (sg.) want to laugh.'

(ii) olí ámbi *oxú[čexá.*
'You (sg.) are about to laugh.'

However, the discussion of such phrases is beyond the scope of this study, which is basically concerned with morphological aspects of tone marking in the verb.

From the foregoing discussion, it appears that the prospective aspect is expressed by a combination of at least two forms, that is, the auxiliary form which takes the present tense and the infinitive form which is tenseless. The following section now discusses the formation of the iterative aspect and its interaction with verbal tone.

5.2.4 Iterative Aspect and Verbal Tone

Iterativity is the repetition of a situation, the successive occurrence of several instances of the given situation (Comrie, 1976:27). A situation can be iterative but not necessarily habitual. The iterative aspect is manifested in all tenses. In Olunyala verbs, this aspect is realized by reduplicating the segmental material of the verb stem and assigning it a tonal pattern that is determined by the tense form of the reduplicated verb.

It is interesting to note that whereas some Bantu languages manifest the tonal pattern of reduplicatives by copying both segmental material and high tones, others simply copy segmental material but leave out high tones. For example, Mtenje (1988:146) and Carleton and Myers (1994:15) observe that in Chichewa, a language spoken in Malawi, both the segmental material and the high tones are reduplicated. But in Ikalanga (Mathangwane, 2002:58ff) and Chiyao (Carleton and Myers, 1994:26), reduplication copies the segmental material and leaves out the high tones. However, Carleton and Myers (ibid pp.2) argue that tone is always included in reduplication, and that apparent non-copy of tone is due to purely phonological neutralization.

Although the iterative aspect is mainly used to signal the repetition or frequency of a situation, it may also be used to signal intensity and the speaker's attitude towards the given situation, for example, to signal contempt (see Mtenje, 1988;

Mathangwane, 2002). The tonal patterns of this aspect are illustrated by the data sets in (5.13).

(5.13)

(a) Remote Past Tense forms

(i) oxú[moká [LH ----------→ *wá[mokamoka* [L
'to blink' 'you blinked repeatedly'

(ii) oxú[čexá [LH ----------→ *já[čexačexa* [L
'to laugh' 'he laughed repeatedly'

(b) Past Tense forms

(i) oxú[siixá [LH ----------→ *waa[siixásíixíré* [LH
'to bury' 'you (sg.) buried repeatedly.'

(ii) oxú[βajá [LH ----------→ *waa[βajáβájíré* [LH
'to play' 'you (sg.) played repeatedly.'

(c) Immediate Past Tense forms

(i) oxú[koná [LH ----------→ *o[kónakoneré* [HLH
'to sleep' 'you (sg.) slept repeatedly'

(ii) oxú[jaβá [LH ----------→ *o[jáβajaβiré* [HLH
'to dig' 'you (sg.) dug (the hole) repeatedly.

(d) 'Have-Just' Tense forms

(i) oxú[ɲeká [LH ----------→ *waxá[ɲeká ɲéká* [LH
'to abuse' 'you (sg.) have abused repeatedly.'

(ii) oxú[kulá [LH ----------→ *jaxá[kulákúlá* [LH
'to buy' 'he has bought repeatedly'

(e) Present Tense forms

(i) oxú[fuuβá [LH ----------→ *βa[fuuβáfúúβá* émipíra [LH
'to throw' 'they throw balls repeatedly.'

(ii) oxú[duumá [LH ----------→ *a[duumádúúmá* [LH
'to jump' 'he jumps repeatedly.'

(f) Immediate Future Tense forms

(i) oxú[fuučá [LH ----------→ *aná[fuučáfúúčá* [LH
'to spit' 'he will spit repeatedly'

(ii) oxú[kesá [LH ----------→ *oná[kesákésá* [LH
'to harvest' 'you (sg.) will harvest repeatedly'

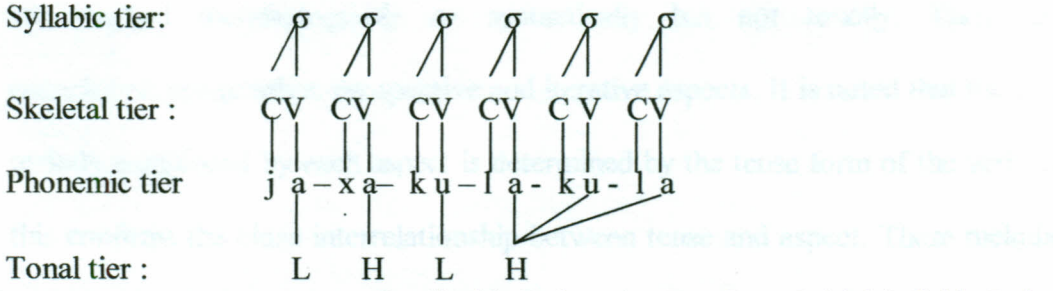
(g) Future Tense forms

(i) oxú[soŋgá [LH ----------→ *waxá[soŋgásóŋgé* [LH
'to add' 'you (sg.) will add (something) repeatedly'

(ii) oxú[korá [LH ----------→ *jaxá[korákóré* [LH
'to get lost' 'he will get lost repeatedly'

The rules that govern the tone patterns in the above verbs can be illustrated by the chart for example (5.13) (d) (ii) below.

V.No. (d) (ii) (oxú[kulá [LH 'to buy') → jaxá[kulákúlá [LH 'he has bought repeatedly'



Applicable Rules: 1 – Pre-Stem Initial Syllable Rule
2 – Second Stem Syllable Rule
3 – Copying Rule
4 – Tone Default Rule

The data sets and the chart above show that the iterative aspect is expressed by three derived stem tone melodies which are associated with various tense forms. These melodies are L, LH and HLH. These melodies generate various surface tone patterns through the operation of six productive tone rules that are related to

the tense forms. These are: Second Stem Syllable Rule, Copying Rule, Stem Final Rule, Pre–Stem Initial Rule, Stem Initial Rule and Tone Default Rule. The fact that the iterative aspect is manifested in all the tenses implies that it is frequently used in everyday communication. The following section now summarizes the operation of tone rules in aspectual verbs.

5.3 Conclusion

The aim of this chapter was to describe the relevant aspects that are marked in the Olunyala verb, and to analyze data and determine the rules that govern tone patterns in the verb.

The analysis shows that Olunyala verb basically distinguishes four aspects that are marked morphologically or syntactically but not tonally. These are: completive, progressive, prospective and iterative aspects. It is noted that the tonal melody manifested by each aspect is determined by the tense form of the verb and this confirms the close interrelationship between tense and aspect. These melodies are L, LH and HLH. The discussion in the present chapter reveals that we cannot identify an aspectual form purely on the basis of tone because aspect does not change the tone pattern of the verb stem. It is further observed that aspectual verbs which have sequences of H tones that are intervened with a L tone undergo the process of tonal downdrift.

It is evident that a productive set of tone rules that were observed in other verbal categories are the ones that operate on the basic tone melodies to generate various surface tone patterns of the aspectual verbs. The general trend emerging from the operation of tone rules in tense, mood and aspect, suggests that most tone rules aim at preserving the preferred ascending tonal structure whereby a H tone is frequently associated with the stem final verbal domain. These are the Second Stem Syllable rule, the Copying rule and the Stem Final rule. This trend is consistent with cross-linguistic observations in other languages, which suggest that tones are very often associated to the left or right edges of particular constituents.

The cumulative results of the discussions on tense, mood and aspect are presented in the final chapter, which summarizes the major findings, conclusions and recommendations that emerge from the present study.

CHAPTER SIX

THE CONCLUSION

6.1 Introduction

This study investigated the inherent relationship between three verbal categories and the tonal pattern of the Olunyala verb. These are tense, mood and aspect. The study sought to achieve the following four objectives:

(i) Determine the basic verb stem tone patterns.

(ii) Identify and describe Olunyala verbal categories.

(iii) Define the interrelationship between verbal categories and tonal patterns.

(iv) Determine the rules and principles that govern tonal patterns in the verb.

(v) Evaluate the significance of these rules in the use of language.

In addressing these objectives, the study was guided by the theory of Lexical Phonology and Morphology. The principles defining this theory enabled the researcher to explain the interaction between morphological rules and tonal rules in the Olunyala verb. The application of the principles of this theory to Olunyala verb tonology revealed interesting findings on the relationship between verbal categories and tonal patterns. The next section, therefore, presents a summary of the major findings of this study as established from the substantive chapters.

6.2 Summary of Study Findings

Several findings emerge on the relationship between verbal tense, mood, aspect and the tonal pattern of the Olunyala verb. This study showed that the basic verb

stem tone pattern in Olunyala as established from the infinitive verb form is LH. It was noted that every verb has a H tone in the stem and this suggests that Olunyala has H tone verbs. The H tone is frequently mapped onto the stem final syllable. The effect of various grammatical categories on the tone pattern of the verb stem was determined by comparing the derived tone patterns with the basic verb tone pattern.

The study noted that Olunyala verb basically allows for seven tenses that are marked morphologically and/or tonally. These are: present, 'have-just', immediate past, past, remote past, immediate future and future tense. It was observed that each of these tenses interacts with the verbal tone pattern by manifesting one basic tone melody from a set of three melodies, namely, L, HLH and LH. Specifically, the remote past is characterized by L, the immediate past is characterized by HLH whereas the remaining tenses are characterized by LH. This implies that these tenses need to be specified for these melodies in the tonal grammar of Olunyala. The analysis shows that in some tenses, the tense tone replaces the basic verb tone but in other tenses it does not. The fact that some tenses manifest a common tone melody, suggests that they are only distinguished morphologically but not tonally.

The study observed that the surface tone pattern of a tense-marked verb may be affected by various factors including its phonological shape, morphological function and linguistic context. This shows the importance of analyzing verbs of

various phonological and semantic types in their immediate linguistic contexts. Phonological types of verbs included monosyllabic, disyllabic, trisyllabic and quadrisyllabic verbs, whereas semantic types included active and passive verbs, transitive and intransitive verbs, stative and dynamic verbs, lexical and auxiliary verbs.

The analysis showed that the basic tone melodies are the ones that generate various surface tone patterns of the verbs through the operation of a set of six generative tone rules. These are: the Stem Final rule (SF Rule), the Second Stem Syllable rule (SSS Rule), the Copying rule (Co Rule), the Tone Default rule (TD Rule), the Pre-Stem Initial rule (PSI Rule), and the Stem Initial rule (SI Rule). The fact that these rules and basic tone melodies are very few fulfils the general principle of economy in Universal Grammar, and this principle enables children to learn Olunyala grammar faster. These tone rules therefore constitute part of the Olunyala native speaker's phonological competence.

It was further noted that in most tenses, the interaction between phonological and morphological rules in the verb fulfils the basic principles of LPM theory. These include the Principle of Lexical Strata, the Principle of Structure Preservation, the Principle of Strict Cycle Condition, the Principle of Elsewhere Condition, the Principle of Underspecification and the Principle of Bracket Erasure.

It was also observed that the mapping of tones onto the verb is in accordance with the general principle of structure dependence in Universal Grammar. This follows from the fact that the mapping of tones onto specific syllables is sensitive to the morphological structure (i.e. the grammatical categories) of the verb.

On the relationship between verbal mood and tone patterns, this study identified five verbal moods in Olunyala, which are marked morphologically and/or tonally. These are: indicative, possibility, desirability, conditionality and imperative mood. We split the traditional subjunctive mood into the possibility, desirability and conditionality moods.

The data showed that most moods in the 'have-just' tense verb are characterized by a LH tonal melody except the conditionality mood, which is characterized by a LHL tone melody. It is however noted that when modal verbs are rendered in negative form, the preferred word final H tone is replaced by a L tone. Consequently, the desirability and imperative moods take a LHL tone melody, the indicative and conditionality moods take a L tone melody, whereas the possibility mood takes a HL tone melody. It is clear, therefore, that negation affects the tonal patterns triggered by various moods.

In accordance with the LPM principle of underspecification, these melodies constitute the relevant information that ought to be specified in the tonal grammar of Olunyala. It is also noted that these basic melodies are transformed to various

surface verbal tonal patterns by a set of six productive tone rules. These are: the Pre–Stem Initial Rule, the Stem Initial Rule, the Second Stem Syllable Rule, the Copying Rule, the Stem Final Rule and the Tone Default Rule. These rules ought to be specified in the tonal grammar.

It was observed that unlike other moods, the tonal variation triggered by conditionality mood violates the LPM principle of prosodic structure preservation by replacing the characteristic stem final H tone in Olunyala verbs with a L tone. This is interpreted as being a consequence of the application of a postlexical tone rule across word boundary.

The chapter on aspect showed that Olunyala verb distinguishes four aspects that are marked morphologically. These are: completive, progressive, prospective and iterative aspects. It was noted that the tone melody manifested by each aspect is determined by the tense form of the verb and this confirms the close interrelationship between tense and aspect. These melodies are L, LH and HLH. Aspect, therefore, does not have its own tone melody and this implies that it does not affect the tone pattern of the verb.

The analysis showed that a productive set of rules that are observed in other verbal categories are the ones that operate on the basic tone melodies to generate various surface tone patterns of the aspectual verbs.

Another general trend that emerges from the tonal patterns of verbs is the manifestation of tonal downdrift. This phenomenon operates in verbs that have a sequence of H tones which are interspersed with L tones. However, it is observed that this automatic pitch-lowering process does not affect sequences of H tones that have no intervening L tone. From the foregoing summary of major findings, this study makes the following conclusions.

6.3 Conclusions of the Study

In view of the summary of major findings, the present study makes a contribution to linguistic knowledge through the following conclusions: The tone system of Olunyala employs six productive tone rules that generate most of the surface tone patterns of Olunyala verbs. These tone rules are significant since they constitute part of the Olunyala native speaker's phonological competence.

It is also concluded that the mapping of a H tone in the stem final position is a very common rule in tone languages. This follows from the finding that in Olunyala verbs, a H tone is frequently associated with the stem final verbal domain. Similar observations have been made in other languages, which have shown that tonal associations are very often to the left or right edges of particular constituents or to syllables proximate to the left or right edges (cf: section 3.3). The study concludes that this is a parameter of variation in tone languages.

Another conclusion is that some tenses and moods affect the tone pattern of the Olunyala verb stem and therefore they can be distinguished by tonal contrast. Aspect, however, has no effect on the tone pattern of the verb stem hence it is not marked by tone but it is marked morphologically or syntactically. This finding shows that it is important to include tone in the description of Olunyala grammar.

This study concludes that the tonal pattern of the Olunyala verb is influenced by phonological, morphological and syntactic factors. Phonologically, the number of syllables in the verb affects its tonal pattern; morphologically, the tense, mood and voice category of the verb determines its tonal pattern; and syntactically, the linguistic context of the verb, for example the tones of surrounding words, also affects its tonal pattern. Therefore, it is important for researchers on tone to analyze the tonal pattern of different phonological types of verbs in context.

Another interesting conclusion emerging from this study is that some Olunyala tense categories are not clearly marked morphologically in English and this poses a problem for translation of tense from Olunyala to English. They include the immediate past tense, past tense and remote past tense. This problem can be solved by describing how these tense categories are used in the source language and specifying the adverbs of time in the target language. This study therefore is a contribution towards the improvement of the practice of translation. It is also an important source of information needed for the teaching of Olunyala language in particular and tone languages in general.

It is also concluded that the principles of LPM theory adequately explain the interaction between verbal categories and tonal patterns in Olunyala verbs. The findings confirmed the prediction of the theory that the interaction between morphological and tonal rules in the verb in most cases preserves the preferred prosodic structure of the verb whereby a H tone is mostly associated with the stem final position. Another conclusion is that the operation of tone rules in Olunyala verbs fulfils the general principles of economy and structure dependence in accordance with the proposal of Universal Grammar. The fact that Olunyala grammar utilizes very few basic tone melodies and tone rules whose operation is sensitive to the grammatical structure of the verb implies that children internalize this knowledge, which enables them to learn the grammar of Olunyala faster.

The present study therefore answers all the research questions that guided it and also confirms the hypotheses on which it was based. However, there are some aspects related to this study that could not be addressed because they were outside the scope of the study. Such issues that need further research are stated in the following section.

6.4 Recommendations for Further Research

Further investigation of related issues could enhance our understanding of the tonal system of Olunyala and tonal function in general. Such investigation would relate to the syntactic aspects of tone. It is necessary to study the nature of tone rules that apply across word boundaries. This is because language is an integral

system whose function depends on the interaction between various grammatical components. The present study encountered some cases where the tone of one word affects the tone of an adjacent word in the same phrase or sentence.

A study should be done on the tonal patterns of other word categories like the adjectives and adverbs in order to find out whether the pattern of tones in these word categories is also rule-governed or not. It is possible that tonal systems not only distinguish different properties of the verb but also different word categories.

It is also necessary to investigate the lexical and pragmatic functions of tone in language. Lexical function relates to the use of tone to distinguish lexical meanings of words, whereas pragmatic function relates to the use of tone to signal the meanings of words in different contexts of conversation. The present study only covered the grammatical function of tone.

The tonal similarities and differences between Olunyala and other Oluluyia 'languages' is another possible area for further research. Such a comparative study would provide the necessary information needed for the development of teaching materials for Oluluyia 'languages.' These 'languages' may be taught to second language learners who may need to use them in everyday communication or in translation and interpretation. It is important to emphasize the fact that a mastery of the tone system of a language is a critical factor in enhancing communication.

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APPENDIX A

Interview Guide

1. Questionnaire for collecting background information

(i) Name:.....

(ii) Age:.....

(iii) Sex:.....

(iv) Residential Area / Sub-Location:.....

(v) For how long have you lived in your present residential area?.....

(vi) Have you ever lived somewhere else? If 'yes' for how long?.....

(vii) What is your ethnic group?.....

(viii) Which dialect have you been speaking since your childhood?.....

(ix) What is your mother's ethnic group?.....

(x) What is your father's ethnic group?.....

(xi) Are you married or not? If 'yes' what is the ethnic group of your spouse?

.....

(xii) Which other language(s) do you speak?.....

.....

2. Topics for interviews

The kind of topics that the researcher used to engage his respondents in the interviews revolved around space and time. The following topics were chosen:

(a) Narrate a story on what you think were the major problems that people faced in the last century (20th century).

(b) Given the present state of life, what would you say are the good things and the bad things?

(c) In your view, how do you think life is going to be in future?

3. Elicitation questions

(a) Questions for eliciting <u>tense</u> structures

(i) Describe the major problems that you think people faced in the past and recent years. [*remote past, past, immediate past*]

(ii) Describe some of the things that you have been doing since last week up to now. [*past, immediate past, have-just, present*]

(iii) Describe the good things and the bad things of the present state of life. [*present*]

(iv) Describe some of the things that you or other people are planning to do tomorrow and in future. [*immediate future, future*]

(b) Questions for eliciting <u>mood</u> structures

(i) How do you think the present state of life can be improved? [*possibility*]

(ii) What do you think should have been done to avoid the major problems that people have faced in the past and recent years? [*desirability*]

(iii) Describe what you think is likely to happen if no steps are taken to improve the present and future state of life? [*conditionality*]

(iv) Demonstrate verbally how you would command or tell a small child to abandon a bad habit. [*imperative*]

(c) Questions for eliciting <u>aspect</u> structures

(i) Think of any task that you or other people set out to do previously and describe how you or they accomplished it. [*completive*]

(ii) Describe some of the things that you or other people have been doing since the past up to now, and will continue doing even in future. [*progressive, habitual*]

(iii) Describe how you would perform a particular task e.g. jumping frequently without stopping. [*iterative*]

(iv) Describe a few things that you or other people are expecting to do soon. [*prospective*]

Thank you for that information.

****

APPENDIX B

Interview Data

3.0 Tense

3.1 *Active and Passive Verbs*

Table 1 – Verbs in Isolation (Wordlist)

Tenses →	A	B	C	D	E	F	G
	PRESENT	**'HAVE-JUST'**	**IMMEDIATE PAST**	**PAST**	**REMOTE PAST**	**IMMEDIATE FUTURE**	**FUTURE**
ACTIVE VERBS	1. alia 's/he's eating'	jaxália 's/he has just eaten'	alîiré 's/he ate today'	jaaliiré 's/he ate'	jália 's/he ate'	anália 's/he will eat'	jaxálie 's/he will eat'
	2. asomá 's/he's reading'	jaxásomá	asómeré	jaasoméré	jásoma	anásomá	jaxásomé
	3. jeerúxá 's/he's running'	jaxêerúxá	jééruxé	jeerúxé	jêeruxa	anêerúxá	jaxêerúxé
PASSIVE VERBS	4. kasieβwâ 'it's being ground'	kaxásieβwâ	kasíerwê	kaasieβwê	kásieβwâ	kanásieβwâ	kaxásieβwê
	5. βulimwâ 'it's being cultivated'	βwaxálimwâ	βulímirwê	βwalimírwê	βwálimwâ	βunálimwâ	βwaxálimwê
	6. čifunákwâ 'it's being broken'	čiaxáfunákwâ	čifûnakwê	čiafunákwê	čiáfunakwâ	čináfunákwâ	čiaxáfunákwê

Table 2 – Verbs in Context

Active Verbs

1.A nímudáxa ni *musokóɲálá*. 'if you want you can squat.'
2.B eŋwé *mwákerá* βêeiβá. 'you have made them to sneak away.'
3.C *mbáliriré* ísa jâŋgé. 'I looked at my watch today.'
4.D βaríá *βaaxweséré* múxirá. 'those ones pulled the tail.'
5.E fwana *βíakenda* βirîe. 'I don't know how it was.'
6.F xarâ*anêečá* mwôsi kwa Disêmba? 'now he will come in the month of December?
7.G oβa *waxándolé* nende... 'then you will see me with...'

Passive Verbs

8.A níβačáka óxujáná ni *βakajwâ*. 'if they start fighting they are separated.'
9.B *kaxáčuxwâ* xúβeerá sinamálafu. 'it has been poured because it is not clean.'
10.C amálwa kefu *kakójerwê* lêero. 'our liquor was brewed today.'
11.D *jaamikírwê* ní βaxujána. 'he was strangled as they were fighting.'

12.E *jábwogwâ* síro ndaβálósí. 'he was frightened at night by wizards.'
13.F nôoβája βíβi *onáračwâ* sá. 'if you (sg.) play badly you will just be kicked.'
14.G xúβoolérá *βaxásuβírírwê*. 'I tell you they will be anticipated.'

3.2 *Transitive and Intransitive Verbs*

Table 1 –Verbs in Isolation (Wordlist)

Tenses →	A	B	C	D	E	F	G
	PRESENT	**'HAVE-JUST'**	**IMMEDIATE PAST**	**PAST**	**REMOTE PAST**	**IMMEDIATE FUTURE**	**FUTURE**
TRANSITIVE VERBS	7. aŋua 's/he's drinking'	jaxáŋua 's/he has just drank'	aŋwêré 's/he drank today'	jaaŋweré 's/he drank'	jáŋua 's/he drank'	anáŋua 's/he will drink'	jaxáŋue 's/he will drink'
	8. asaβá 's/he's asking for'	jaxásaβá	asáβiré	jaasaβíré	jásaβa	anásaβá	jaxásaβé
	9. aseβúlá 's/he's bidding farewell'	jaxáseβúlá	aséβulé	jaaseβúlé	jáseβula	anáseβúlá	jaxáseβúlé
INTRANSITIVE VERBS	10. axiná 's/he's dancing'	jaxáxiná	axíniré	jaaxiníré	jáxina	anáxiná	jaxáxiné
	11. akoná 's/he's sleeping'	jaxákoná	akóneré	jaakonéré	jákona	anákoná	jaxákoné
	12. asukújúxáná 's/he's getting annoyed'	jaxásukújúxáná	asúkujuxané	jaasukújúxáné	jásukujuxana	anásukújúxáná	jaxásukújúxáné

Table 2 – Verbs in Context

Transitive Verbs

15.A mbu *βeekálá* múliáŋgó. 'that they are closing the door.'
16.B ma ɲire mba *ndaxáloondá* Tómu. 'had I known I would have followed Tom.'
17.C βári βeečá *βafúŋgulé*. 'when they came they had opened [something].'
18.D naβo *βaaxweséré* míkójé. 'and them they pulled the ropes.'
19.E ewé *wákosîa* sá ámapésa. 'you just lost money.'
20.F aβa *anáraandúlá* číŋgúβó ečó. 'then she will tear off those clothes.'
21.G aβáándú *βaxálasé* polísi mákíná. 'people will hurl stones at the police.'

Intransitive Verbs

22.A βíndu βíndi *βikosóβóxáná*. 'other things are missing.'
23.B ŋga jaxéjóka *jaxálaβá*. 'as he has taken bath he has become clean.'
24.C ibági *máliré* óra mukúndi. 'I finished loading the bag today in another [bus].'
25.D uríá *jaaβajíré* βílají múno. 'that one played so well.'

26.E esié *ndáfukirira*. 'Me I agreed.'
27.F jaaβooléré ari *anáfuɲá* mučúri. 'she said that she would come back tomorrow.'
28.G amwe *jaxákeké* úndi. 'her husband will marry another one.'

3.3 *Stative and Dynamic Verbs*

Table 1 – Verbs in Isolation (Wordlist)

Tenses →	A	B	C	D	E	F	G
	PRESENT	**'HAVE-JUST'**	**IMMEDIATE PAST**	**PAST**	**REMOTE PAST**	**IMMEDIATE FUTURE**	**FUTURE**
STATIVE VERBS	13. afua 's/he's dying'	jaxáfua 's/he has just died'	afwîré 's/he died today'	jaafwiré 's/he died'	jáfua 's/he died'	anáfua 's/he will die'	jaxáfwe 's/he will die'
	14. axeerá 's/he's liking'	jaxáxeerá	axêereré	jaaxeeréré	jáxeerá	anáxeerá	jaxáxeeré
	15. aβulírá 's/he's hearing'	jaxáβulírá	aβúliré	jaaβulíré	jáβulira	anáβulírá	jaxáβulíré
DYNAMIC VERBS	16. akuičáŋgá 's/he falls'	jaxákuičáŋgá	akwîreŋgé	jaakuiréŋgé	jákuičaŋga	anákuičáŋgá	jaxákuičéŋgé
	17. akuláŋgá 's/he buys'	jaxákuláŋgá	akúireŋgé	jaakulíréŋgé	jákulaŋga	anákuláŋgá	jaxákuléŋgé
	18. aβukúláŋgá 's/he takes'	jaxáβukúláŋgá	aβúkuleŋgé	jaaβukúléŋgé	jáβukulaŋga	anáβukúláŋgá	jaxáβukúléŋgé

Table 2 – Verbs in Context

Stative Verbs

29.A xaró aβâaná *βasaláβáná*. 'now the children are dispersing.'
30.B sénde číáje *čiaxákorá* munó. 'her money has got lost inside here.'
31.C eβíndú *βiβîiré*. 'things got spoiled today.'
32.D dîerí *jaaxoméré* pó. 'surely she really fattened.'
33.E *ndâalaβana* náβo βâafuɲísírîa. 'I quarrelled with them till they returned [it].'
34.F esîina nísiβwâ *βanásaláβáná*. 'if the meeting ends they will disperse.'
35.G níjaxásamúlé íŋgéréxá *jaxálwalé*. 'if he will travel abroad he will get sick.'

Dynamic Verbs

36.A nôoβáriŋgála *βareŋgéréxáŋgá* sá. 'if you look at them they just tremble.'
37.B esié *ndááparáŋgá* mbu... 'me I have just been thinking that...'
38.C ŋga múrexére *aβérereŋgé* βúɲasí. 'when I left him today he was slashing grass.'
39.D aúndi *βaaxeréréŋgé* číŋómbe čiefu. 'may be they were milking our cows.'
40.E amwéŋene *jádudumaŋga* ŋge ríkúlú. 'her husband was roaring like thunder.'
41.F čísa čia ináxuβooléráŋgá... 'the time that it will be telling you...'

42.G mbaará mbu *jaxâasíákéŋgé* čííxwi. 'I think that he will be hewing firewood.'

3.4 *Lexical and Auxiliary Verbs*

Table 1 – Verbs in Isolation (Wordlist)

Tenses →	A	B	C	D	E	F	G
	PRESENT	**'HAVE-JUST'**	**IMMEDIATE PAST**	**PAST**	**REMOTE PAST**	**IMMEDIATE FUTURE**	**FUTURE**
LEXICAL VERBS	19. alírá 's/he's crying'	jaxálírá 's/he has just cried'	alíriré 's/he cried today'	jaaliríré 's/he cried'	jálira 's/he cried'	análirá 's/he will cry'	jaxáliré 's/he will cry'
	20. akendá 's/he's walking'	jaxákendá	akénderé	jaakendéré	jákenda	anákendá	jaxákendé
	21. asiŋgírá 's/he's rising'	jaxásiŋgírá	asíŋgiré	jaasiŋgíré	jásiŋgira	anásiŋgírá	jaxásiŋgíré
AUXILIARY VERBS	22. aβa alirá s/he 'be' crying'	jaxáβa alirá	aβêeré alirá	jaaβeeré alirá	jáβa alirá	anáβa alirá	jaxáβe alirá
	23. aɲalá oxúkendá 's/he can walk'	jaxáɲalá oxúkendá	aɲáliré oxúkendá	jaaɲalíré oxúkendá	jáɲala oxúkendá	anáɲalá oxúkendá	jaxáɲalé oxúkendá
	24. axojá jáásiŋgírá 's/he should rise'	jaxáxojá jáásiŋgírá	axójeré jáásiŋgírá	jaaxojéré jáásiŋgírá	jáxoja jáásiŋgírá	anáxojá oxúsiŋgírá	jaxáxojé oxúsiŋgírá

Table 2 – Verbs in Context

Lexical Verbs

43.A βáčia ni *βadondóβáná*. 'they went and messed up'
44.B ŋíná *jaxâaláβá* múno. 'his mother has really protested.'
45.C *βaríndiré* 'cústomer.' 'they waited for the customer today.'
46.D omáɲiré *βaaraŋgíré* áβasîaβu. 'you (sg.) know they annoyed their colleagues'
47.E olwâla lwáje *lwágasa* anó lurí... 'his finger stuck here like this...'
48.F mítoka *kinâandá* mumádosi. 'the vehicles will get stuck in the mud.'
49.G aβásúmbá *βaxámukerámé*. 'the bachelors will inherit her.'

Auxiliary Verbs

50.A *aɲalá* xwîčá. 'he can come.'
51.B ŋgándi *xwaxáβa* xuxúlindire. 'of course we have been waiting for you.'
52.C omwâna wáje *aβêeré* areŋgéréxá múno. 'her child was shivering very much today.'
53.D aβánááβí *βaaxojéré* βáámalámo číɲjeró. 'the fishermen should have removed their fishing nets [from the lake].'

54.E *ndáli* ŋgíŋgiré ibági jáŋgé. 'I was carrying my bag.'
55.F esié *sindáɲalá* xúxaaβáná náβo. 'me I will not be able to argue with them.'
56.G aβáxíní *βaxáxojé* βêetaírísîa. 'the dancers will need to prepare themselves.'

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4.0 Mood

4.1 Active and Passive Verbs

Table 1 – Verbs in Isolation (Wordlist)

Moods →	A	B	C	D	E
	INDICATIVE	**POSSIBILITY**	**DESIRABILITY**	**CONDITIONALITY**	**IMPERATIVE**
ACTIVE VERBS	1. jaxákesá 's/he has just harvested'	jaxakesá 's/he may harvest'	jaxakeséré 's/he should have harvested'	níjaxákesa 'if s/he has harvested'	kesá 'harvest'
	2. jaxáimbá 's/he has just sung'	jaxe:mbá	jaxe:mbéré	níjaxê:mba	imbá
	3. jaxákalúxá 's/he has just returned'	jaxakalúxá	jaxakalú:xé	níjaxákalúxa	kaluxá
PASSIVE VERBS	4. jaxáxomwâ 's/he has just been pierced'	jaxaxomwâ	jaxaxomérwê	níjaxáxomwâ	N/A
	5. jaxáɲekwâ 's/he has just been abused''	jaxaɲekwâ	jaxaɲekérwê	níjaxáɲekwâ	N/A
	6. jaxárexúú-lwâ 's/he has just been released'	jaxarexúúlwâ	jaxarexúúlwê	níjaxárexúúlwâ	N/A

Table 2 – Verbs in Context

Active Verbs

1.A mbu *jaxádaxá* xû:ndumá xusííró. 'that s/he wanted to send me to the market.'
2.B nô: číβolóla *čiaxanuuná*. 'if you untie them they might suckle [calves].'
3.C ŋgá *waxairíré* xúfúndi. 'then you should have taken [it] to the technician.'
4.D mítoka kíndi kinó *níwiŋgíra*... 'these other vehicles if you board them...'
5.E ewé *kendá* 'you walk'

Passive Verbs

6.A ímbwa iríá *jaxáɲusúlwâ* íɲámá. 'that dog has been snatched a piece of meat.'
7.B oraβárexa íɲúmá *βaxeerwâ*. 'don't leave them behind they might be killed.'
8.C fwana ndaxajikírwê xúndááčia. 'may be I should have been forced so as to go.'
9.D xandi *níjaxêendwâ* anâandolá. 'if he has been brought here again he will see me.'
10.E N/A

4.2 *Transitive and Intransitive Verbs*

Table 1 – Verbs in Isolation (Wordlist)

Moods →	A	B	C	D	E
	INDICATIVE	**POSSIBILITY**	**DESIRABILITY**	**CONDITIONALITY**	**IMPERATIVE**
TRANSITIVE VERBS	7. jaxákisá 's/he has just hidden (e.g. a pen)'	jaxakisá 's/he may hide'	jaxakisíré 's/he should have hidden'	níjaxákisa 'if s/he has hidden'	kisá 'hide'
	8. jaxásiβá 's/he has just blocked'	jaxasiβá	jaxasiβíré	níjaxásiβa	siβá
	9. jaxáikálá 's/he has just shut e.g the door'	jaxe:kálá	jaxe:kálé	níjaxê:kála	ikalá
INTRANSITIVE VERBS	10. jaxáxulá 's/he has just grown'	jaxaxulá	jaxaxulíré	níjaxáxula	N/A
	11. jaxáβalá 's/he has just counted''	jaxaβalá	jaxaβalíré	níjaxáβala	βalá
	12. jaxáserérá 's/he has just seduced'	jaxaserérá	jaxaseré:ré	níjaxáseréra	sererá

Table 2 – Verbs in Context

Transitive Verbs

11.A aβásačá *βaxájaβá* ísuló. 'men have dug a well.'
12.B xwôsí *xwaxaβaaɲʲá* ámapésa kefu. 'we may also claim (demand) our money.'
13.C fwana *waxadajíré* ámadîimwâ. 'may be you should have scooped maize.'
14.D *nô:mûiríra* naráxo... 'when you send [it] to him he puts[it] on...'
15.E *lumá* 'bite (cassava)'

16.A *ndaxáβoondíóxá* níxo ndíire íŋgoxo iríá. 'I have just laid an ambush so as to catch that hen.'
17.B esié *ndaxasuxúná* βiósi. 'me I may throw away everything.'
18.C oβadiβiisîe *βaxamokámókéré* ŋgaβêeβí. 'had you got them red handed they would have blinked [eyes] like thieves.' [i.e. a sign of guilt].
19.D lakíni *nîiβíija sá*.... 'but if it just gets damaged....'
20.E *lomalomá* 'talk'

4.3 *Stative and Dynamic Verbs*

Table 1 – Verbs in Isolation (Wordlist)

Moods →	A	B	C	D	E
	INDICATIVE	**POSSIBILITY**	**DESIRABILITY**	**CONDITIONALITY**	**IMPERATIVE**
STATIVE VERBS	13. jaxálolá 's/he has just seen'	jaxalolá 's/he may see'	jaxaloléré 's/he should have seen'	níjaxálola 'if s/he has seen'	lolá
	14. jaxáxajá 's/he has just refused'	jaxaxajá	jaxaxajíré	níjaxáfukíra	xajá
	15. jaxáfukírá 's/he has just responded'	jaxafukírá	jaxafukí:ré	níjaxáfukíra	fukirá
DYNAMIC VERBS	16. jaxásalá-ŋgá 's/he has just been vomiting'	jaxasaláŋgá	jaxasalíréŋgé	níjaxásaláŋga	salaŋgá
	17. jaxáxujá-ŋgá 's/he has just been beating'	jaxaxujáŋgá	jaxaxujíréŋgé	níjaxáxujáŋga	xujaŋgá
	18. jaxákamú-jáŋgá 's/he has just been rinsing'	jaxakamújáŋgá	jaxakamú:jéŋgé	níjaxákamújaŋga	kamujaŋgá

Table 2 – Verbs in Context

Stative Verbs

21.A omwâná *jaxâiríírá* múno. 'the child has really snored.'
22.B amálwa akó níkakóna *kaxalulá*. 'if that liquor reaches tomorrow it may turn sour.'
23.C ačiire músiβitáli *jaxaonéré*. 'had she gone to hospital she would have recovered.'
24.D *níβamúβooléra* ákaari náko... 'if they tell him how much [money] he has...'

25.E N/A

Dynamic Verbs

26.A efwé *xwaxáraakáŋgá* βúmwó. 'us we have been planting potato plants.'
27.B níβaβá náčio *βaxaβaakáŋgá* βuli βuxîa. 'if they have them [cows] they may be slaughtering [them] every day.'
28.C xaβa *βaxakerérέŋgé* čiՈumba 'no they should have been measuring the houses'
29.D *níβaxákumúxaŋga* mú: kilási... 'if they have just been dozing in class....'
30.E *diiՈaŋgá* 'be rinsing [clothes]'

4.4 *Lexical and Auxiliary Verbs*

Table 1 – Verbs in Isolation (Wordlist)

Moods →	A	B	C	D	E
	INDICATIVE	**POSSIBILITY**	**DESIRABILITY**	**CONDITIONALITY**	**IMPERATIVE**
LEXICAL VERBS	19. jaxákerá 's/he has just measured'	jaxakerá 's/he may measure'	jaxakeréré 's/he should have measured'	níjaxákera 'if s/he has measured'	kerá 'measure'
	20. jaxákaná 's/he has just narrated'	jaxakaná	jaxakaníré	níjaxákana	kaná
	21. jaxáixálá 's/he has just sat'	jaxe:xálá	jaxe:xálé	níjaxê:xála	ixalá
AUXILIARY VERBS	22. jaxáβa (akerá) 's/he has just been measuring'	jaxaβa (akerá)	jaxaβe:ré (akerá)	níjaxáβa (akerá)	N/A
	23. jaxaŋalá (oxúkaná) 's/he has just managed to narrate'	jaxaŋalá (oxúkaná)	jaxaŋalíré (oxúkaná)	níjaxaŋala (oxúkaná)	N/A
	24. jaxáxojá (jêexálá) 's/he should have just sat down'	jaxaxojá (jêexálá)	jaxaxojéré (jêexálá)	níjaxáxoja (jê:xálá)	N/A

Table 2 – Verbs in Context

Lexical Verbs

31.A índoo jeefu *jaxáruumbá* βwáŋgú. 'our bucket has got filled so quickly.'
32.B nô:íβaxa máfurá *jaxaՈuerérá*. 'if you (sg.) oil it, it may be smoothened.'

33.C *xwaxaxamíré* xwáčia aβúndu ándi.'we should have emigrated to somewhere else'
34.D *nô:múβerésia* onândolá... 'if you give him you will see me...'
35.E *kiŋgá* mwâná 'carry the child'

Auxiliary Verbs

36.A *ndaxáčia* xúmulaŋgá íŋgo. 'I have just gone to call him from home.'
37.B eβó *βiaxa ᔑalá* xû:ᔑasîa.... 'that may disturb me....'
38.C kwéli *mwaxaxojéré* mwêčá βwáŋgú. 'surely you (pl.) should have come quickly.'
39.D máni *níjaxáβa* alia xumúlínde. 'then if he has just been eating let's wait for him.'
40.E N/A

****

5.0 Aspect

Completive Aspect
(5.1)
(i) Aúma *járuma* omwâná.
'Auma sent the child (to somewhere).'
(ii) *xwákooβa* aβákéní βadarú.
'We escorted three visitors.'
(iii) aβásaačá βákiŋga čímbákó.
'Men carried hoes.'

(5.2)
(i) *jaβeréré* oβú ᔑasí.
'He slashed grass.'
(ii) ewé *walaŋgíré* aβándú.
'You (sg.) you called people.'
(iii) Okumú *jakiŋgíré* číŋéní.
'Okumu carried fish'.

(5.3)
(i) *xukáraŋgiré* íŋgoxo.
'We fried chicken today.'
(ii) *aβáliré* číŋómbé.
'He counted cows today.'
(iii) Juma *arákiré* ámadîmwâ.
'Juma planted maize today.'

(5.4)
(i) *ndaxáremá* omúsala kuríá.
'I have cut that tree.'
(ii) *jaxáfwalá* íŋgúβo jáje.
'She has put on her dress.'
(iii) xwósi *xwaxáβulírá* oβújoka.
'All of us have heard noise.'

(5.5)
(a) Immediate Future forms
(i) oxúulá mučúri βanáβa *βasíixiré*.
'By tomorrow they will have buried.'
(ii) ŋíná anáβa *akóneré*.
'His mother will have slept.'
(iii) xunáβa *xwejókeré*.
'We will have taken birth.'

(b) Future Tense forms
(i) Paméla jaxáβe *akúliré* sífuría.
'Pamela will have bought a cooking pan.'
(ii) onáβa o*fú ɲiré* íŋgo.
'You (sg.) will have returned home.'
(iii) munáβa *musíŋgiré*.
'You (pl.) will have woken up.'

Progressive Aspect
(5.6)
(i) *xwákesaŋga* amáβere.
'We were harvesting sorghum.'
(ii) *βásaβaŋga* oβúxóó ɲí.
"They were asking for help.'
(iii) *ndákulaŋga* číŋéní.
'I was buying fish.'

(5.7)
(i) *wadeexéréŋgé* ámabwôní.
'You (sg.) were cooking potatoes.'
(ii) *ndarakíréŋgé* émikáči.
'I was planting sugarcane.'
(iii) *βaroβóléŋgé* ámajémbe.
'They were selecting mangoes.'

(5.8)
(i) *oβal[áŋg]á* číŋgoxo.
'You (sg.) are counting chicken.' or 'You count chicken'
(ii) *xuβiix[áŋg]á* amátóŋgóló.
'We are keeping money.' or 'We keep money'
(iii) *βaloor[áŋg]á* esíro.
'They are dreaming at night.' or 'They dream at night'

(5.9)
(i) *oβékereŋgé* omwâná.
'You (sg.) were shaving the child today.'

(ii) *βasúkireŋgé* erífwirí.
'They were plaiting hair today.'
(iii) *afúnakeŋgé* ečísala.
'She was breaking sticks today.'

(5.10)
(a) 'Have-Just' Tense forms
(i) *waxárumáŋgá* aβâaná.
'You (sg.) have been sending children.'
(ii) *βaxákooՇáŋgá* eβísala.
'They have been looking for chairs.'
(iii) *xwaxálaamáŋgá* múkanísa.
'We have been worshiping in the church.'

(b) Immediate Future Tense forms.
(i) *xunáličáŋgá* amánaganda.
'We will be eating beans.'
(ii) *onáfujáŋgá* číŋgúβó.
'You (sg.) will be washing clothes.'
(iii) *ndákeráŋgá* amâčí.
'I will be measuring water.'

(c) Future Tense forms
(i) *βaxáŋwečéŋgé* amálwa.
'They will be drinking liquor.'
(ii) *jaxáxeeŋgéŋgé* emíkójé.
'He will be cutting ropes.'
(iii) *ndaxásoméŋgé* eβítáβó.
' I will be reading books.'

Prospective Aspect
(5.12)
(i) očia *oxúβajá.*
'You (sg.) are about to play.'
(ii) očia *oxúՇaՇá.*
'You (sg.) are about to chew.'
(iii) očia *oxúgunámá.*
'You (sg.) are about to bow.'

Iterative Aspect
(5.13)
(a) Remote Past Tense forms
(i) moká ---------- *wámokamoka*
'blink' 'you (sg.) blinked repeatedly'

(ii) čexá ---------- *jáčexačexa*
laugh 'he laughed repeatedly'

(b) Past Tense forms
(i) siixá ---------- *waasiixásíixíré*
'bury' 'you (sg.) buried repeatedly.'
(ii) βajá ---------- *waaβajáβájíré*
'play' 'you (sg.) played repeatedly.'

(c) Immediate Past Tense forms
(i) koná ---------- *okónakoneré*
'sleep' 'you (sg.) slept repeatedly'
(ii) jaβá ---------- *ojáβajaβiré*
'dig' 'you (sg.) dug (the hole) repeatedly.

(d) 'Have-Just' Tense forms
(i) ɲeká ---------- *waxá ɲeká ɲéká*
'abuse' 'you (sg.) have abused repeatedly.'
(ii) kulá ---------- *jaxákulákúlá*
'buy' 'he has bought repeatedly'

(e) Present Tense forms
(i) fuuβá ---------- *βafuuβáfúúβá émipíra*
'throw' 'they throw balls repeatedly.'
(ii) duumá ---------- *aduumádúúmá*
'jump' 'he jumps repeatedly.'

(f) Immediate Future Tense forms
(i) fuučá ---------- *anáfuučáfúúčá*
'spit' 'he will spit repeatedly'
(ii) kesá ---------- *onákesákésá*
'harvest' 'you (sg.) will harvest repeatedly'

(g) Future Tense forms
(i) soŋgá ---------- *waxásoŋgásóŋgé*
'add' 'you (sg.) will add (something) repeatedly'
(ii) korá ---------- *jaxákorákóré*
'get lost' 'he will get lost repeatedly'

**********end**********