

**A STUDY OF THE SUPRASEGMENTAL FEATURES OF KI-NDIA DIALECT OF  
GIKUYU LANGUAGE**

**BY  
GITHINJI IRENE WAMBUI**

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## DECLARATION

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

Signed: .....

Date:.....

Githinji Irene Wambui

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

Signed: .....

Date:.....

Dr. Jane Akinyi Ngala Oduor

Signed: .....

Date:.....

Dr. Iribe Mwangi

## **DEDICATION**

To Almighty God,

Whose sufficient grace

Has seen me through the whole course.

To my loving parents, Veronica Githinji and the Late Evan Githinji,

Who inculcated in me

The value of education.

To my daughter Cynthia and son Calvin,

Who are the reason why I must work hard.

To my husband Wilson: my love and companion.

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God bless you all.

## LIST OF SYMBOLS AND ABBREVIATIONS

APT	Autosegmental Phonological Theory
SPE	Sound Pattern of English
FAS	Free Associating Segments
WFC	Well-formedness Condition
OCP	Obligatory Contour Principle
UAC	Universal Association Convention
RSR	Right Spread Rule
´	High tone
`	Low tone
˜	Nasalization symbol
σ	Syllable node
O	Onset
R	Rhyme
N	Nucleus
\$	Syllable boundary
C	Consonant
V	Vowel
V <sub>1</sub> V <sub>1</sub>	Identical vowels in a row
Pref.	Prefix
Vrt.	Verb root
Suf.	Suffix
Aff	Affirmative morpheme

Ips	First person singular pronoun
2ps	Second person singular pronoun
3ps	Third person singular pronoun
ϕ	Zero morpheme
Tns	Tense morpheme
Ipp	First person plural pronoun
2pp	Second person plural pronoun
3pp	Third person plural pronoun
Fv	Final vowel
Rec	Reciprocal
Caus	Causative
Ben	Benefactive
Conv	Conversive
S	Subject
TP	Tense Prefix
TS	Tense Suffix
[ ]	Symbols for enclosing a feature specification
[N]	Nasal feature
[ATR]	Advanced Tongue Root Feature
[RTR]	Retracted tongue root feature
+	Presence of the specified feature
-	Absence of the specified feature
Cons	Consonantal

Voc	Vocalic
H	High tone specification
L	Low tone specification
Ⓛ H	Downstepped high tone

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## **ABSTRACT**

This study is an investigation of Ki-Ndia suprasegmental features. The features under investigation are vowel harmony, nasalization and tone. These features posed a problem to Generative Phonologists because of their ability to spread to other segments within their domain. In an attempt to solve the problem, Goldsmith (1976) proposed the Autosegmental Phonological Theory (APT) to handle features larger than the segment which are called suprasegmental features in Autosegmental Phonology. In this study, Ki-Ndia suprasegmental features are analyzed within APT's framework.

The data used in the study comprise nouns and verbs derived from the Ki-Ndia lexicon. It was collected through participant-observation method, native speaker informants and native speaker intuition method.

In the study, Ki-Ndia segmental phonology and word classification are first highlighted. This is done to show the phonemic inventory and the syllable structure on which Ki-Ndia lexicon is founded. Subsequently, Ki-Ndia nouns and verbs are analyzed for vowel harmony, nasalization and tone within APT's framework. The analysis culminates in a chapter that shows how the three features relate to each other in the dialect.

Generally, the results of the analysis reveal partial and complete vowel harmonies, progressive and regressive nasal assimilation processes and register tone patterns with traces of contour tones. Specifically, these results indicate the nature of vowel harmony, the nature of nasalization and the form of tone found in the dialect.

## CHAPTER ONE

### INTRODUCTION

#### 1.0 Background to the study

This study investigates the suprasegmental features of Ki-Ndia dialect of Gikuyu Language. Gikuyu is a Bantu language predominantly spoken in Central Kenya. The speakers of the language are known as the Agikuyu. They form the largest group of natives in Kenya's demography. According to Ndeti (2010), the latest census conducted in the country in the year 2009 put their population at about 6.6 million people. They are mainly preoccupied with farming and business activities and as a result, they have migrated to other parts of the country where these activities can flourish. They are thus virtually found in every part of the country.

Gikuyu language comprises several dialects. According to Mutahi (1983:26), they are Ki-Embu, Ki-Mbeere, Ki-Ndia, Gi-Gichugu, Ki-Mathira, Northern and Southern dialects. However, geographical and political factors have seen the number reduce to five with Ki-Embu and Kimbeere becoming full-fledged languages as seen in Wachera (2008:1). Mutahi's study of these dialects arrived at the following dialectal boundaries. Speakers of Ki-Ndia inhabit the area between River Thiba to the East, Tana to the south and Ragati to the west. Gi-Gichugu dialect is spoken between Rupingazi and Thiba rivers. Speakers of Ki-Mathira dialect occupy the area around Karatina town. The Northern dialect is spoken in both Nyeri and Murang'a Counties, in the area between River Chania to the north and North Mathioya

River to the south. Finally, the Southern dialect speakers occupy the area between North Mathioya River and the city of Nairobi.

Worth noting is the fact that the Northern and the Southern dialects of Gikuyu constitute the standard dialects by virtue of being the basis of written Gikuyu. These are the dialects used in writing books of the language, Bible translation and broadcasting in Gikuyu radio stations. The two dialects are collectively referred to as Western Gikuyu dialects as indicated by Sim (1979:1). Ki-Ndia, Gi-Gichugu and Ki-Mathira are thus the non-standard dialects of Gikuyu Language. The focus of this study is Ki-Ndia dialect. Ki-Ndia speech community occupies the current Ndia and Kirinyaga Central Constituencies in Kirinyaga County. At the periphery of these administrative regions, Ki-Ndia undergoes change as a result of influence from neighbouring dialects such as Gi-Gichugu to the East and Ki-Mathira to the West. Subsequently, research in this study is strictly confined to Ki-Ndia speakers residing in Kangaita, Kamuiru and Baricho regions where there is little contact with other Gikuyu dialects. Ki-Ndia differs from the standard Gikuyu dialects in tone, sound structure and at times lexical items. However, these differences cannot be covered in this research as they are not part of the study.

### **1.1 Statement of the problem**

Gikuyu language has been widely studied by linguists. A few of them have investigated vowel harmony and nasalization, as part of their study. In his study of sound change and the classification of the dialects of southern Mt. Kenya, Mutahi (1983) studies Gikuyu vowel harmony as a segmental feature within the framework of Generative Phonology. Gachugi

(2007) also studies vowel harmony and nasalization as segmental features in the framework of Natural Generative Phonology, in her analysis of phonological processes of the Gikuyu vowel system. A number of linguists have argued that vowel harmony and nasalization are suprasegmental features in some languages. Anderson (1985:348) states that their behaviour provides a ready analog to that of tones. This means that their behaviour is similar to that of tones. According to Clements (1976) quoted in Anderson (1985:192), vowel harmony should be seen as a suprasegmental feature because it is an essentially non-directional process. These claims motivate a need to study these features at a level over and above the segmental values. The available records show that a study of the two features as suprasegmental features of Gikuyu has not been carried out and this study seeks to fill that gap using data derived from Ki-Ndia dialect.

Tone is a distinctive feature among Gikuyu dialects. The place of origin of a speaker of Gikuyu, can be traced through the tone that he or she uses. As Mutahi (1983:142) indicates,

a word that begins with a low tone in one dialect may begin with a high tone in another and have a sequence of two high tones in a third dialect.

This fact is echoed in Wachera (2008:66) who states that tone placing and patterns in Gikuyu dialects differ, leading to identical lexical items having distinct tone realizations. Various scholars such as Armstrong (1967), Ford (1974), Mutahi (1983) and Wachera (2008) have studied Gikuyu tone but none of them bases his or her study on Ki-Ndia dialect. This study recognizes that Ki-Ndia, like any other dialect, has a distinct tone that, according to the available records, has not been studied, hence the essence of carrying out this study.



This study investigates the suprasegmental features of Ki-Ndia dialect of Gikuyu language within the framework of Autosegmental Phonological Theory. The features under study are vowel harmony, nasalization and tone. The study seeks to answer the following research questions.

- (i) What is the nature of vowel harmony in Ki-Ndia dialect of Gikuyu?
- (ii) Is nasalization a major phonological process in Ki-Ndia dialect of Gikuyu?
- (iii) What is the form of tone in Ki-Ndia dialect of Gikuyu?

### **1.2 Objectives of the study**

This study is guided by the following objectives.

- (i) To investigate the nature of vowel harmony in Ki-Ndia dialect of Gikuyu language.
- (ii) To investigate nasalization in Ki-Ndia dialect of Gikuyu language.
- (iii) To find out the form of tone in Ki-Ndia dialect of Gikuyu language.

### **1.3 Rationale of the study**

Gikuyu language has been studied widely by a number of scholars who study Ki-Ndia dialect only as a subset of the whole. In fact, most of the studies done on Gikuyu language only mention Ki-Ndia as a dialect of the language and give it no more. Subsequently, little literature on Ki-Ndia dialect exists in writing. This is made worse by the fact that writing, broadcasting, translation and teaching based on Gikuyu are done using the Southern and Northern dialects, which comprise the standard Gikuyu. Ki-Ndia is a non-standard dialect of Gikuyu language and can easily die out in preference to the more recognized standard Gikuyu dialects. This study is an effort towards preventing dialectal death by providing a

linguistic identity to speakers of Ki-Ndia and by bringing the dialect into linguistic limelight. This study also provides more insight into the linguistic study of Gikuyu language.

The Autosegmental Phonological Theory was initially advanced by Goldsmith (1976) to analyze tone as a suprasegmental feature in tonal languages. Linguists such as Clements (1976) and Anderson (1976) as cited in Anderson (1985:348) have argued that the behaviour of vowel harmony and nasality respectively is analogous to that of tone within the framework of Autosegmental Phonology. It is on this account that this study uses the theory to analyze Ki-Ndia suprasegmental features. The justification of this study therefore lies in its seemingly substantial contribution to Gikuyu and theoretical linguistics.

#### **1.4 Scope and limitation**

This study focuses on only three Ki-Ndia suprasegmental features. These are vowel harmony, nasalization and tone. The study investigates the nature of vowel harmony and nasalization in Ki-Ndia dialect of Gikuyu language. It also investigates the form of tone present in the dialect. Other dialects of Gikuyu therefore fall out of the scope of this study. Similarly, other suprasegmental features are not part of the study.

The data under scrutiny is drawn from the speech community of Ki-Ndia dialect speakers, residing in Kangaita, Kamuiru and Baricho regions of Central Constituency of Kirinyaga County. Data from elsewhere is therefore rendered inappropriate for this study.

The study covers only the noun and the verb lexical categories. This is because of the work involved and the given time limit. Other lexical categories will only be used where they are deemed appropriate for the study.

## **1.5 Theoretical framework**

This study uses Autosegmental Phonological Theory (henceforth APT) in its analysis of Ki-Ndia suprasegmental features. The features under study are vowel harmony, nasalization and tone. Importantly, APT was initially designed to handle the intricacies of tone. Goldsmith (1976) is the proponent of the theory and he first used it to analyze Igbo tone. Igbo is a language spoken in Nigeria. Interestingly, a number of linguists such as (Clements 1976) and Anderson (1976) as cited in Anderson (1985:348) discovered that vowel harmony and nasalization are suprasegmental features in some languages. APT is a theory of suprasegmentals hence the reason for choosing it to analyze Ki-Ndia vowel harmony, nasalization and tone.

### **1.5.1 Background of the theory**

According to Goldsmith (1976:10), APT is an improvement of the theory of Generative Phonology developed by Chomsky and Halle (1968) in their book *The Sound Pattern of English* (henceforth SPE). The SPE inspired model was characterized by what Goldsmith calls ‘absolute slicing hypothesis.’ In it, the representations of sound flow are split up into slices or segments which consist of unordered bundles of features which are linearly ordered (Katamba 1989:191). Durand (1990) as cited in Wachera (2008) refers to this organization of features as the segmental feature matrices. The SPE analysis of for example, the Ki-Ndia

word *máma* which means ‘uncle’ yields an underlying representation of four separate segments. Each segment has its own feature specifications as seen in 1.

1.

+lab	-lab	+lab	-lab
+nasal	-nasal	+nasal	-nasal
-syll	+syll	-syll	+syll
-cont	+cont	-cont	+cont
•	•	•	•
•	•	•	•
•	•	•	•
m	a	m	a

However, phonetically, sounds are influenced by the environment in which they occur as seen in Burquest (1998:232). For instance, in Gikuyu language, a vowel is nasalized in the environment before and after a nasal consonant. Thus, the [+nasal] feature in the word *máma* ‘uncle’ in 1 above is a property of the whole word. This is so because both vowels in the word acquire the nasal property as a result of occurring in a nasal environment. Ideally, this property cannot be assigned to a single segment without spreading to the adjacent segment. Similarly, a feature like tone cannot be sliced vertically and assigned to a single segment without spreading to an adjacent segment. The SPE model could not account appropriately for features that spread over other segments like nasalization and tone discussed above. According to Katamba (1989), it is this evidence which undermines the fundamental claim of

the ‘slicing hypothesis’. APT was introduced by Goldsmith (1976) to account for phenomena “that have evaded segmental classification” (Goldsmith 1976:11). The phenomena so described are characterized by features larger than the segment and are generally referred to as suprasegmental features. The focus of this study is the suprasegmental features of Ki-Ndia in APT’s perspective.

### **1.5.2 Autosegmental Phonological Theory (APT)**

APT is a multi-linear approach to phonological representations as opposed to the linear one of SPE model. In APT, distinctive features are viewed as independent from any segmental representations. Katamba (1989:190) reiterates this view when he says,

A central claim of the new theory inaugurated by Goldsmith is that in principle, the various articulatory parameters, e.g. aspiration, nasalization, voicing and tone are AUTONOMOUS and the articulations that result from them are in principle independent.

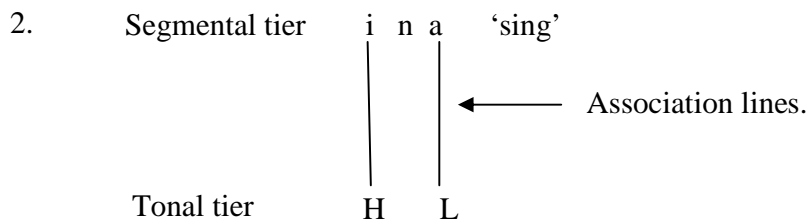
Distinctive features in APT are also viewed as being free to have more than a single segment as their domain (Burquest 1998). This means that they are free to spread to other segments in their domain which is the ‘word.’ In APT, the features so described are called autosegments and the term ‘autosegmental’ was intended to capture the facts described above. The suprasegmental features, which are the focus of this study, are autosegments and can thus be analyzed using APT terms. The basic tenets of the theory are as follows.

#### **1.5.2.1 Autosegmental representation**

An autosegmental representation posits two or more tiers of segments, which run parallel to each other. Hornby (1992) in Oduor (2002:19) defines a tier as any of the parts of a structure

placed one above the other. A segment on the other hand is the minimal unit of a phonological representation (Goldsmith 1990:10). Goldsmith further states that a tier consists of a string of segments, but the segments on each tier differ with regard to the features specified in them. Each feature that plays a phonological role in a language appears on exactly one tier. The occurrence of a feature on multiple tiers is disallowed.

In an autosegmental representation, segments on separate tiers are linked using association lines. These lines indicate that the conjoined segments on different tiers are co-articulated (Hulst and Smith 1982:9). A pair of tiers together with a set of association lines which relate them is called a chart (Goldsmith 1990). In this study, phonological representations of the suprasegmental features under study are organized in charts as seen in 2 below, which is drawn from Ki-Ndia lexicon.



According to Goldsmith (1990), the elements that are linked by the association lines are called freely Associating Segments (FAS). In 2 above, the elements in the segmental tier and the ones in the tonal tier joined together by association lines are the FAS. The FAS in the segmental tier are collectively referred to as autosegment-bearing-units in this study. At a more specific level, these are divided into tone-bearing-units (TBUs), vowel harmony-bearing-units and nasal harmony-bearing-units.

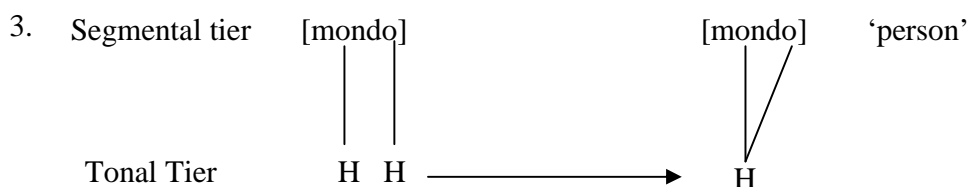
Also present in Autosegmental Phonology is the skeletal tier. This tier is also referred to as CV tier or timing tier. The elements on this tier are called slots or C-slots and V-slots (Goldsmith 1990:48). They are called C-Slots and V-slots because they are the segments to which vowels and the consonants must associate if they are to be realized. Goldsmith (1990) further states that the skeletal tier serves as the anchor point for elements on the various other tiers. This tier is useful to this study because it is the one on which autosegment-bearing-units are realized.

### 1.5.2.2 Principles of Autosegmental Phonology

Two principles of autosegmental phonology are useful to this study. These are:-

- (i) The Obligatory Contour Principle (OCP).
- (ii) Left - to - right mapping principle

According to Goldsmith (1990), OCP prohibits the occurrence of adjacent identical segments unless separated by word boundary. If identical autosegments occur in the course of derivation, they are collapsed into one (Hulst and Smith 1982:8). The Ki-Ndia lexical tone representation in 3 below illustrates this.



In 3 above, two identical tone melodies (HH) in an underlying representation of lexical tone have been collapsed into one (H) in accordance with the requirements of OCP.

The left-to-right mapping principle is a rule of association between autosegments and autosegment-bearing-units. They associate from left to right in a one-to-one fashion. This rule has also been labelled Universal Association Convention (UAC) in Burquest (1998:242). However, Hulst and Weijer (1995:505) indicate that in autosegmental phonology, there is not necessarily a one-to-one relation between syllabic positions and features. Kenstowicz (1994:353) supports this claim when he states that autosegmental representation permits a one-to-many relation between features and positions in the string. This claim is significant to this study for it accounts for the spreading of features from one segment to another.

However, in an attempt to regulate the linking of tone to TBUs, Goldsmith (1976) formulated the wellformedness condition (WFC) in which he articulates the following as seen in Katamba (1989:203).

4. (i) Each vowel must be associated with at least one tone.
- (ii) Each tone must be associated with at least one vowel.
- (iii) No association lines may cross.

This condition is useful to this study for it helps to regulate the linking of elements in different tiers.





## **1.6 Hypotheses of the study**

The following are the suppositions that this study postulates.

- (i) Ki-Ndia dialect of Gikuyu language manifests partial vowel harmony.
- (ii) Nasalization is a major phonological process in Ki-Ndia.
- (iii) Ki-Ndia is a register tone dialect.

## **1.7 Literature review**

In this section, literature on suprasegmental features in general is reviewed. This is followed by literature review of each of the suprasegmental features under study after which is literature review of Ki-Ndia and other works related to the study.

### **1.7.1 General literature on suprasegmental features**

According to Fromkin, Rodman and Hyams (2003), suprasegmental features are features over and above the segmental values such as voicing or place of articulation. They are imposed over and above the segmental values of the sounds in a syllable. Clark and Yallop (1995: 328) refer to them as features of spoken language which are not easily identified as discrete segments. In APT, these features are regarded as autosegments which have more than a single segment as their domain. This study focuses on three such features which are vowel harmony, nasalization and tone as realized in Ki-Ndia dialect of Gikuyu language.

#### **1.7.1.1 Vowel harmony**

Kenstowicz (1994:347) defines Vowel Harmony as a phonological state in which the vowels in a given domain share or harmonize for a particular feature. He further states that it is typical for all vowels of a language to participate in the harmonic constraint. In addition, he

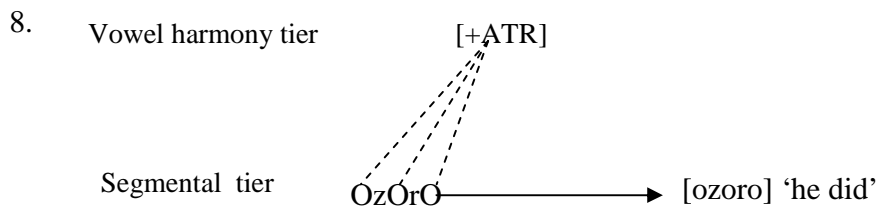
indicates that the harmony applies in an unbounded fashion, affecting all the relevant vowels within the domain, which is usually the word. The harmonizing feature can either be [ "back], [ "high], [ "round] or in terms of advanced tongue root, [ "ATR].

Aoki (1968) in Hyman (1975:233) identifies two types of vowel harmony. These are complete vowel harmony and partial vowel harmony. According to him, complete vowel harmony is realized when the vowel of a morpheme completely assimilates to another vowel in a kind of reduplication process. He gives an example drawn from an Igbo dialect where a verb like *má* ‘know’ takes the consonant /t/ in the past tense followed by a copy of the vowel in the verb stem to make *màrà* ‘knew’. Hyman (1975:234) states that complete vowel harmony is often referred to as vowel copying or vowel reduplication. He further indicates that in partial vowel harmony, a vowel assimilates in certain features to another vowel. According to him, the most common features assimilated are front-backness, tense-laxness, and labiality. He illustrates this using Vago (1973) Hungarian examples where the plural suffix ‘we’ is realized as *unk* after back vowels and *ünk* after front vowels as seen in 7 below.

- |    |          |            |         |           |
|----|----------|------------|---------|-----------|
| 7. | boz-unk  | ‘we bring’ | ül-ünk  | ‘we sit’  |
|    | varr-unk | ‘we sew’   | ver-ünk | ‘we beat’ |

According to Katamba (1989), the vowels of a language are divided into two mutually exclusive sets. This means that vowels in both sets contrast in feature specification so that if the harmonizing feature is for example [ "back], the vowels in one set must have the [+back] value while the [-back] value becomes the property of the other set.

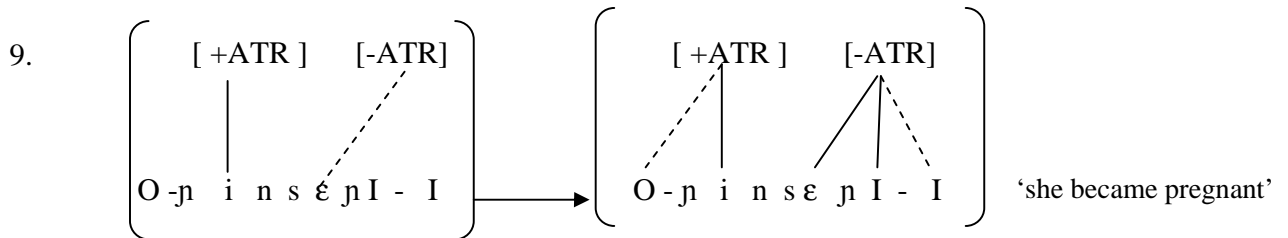
In Autosegmental Phonology, the harmonizing phonological feature is placed on a distinct vowel harmony tier where it ceases functioning as a property of an individual segment and spreads to all vowels within the word domain. To illustrate this, Katamba (1989) uses an Igbo example as seen in 8 below.



As seen in 8 above, the feature [+ATR] is a property of all the vowels in the word. Katamba (1989) uses capital letters in underlying representations for vowels specified for all features except the harmonizing feature. This study adopts this method in its phonological representations of vowel harmony.

In a purely harmonic system, “a word that contains more than one suffix will have the harmonic effect propagating from the root, through the suffixes to the end of the word” (Kenstowicz 1994:348). However, word forms in which the harmonic effect does not propagate from the root to the end of the word also exist. These are called disharmonic word forms. In them, vowels have opposite specifications for the harmonizing feature (Beňuš 2009:45). Vowels in disharmonic word forms can be categorized into two. These are transparent and opaque vowels. According to Beňuš (2009), transparent vowels are those vowels that may intervene between the trigger and the target of harmony even when they bear the opposite value for the harmonizing feature. Opaque vowels on the other hand require

a local agreement relationship between the trigger and the target. Katamba (1989:210) uses an Akan example to illustrate this relationship as seen in 9 below.



In 9, the [+ATR] property is blocked from spreading to the right by the presence of the opaque vowel /ε/. The vowels /i/ and /ε/ which have contrasting feature specifications co-exist in a kind of opaque association. This study explores the harmonic tendencies of Ki-Ndia while seeking to investigate the existence of transparent and opaque vowels in the dialect. APT helps to illustrate the spreading of harmonizing features from one segment to the other.

### 1.7.1.2 Nasalization

This is a process whereby an oral segment acquires nasality from a neighbouring segment (Katamba 1989:93). A nasal sound is produced with the velum lowered so that air escapes through the nose. If this air leaks past the velum, nasalization of an oral sound takes place. According to Clark and Yallop (1995:63), nasalization may be described as ‘inherent’ when speakers of a language do not exert strong control over the raising of the velum. This allows nasalization to become an ‘unintended’ characteristic of all their vowels even when not adjacent to nasal consonants. Clark and Yallop further states that nasalization may also be a general property of speech, resulting from individual articulatory habit, dialect type, or a pathological condition such as a cleft palate. They regard this second type of nasalization as ‘pervasive’.



### 1.7.1.3 Tone

Differing degrees of melody constitute tone (Hyman 1975:203). Most of the languages in the world are tone languages. Pike (1948:3) defines a tone language as “a language having lexically significant, contrastive but relative pitch on each syllable”. A lexically significant pitch distinguishes the meanings of words. In simple terms, Yip (2002:1) describes a tone language as that in which the pitch of the word can change its meaning. From these two definitions, tone has a lexical function of distinguishing between the meanings of a particular word. The Nupe example in 11, adopted from Hyman (1975:213), illustrates this function.

- |     |    |              |             |
|-----|----|--------------|-------------|
| 11. | bá | ‘to be sour’ | (high tone) |
|     | bā | ‘to cut’     | (mid tone)  |
|     | bà | ‘to count’   | (low tone)  |

Contrastive pitch in Pike (1948)’s definition of a tone language entails one pitch being kept different or separate from another pitch in the immediate context. This means that all lexical units of tones (H, L, LH, HL,LHL and HLH ) contrast in the immediate context. The lexical units of tone are called tonemes (Pike 1948:4). These tonemes constitute the different tone melodies that exist in lexical items.

Tone languages differ in the kind of tonemes they use or in the role played by these tonemes in their grammatical systems. Pike (1948:5) distinguishes between two types of tonemes. They are level tonemes and gliding tonemes. According to him, a level toneme , on the one hand, is “one in which within the limits of perception, the pitch of a syllable does not rise or

fall during its production”. This implies that High (H) and low (L) are level tonemes. A gliding toneme, on the other hand, is “one in which during the pronunciation of the syllable in which it occurs, there is a perceptible rise or fall or some combination of rise and fall such as rising-falling or falling-rising”. Linguists have identified two types of tone languages namely: contour and register tone languages. Pike (1948:8) indicates that a pure contour language is characterized by glides. He further states that a register tone language is “one in which every vowel has one and only one level toneme”. However, some languages exhibit both contour and register tones. This study investigates the form of tone in Ki-ndia dialect of Gikuyu.

A number of diacritics are used to distinguish between tone melodies (tonemes). The symbols in 12 below adopted from Gussenhoven and Jacobs (1998:137) are representative of these tonemes.

12.	´	High tone	(H)
	`	Low tone	(L)
	^	Falling tone	(HL)
	ˇ	Rising tone	(LH)
	˘	Falling-rising tone	(HLH)
	˙	Rising-falling tone	(LHL)

These diacritics are used to mark tone on different lexical items in this study.



### **1.7.2 Literature review of Ki-Ndia dialect**

As earlier mentioned, Ki-Ndia is a non-standard dialect of Gikuyu language. For this reason, very little is known about the dialect, and its speakers are often dismissed as not speaking 'pure' Gikuyu. In addition, most of the studies carried out on Gikuyu language only indicate that Ki-Ndia is one of the five Gikuyu dialects. Thus, there is very little literature on Ki-ndia that exists in writing. Some studies have however attempted a morphophonological and lexical distinction between Gikuyu dialects where Ki-Ndia features. Mutahi (1983) and Iribemwangi (2012) are such studies.

Mutahi (1983) studies sound change and the classification of the dialects of Southern Mt. Kenya. In his study, he explores some morphological and lexical distinctions within the various Gikuyu dialects. His dialectal classification treats Kiambu and Kimbeere as dialects of Gikuyu. Today the two are considered to be full-fledged languages as earlier stated. The other dialects in his classification are Ki-Ndia, Gi-Gichugu, Ki-Mathira, Northern and Southern dialects. In the study, Mutahi recognizes Ki-Ndia as a distinct dialect with its own vocabulary and sound system just like the other Gikuyu dialects. He also attempts an analysis of vowel harmony as a segmental feature of Gikuyu. This study goes a step higher, by treating vowel harmony as a suprasegmental feature and analyzing it within the framework of Autosegmental Phonology. Mutahi's study however provides the basis on which the autosegmental analysis of vowel harmony in this study is developed.

Iribemwangi (2012), carries out a case study of the harmonization of Kikuyu, Kiambu and Kimbeere phonology. In his study, he scrutinizes the sound systems of the three codes and

recognizes that they have a similar vowel inventory. However, he finds out that they differ in the consonants that they use. He also recognizes the fact that within the Gikuyu code, the consonant inventory appears slightly different among its dialects. He goes further to establish consonant matrices indicating this difference. Among these is the consonant matrix shared by Ki-Ndia and Gi-Gichugu dialects. His study is useful as it forms the basis on which data in this study, is phonemically transcribed.

### **1.7.3 Literature review of other works related to the study**

Gachugi (2007) studies a synchronic analysis of the phonological processes of the Gikuyu vowel system. A part of the study focuses on vowel harmony and nasalization as segmental features. She studies them within the framework of Natural Generative Phonology. As Iribemwangi (2010) rightly observes, vowel harmony and nasalization are partly segmental and partly suprasegmental. This study goes beyond the segmental level by treating the two features as autosegments in Autosegmental Phonology. Her study is however useful for it marks the starting point for this study.

Wachera (2008) analyzes tone as a distinctive lexical feature in the lexicon of Gi-gichugu dialect of Gikuyu language. He focuses on the distinctive role of tone in Gi-gichugu grammatical categories. His study is useful to this study for it gives an insight into the phonological representations of tone in Autosegmental Phonology.

Muthui (2001) carries out a study on the phonological processes involved in deriving nouns and adjectives from verbs in Gikuyu language. His data is derived from Northern Gikuyu

dialect. In his study, he accounts for all sound changes in terms of phonological rules in the framework of Generative Phonology. His work is useful to this study as it sheds light into the morphology of the Gikuyu noun which forms part of the data used in this study.

Were (2007) studies Dholuo vowel harmony within the framework of Autosegmental Phonology. He explores root-controlled and affix-controlled forms of vowel harmony in Dholuo. He also tackles the question of opacity and transparency as phenomena in vowel harmony and relates this to Dholuo language. Dholuo is a Nilotic language whose morphophonology differs greatly from that of a Bantu language. This study focuses on Gikuyu, a Bantu language, which is less harmonic compared to Dholuo. However, Were's study highlights some of the issues that this study is dealing with hence its importance to the study.

## **1.8 Methodology**

This research study utilizes two types of data. These are primary and secondary data. Primary data, on the one hand, comprise all the lexical items analyzed for vowel harmony, nasalization and tone in this study. On the other hand, secondary data comprise the contents of the theoretical framework as well as that of literature review in the study. Their sources are as indicated in the following sections.

### **1.8.1 Data collection methods**

Primary data was collected through participant observation, native speaker informants and native speaker intuition methods. Secondary data on the other hand was obtained through library research.

In participant observation method, the researcher participated in natural conversations with Ki-Ndia native speakers and observed language in its natural use. Nouns and verbs picked from this mingling with native speakers were written down on notebook. To ascertain the correctness of their lexical tone, six native informants were engaged in an oral interview in which the researcher asked questions leading to the pronunciation of the nouns and verbs she had listed in a notebook. The informants comprised three ladies and three gentlemen aged between twenty and forty five years, selected on the basis of their accessibility during the research period. The six were born and brought up in Kirinyaga Central Constituency where they acquired a native-speaker competence in Ki-Ndia. Each of the informants was interviewed at a time and the proceedings of the interview were recorded on tape to help the researcher in marking tone on each lexical item.

The rest of the data was collected through native speaker and native informant intuition methods. Here, the researcher took advantage of her native speaker competence in the dialect to generate data for the study. The data was then cross-checked with the intuitions of the six informants to enhance the objectivity of the study.

### **1.8.2 Data analysis**

The researcher first transcribed phonemically all the lexical items collected through participant observation method. This was done with an aim of helping non-native readers of this work to articulate the words appropriately. The researcher then listened to the proceedings of the oral interview recorded on tape and after carefully listening to pitch variations on each lexical item, she marked them for tone. The data was then organized

according to the number of syllables in each lexical item to comprise monosyllabic, bisyllabic, tri-syllabic and polysyllabic lexical items. This was so as to systematize its analysis in the study. This is the data analyzed for tone in this study.

Data collected through native speaker and native informant intuitions is analyzed for vowel harmony and nasalization in this study. In Ki-Ndia, nasalization only occurs in vowels adjacent to nasal consonants. Thus, data with nasal consonants was separated from the rest and analyzed for nasalization within APT's perspective. The rest of the data was analyzed for vowel harmony. This was organized in terms of the harmonic tendencies of the word stems. Harmonic and disharmonic word stems were separated for easier analysis of vowel harmony within the framework of APT.

## **CHAPTER TWO**

### **KI-NDIA PHONEMIC INVENTORY, SYLLABLE STRUCTURE AND AN INTRODUCTION TO THE NOUN AND VERB GRAMMATICAL CATEGORIES**

#### **2.0 Introduction**

This chapter is meant to equip the reader with basic information about Ki-Ndia segmental phonology and word classification as essential tools towards the understanding of the dialect's suprasegmental features. To begin with, the chapter introduces the reader to the Phonemic Inventory of Ki-Ndia sounds, where the vowel and the consonant systems are discussed. Secondly, the syllable structure of Ki-Ndia is explored. Five types of syllables manifested in the dialect, are identified as seen in Section 2.3.1. The chapter ends with a discussion of the noun and the verb word categories in Ki-Ndia. The discussion is mainly based on the inflection and derivation processes and it is meant to equip the reader with knowledge about noun and verb morphologies in the dialect, since the two word categories are analyzed in this study.

#### **2.1.0 The vowel system**

All Gikuyu dialects share an identical vowel system as stated in Mutahi (1983). The system consists of seven short vowels together with their corresponding long vowels. Ki-Ndia uses these vowels in the formation of its words as seen in Sections 2.1.1 and 2.1.2.

### 2.1.1 Short vowels

Table 1 below shows the orthographic and phonemic representation of each of the seven short vowels used in Ki-Ndia. For each vowel, an example of a lexical item including its gloss is given to illustrate its occurrence in the dialect.

Orthography	Phonetic Symbol	Lexical examples	Gloss
I, i	/i/	/ɲí:tà/	‘hold’
ĩ, ĩ	/e/	/íβéndé/	‘bone’
E, e	/ɛ/	/rɛβɛ/	‘bring’
A, a	/a/	/táβà/	‘fetch/raid’
U, u	/u/	/mbú/	‘a scream’
Û, ù	/o/	/róà/	‘fight’
O, o	/ɔ/	/mòkóndórɔ/	‘mattress’

**Table 1: A representation of Ki-Ndia short vowels**

### 2.1.2 Long vowels

Ki-Ndia uses seven long vowels which correspond to the short vowels in Table 1 above. The diacritic ‘:’ indicates that the vowel is long. Table 2 is a representation of the long vowels used in the dialect.

Orthography	Phonetic Symbol	Lexical examples	Gloss
II, ii	/i:/	/tí:rà/	‘support with a log’
ĪĪ, ĩĩ	/e:/	/ré:rà/	‘eat from’
EE, ee	/ɛ:/	/sɛ:rà/	‘visit’
AA, aa	/a:/	/kà:ná/	‘baby’
UU, uu	/u:/	/kú:rà/	‘votes’
ŪŪ, ũũ	/o:/	/tó:rà/	‘live long’
OO, oo	/ɔ:/	/ḏó:mà/	‘read’

**Table 2: A representation of Ki-Ndia long vowels**

Vowel length is a phonological feature that creates a contrast between short and long vowels. Therefore, it is distinctive in nature. In their study of other Gikuyu dialects, earlier linguists like Ford (1974), Mutahi (1983) and Wachera (2008) have established the fact that vowel length in Gikuyu distinguishes between word meanings. It is thus distinctive. This study reiterates this fact by showing vowel length contrast in words derived from Ki-Ndia lexicon, as seen in Table 3.



Short vowel	Lexical example	Gloss	Long vowel	Lexical Example	Gloss
/i/	/sìmbá /	‘lion’	/i:/	/sì:mbá/	‘corpses’
/e/	/rérà/	‘cry’	/e:/	/ré:rà/	‘eat from’
/ɛ/	/kérà	‘cut e.g. vegetables’	/ɛ:/	/ké:rà/	‘sieve’
/a/	/ðárà/	‘grab’	/a:/	/ðá:rà/	‘nappier grass’
/u/	/túrà/	‘make’	/u:/	/tú:rà/	‘ache’
/o/	/ðórà/	‘spit’	/o:/	/ðó:rà/	‘hate’
/ɔ/	/nórà/	‘fatten’	/ɔ:/	/nó:rà/	‘sharpen’

**Table 3: An illustration of vowel length contrast in Ki-Ndia**

### 2.1.3 Glide formation

According to Kenstowicz (1994:23), the glides [y] and [w] are closely related to the corresponding high vowels [i] and [u]. According to him, “if one articulates an [i] and then slowly constricts the tongue body, the pronunciation shades into the *jod* [y]. [u] shades into [w] under similar constriction.” These glides that Kenstowicz describe correspond to the palatal and the velar glides, [j] and [w] respectively.

In Ki-Ndia, the palatal glide /j/ is formed when an underlying high unrounded front vowel /i/ is followed by /e/, /ɛ/, /a/, /ɔ/, /o/ and /u/ as seen in example 13. The arrow points at the change that takes place.

13. (i) /sì + è+ kɔ́/ → [sjèkɔ́] ‘behavioral acts’  
 (ii) /sí + é + nɛ́/ → [sjénɛ́] ‘for others’  
 (iii) /sí+á+ kɛ́/ → [sjákɛ́] ‘his or hers’  
 (iv) /sí+ ó+rá / → [sjórá] ‘frogs / toads’  
 (v) / kɪ́ + ú + γò/ → [kjúγò] ‘cattle shed’  
 (vi) /sì+ ò + rɔ́ / → [sjòrɔ́] ‘toilets’

However, the bilabial glide /w/ is formed when an underlying high rounded back vowel /u/ precedes /a/, /ɛ/, /ɔ/ and /e/ as seen in 14 below.

14. (i) /tù + àná/ → [twàná] ‘small children’  
 (ii) /ù+ èró/ → [wèró] ‘newness’  
 (iii) /tú + óɲɛ́/ → [twóɲɛ́] ‘disabled children’  
 (iv) / mú+ éré / → [mwéré] ‘body’

Glides in Ki-Ndia are however treated as consonants since they occur in the onset position of the syllable.

## 2.2 The consonant system

In his case study of the harmonization of Kikuyu, Kiambu and Kimbeere phonology, Iribemwangi (2012), observes that within the Gikuyu code, (termed Kikuyu by the

colonialists), the consonant inventory slightly differs among its dialects. A consonant sound may appear in one dialect and not the other. Ki-Ndia dialect of Gikuyu uses seventeen consonants which comprise five plosives, one affricate, four fricatives, four nasals, one trill and two glides. Table 4 is a representation of the consonants used in the dialect. In the table, the consonant represented by the symbol on the left of each cell is voiceless while that on the right is voiced.

Place of articulation	Manner of articulation					
	Plosives	Affricates	Fricatives	Nasals	Trill	Glides
Bilabial	mb		β	m		w
Dental			ð			
Alveolar	t nd		s	n	r	
Palatal		ɲ		ɲ		j
Velar	k ŋg		ɣ	ŋ		
Totals	5	1	4	4	1	2(17)

**Table 4: A consonant matrix of Ki-Ndia based on manner and place of articulation: adapted from Iribemwangi (2012:26)**

Worth noting is that Ki-Ndia consonant system contains four prenasalized consonants, /mb/, /nd/, /ŋg/ and /ɲj/. In this study, these consonants are treated as units of phonemes which are internally complex in that they are stops with a nasal and an oral phase. Table 5 gives an orthographic and phonemic representation of each of the seventeen consonants used in the

dialect. Also, a lexical item together with its gloss is given to illustrate the occurrence of each consonant in the dialect.

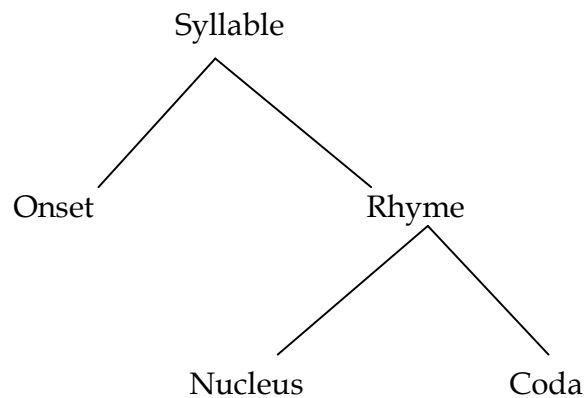
Orthography	Phonemic representation	Lexical Example	Gloss
MB, mb	/mb/	/mbíà/	‘money’
T, t	/t/	/tátá/	‘aunt’
ND, nd	/nd/	/ndáwà/	‘medicine’
K, k	/k/	/kábé:/	‘a small boy’
NG, ng	/ŋg/	/ŋgómá /	‘devil’ or ‘madness’
NJ, nj	/ɲj/	/ɲjóká/	‘roundworms’
B, b	/β/	/táβà/	‘fetch’
TH, th	/ð/	/ðékà/	‘laugh’
C, c	/s/	/sóra/	‘draw’
G, g	/ɣ/	/kóɣóró/	‘leg’
M, m	/m/	/móká/	‘his wife’
N, n	/n/	/nɔ́:kà/	‘react in anger’
Ny, ny	/ɲ/	/kàɲà:ú/	‘cat’
NG’, ng’	/ŋ/	/ŋó:mbé/	‘cow’
R, r	/r/	/réβè/	‘bring’
W, w	/w/	/wéndó/	‘love’
Y, y	/j/	/jáké/	‘his/hers’

**Table 5: An orthographic and phonemic representation of Ki-ndia consonants**

### 2.3 Ki-Ndia syllable structure

Goldsmith (1990:108) states that traditionally, “the syllable is a phonological constituent composed of zero or more consonants, followed by a vowel, and ending with a shorter string of zero or more consonants.” The vowel is the peak of the syllable and is known as the nucleus. The nucleus may be preceded by one or more consonants which form the onset of the syllable. Consonants that appear at the end of the syllable form the syllable coda. It is worth noting that the nucleus is an obligatory part of the syllable while the coda and the onset are not. According to Roach (2009), the minimum syllable is a single vowel in isolation. The monosyllabic word, /o:/ ‘who’, derived from the lexicon of Ki-Ndia, is a good example of a minimum syllable. The nucleus and the coda subparts of the syllable form a unit called rhyme or core. The structure of the syllable as seen in Goldsmith (1990:109) appears as in Example 15. The Ki-Ndia syllable structure in this study, is analyzed using this format.

15.



Goldsmith (1990) identifies two types of syllables. These are open and closed syllables. Syllables that end in consonants are called closed syllables while those that end in vowels are called open syllables. Ki-Ndia exhibits an open category of syllables.

According to Goldsmith (1990:109), “syllable structure is hierarchical structure organized on the skeletal tier, and on no other tiers”. The skeletal tier that Goldsmith talks about was introduced as a third tier in syllable representation by Clements and Keyser (1983:8) and termed CV tier. According to them, the tier “mediates between the syllable tier and the segmental tier”. The tier is important to this study as it draws a distinction between syllable peaks (nucleus) and syllable non-peaks (margins) in Ki-Ndia. The universal symbols used in the representation of the syllable structure are as seen in 16 below.

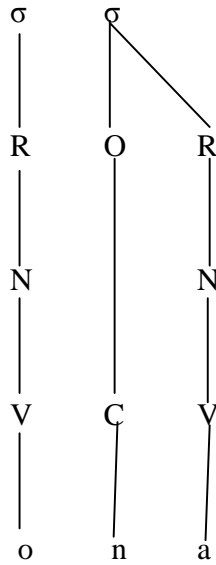
- |     |     |          |               |
|-----|-----|----------|---------------|
| 16. | (a) | $\sigma$ | Syllable node |
|     | (b) | O        | Onset         |
|     | (c) | R        | Rhyme         |
|     | (d) | M        | Margin        |
|     | (e) | N        | Nucleus       |

As earlier stated in this section, Ki-Ndia exhibits an open category of syllables. These can be divided into different types as seen in the following sub-sections.

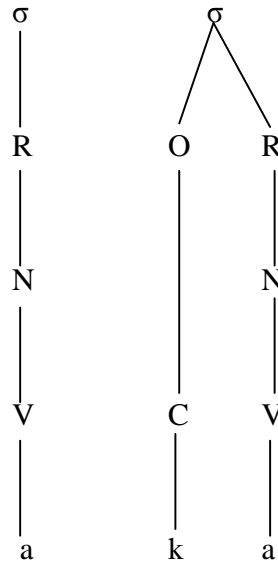
### **2.3.1 V-syllable**

This type of syllable is what Roach (2009:56) refers to as the minimum syllable which is composed of a single vowel. Example 17 illustrates this type of syllable using words derived from Ki-Ndia lexicon. In it, the first syllable on each word is a V-syllable. The symbol ‘\$’ indicates syllable boundary.

17. (i) /ó\$ná/ 'see'



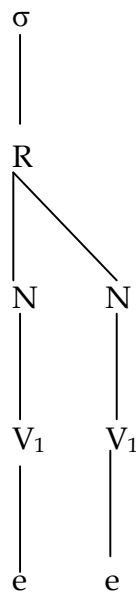
(ii) /á \$ ká/ 'wives'



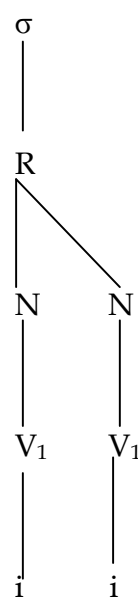
### 2.3.2 $V_1V_1$ – syllable

In Ki-Ndia, this type of syllable is manifested in monosyllabic words composed of long vowels. The abbreviation  $V_1V_1$ , indicates that the syllable is made up of two identical vowels that constitute a long vowel. Example 18 illustrates this syllable type.

18. (i) /é:/ 'yes'



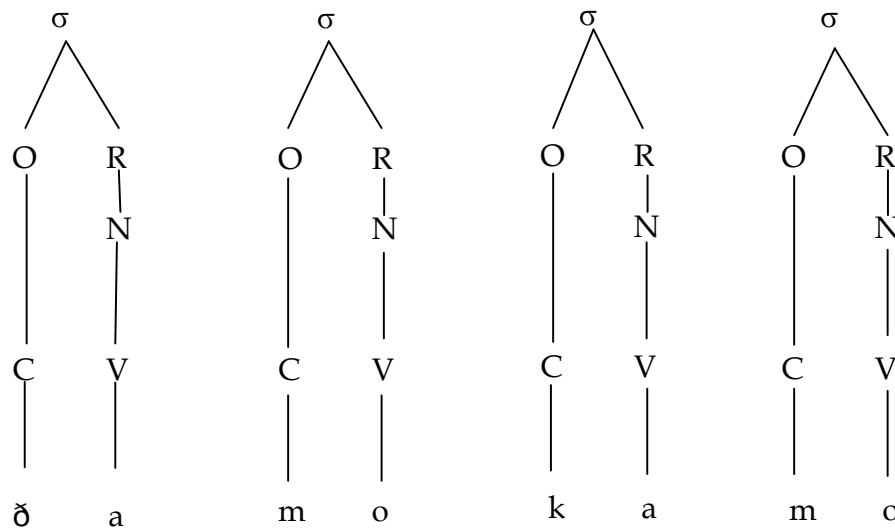
(ii) /í:/ 'letter 'i''



### 2.3.3 CV – syllable

This is the most common type of syllable in Ki-Ndia. It is found in word-initial, word-medial and word-final positions. Example 19 below illustrates this kind of syllable.

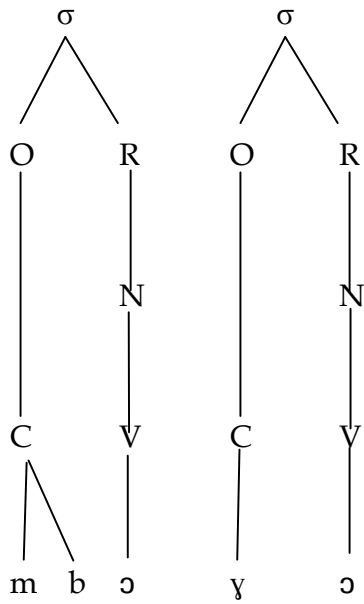
19. (i) /ðá/ ‘mercy’                      (ii) /mò \$ kà \$ mó/ ‘udder’



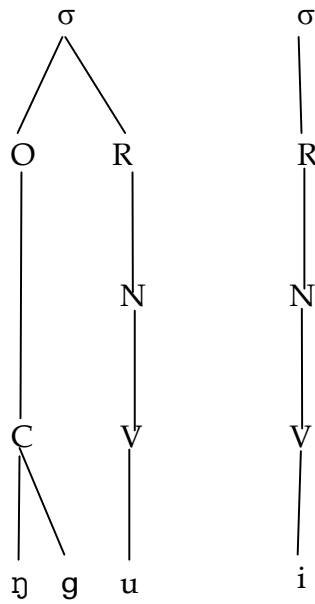
19 (i) above is a word made up of a single syllable of CV type. 19 (ii) illustrates the same type of syllable at word-initial, word-medial and word-final positions. Worth noting is that, in Ki-Ndia, prenasalized consonants exhibit CV type of syllable if followed by a vowel. This is because, in the dialect, they are phonetically realized as internally complex units of phonemes with a nasal and an oral phase. Example 20 comprises words whose initial syllable is made up of a prenasalized consonant followed by a vowel.



20. (i) /mbó \$ yó/ 'buffalo'



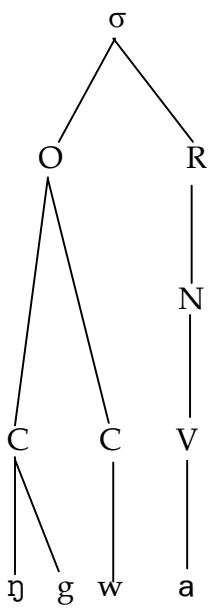
(ii) /ŋgù \$ í/ 'dog'



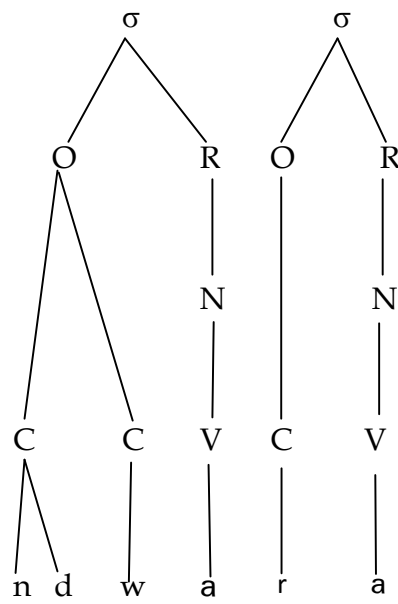
### 2.3.4 CCV – syllable

This type of syllable in Ki-Ndia occurs in a word that starts with a prenasalized consonant followed by /w/ glide as seen in Example 21.

21. (i) ŋgwá 'thunderstorm'

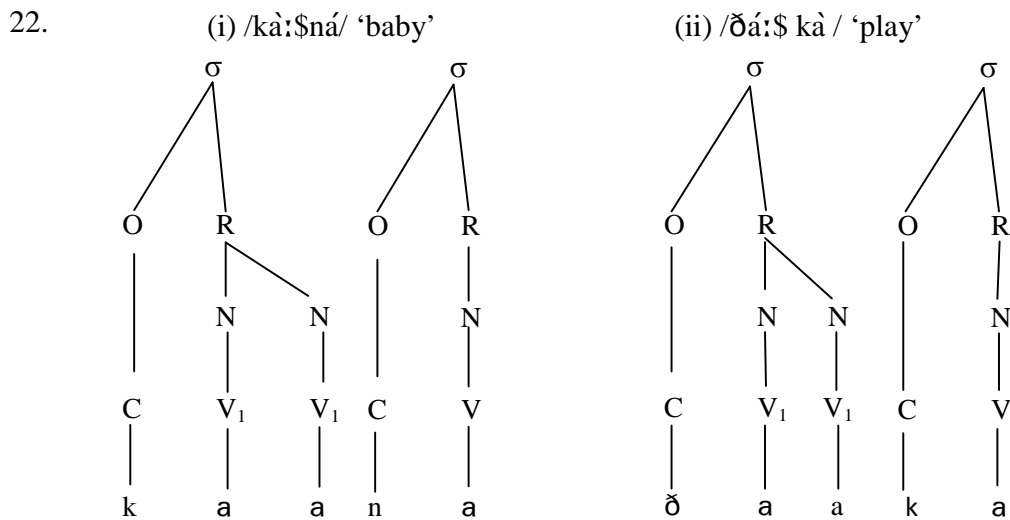


(ii) ndwà \$ rá/ 'take me'



### 2.3.5 CV<sub>1</sub>V<sub>1</sub>- syllable

This syllable occurs in words with a single consonant followed by a long vowel in Ki-Ndia as seen in 22 below.



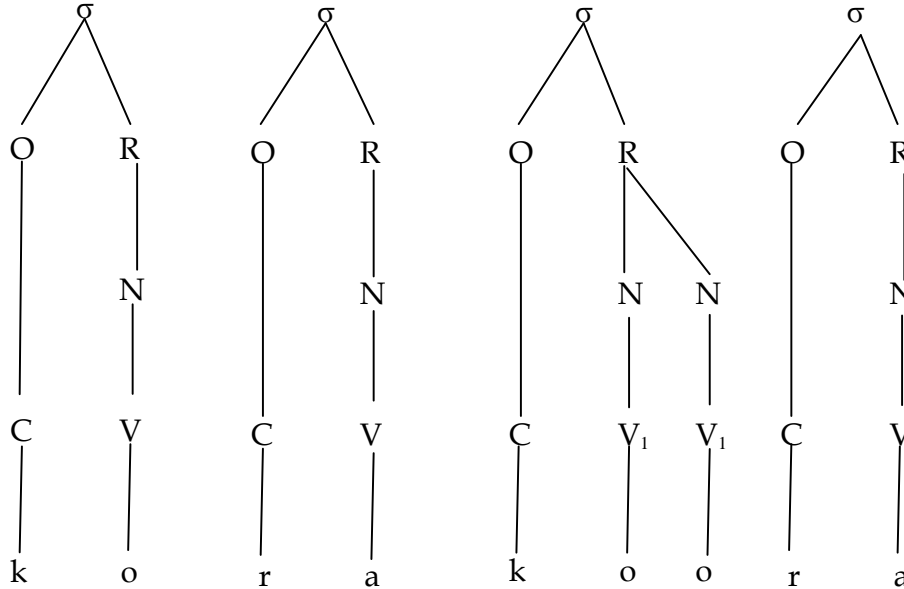
### 2.4 Syllable weight

Burquest (1998:208) regards syllables which have a coda or a branching nucleus as heavy syllables. Thus, CVC and CVV types of syllable are heavy syllables. Accordingly, syllables with neither a coda nor a branching nucleus are light. Thus, the CV type of syllable is a light syllable. This view of syllabic weight is supported by Gussenhoven and Jacobs (2005:161) who refer to CV-syllables as monomoraic and CVV-syllables as bimoraic. According to them, monomoraic syllables are light while bimoraic ones are heavy.

Ki-Ndia manifests both light and heavy syllables as shown in Example 23. 23 (i) has two light syllables while 23 (ii) has a heavy and a light syllable in that order.

23. (i) /kó \$ rà/ ‘grow’

(ii) /kó:\$ rà/ ‘uproot’



The weight of the syllable in Ki-Ndia as seen in 23 is determined by vowel length. The CV<sub>1</sub>V<sub>1</sub> syllables in Ki-Ndia are heavy syllables while all the other syllables regardless of the number of consonants in the onset, are light syllables. This is with regard to Gussenhoven and Jacobs’ (2005:160) assertion that the onset is excluded in determining syllable weight.

### 2.5 Classification of Ki-Ndia words

The various word categories of a language are referred to as parts of speech. These comprise nouns, verbs, adjectives, adverbs, pronouns, prepositions, articles and demonstratives. In line with the scope of this study, only nouns and verbs in Ki-Ndia are explored in this section. This is meant to enhance the understanding of Ki-Ndia suprasegmental features, by providing the reader with more information about the data used in the study.

### **2.5.1 Ki-Ndia nouns**

Like in any other language, nouns in Ki-Ndia assume a referential role. They are naming words. Gikuyu nouns fall under various noun classes which Ki-Ndia nouns identify with. These classes are determined by the singular and plural prefixes on the nominal stems. Table 6 illustrates the noun classes to which Ki-Ndia nouns belong. The division of these classes is adapted from Gecaga and Kirkaldy (1955), and Ford (1974) but modified to suit the classification of Ki-Ndia nouns. For example, the sound /h/ realized in standard Gikuyu dialects that the two studies represent is replaced with the sound /β/ found in Ki-Ndia and Gichugu dialects.

Class	Referents	Singular Prefix	Lexical Examples	Plural Prefix	Lexical Examples
1/2	Personal nouns	mo-	/mòràtá/ 'friend' /móndó/ 'person'	a-	/àràtá/ 'friends' /ándó/ 'people'
3/4	Concrete and abstract nouns	mo-	/móté/ 'tree' /móri/ 'root' /mòrìmó/ 'disease'	me-	/mété/ 'trees' /méri/ 'roots' /mèrìmó/ 'diseases'
5/6	Concrete and abstract nouns	i-/ri-/re	/íyégó/ 'tooth' /rì:kó/ 'kitchen' /rétwà/ 'name'	ma-	/máyéyó/ 'teeth' /màrì:kó/ 'kitchens' /màrétwà/ 'names'
7/8	Concrete and abstract nouns	ke-/ye-	/kèbéó/ 'gift' /yèkáβù/ 'basket' /kéámá/ 'miracle'	i-/si-	/ìβéó/ 'gifts' /ìkáβù/ 'baskets' /síámá/ 'miracles'
9/10	Nouns with zero prefixes	N-	/ηó:mbé/ 'cow' /mbòrí/ 'goat' /ηγúó/ 'garment'	N-	/ηó:mbé/ 'cows' /mbòrí/ 'goats' /ηγúó/ 'garments'
11/10	Inanimate objects	ro-	/ròé/ 'river' /róyí/ 'fence' /ròtùmó/ 'hem'	N-	/rḡòé/ 'rivers' /rḡyí/ 'fences' /ndùmó/ 'hems'
12/13	Diminutives	Ka-/ya	/kárímá/ 'small hole' /káβé:/ 'small boy' /yásérá/ 'small path'	to-	/tórímá/ 'small holes' /tóβé:/ 'small boys' /tósérá/ 'small paths'
14/6	Abstract Nouns	O-	/ótáró/ 'advice' /óyé/ 'wisdom' /òrùyí/ 'act of cooking'	ma- /mḡ	/mótáró/ 'advices' /máóyé/ 'wisdoms' /mòrùyí/ 'acts of cooking'
15/6	Body Parts	Ko-/yo-	/kóyóro/ /yótó/	ma-	/máyóro/ 'legs' /mátó/ 'ears'
16/15	Locatives	βa-	/βándó/ 'place' /βárájá/ 'far place'	ko-	/kóndó/ 'places' /kórájá/ 'far places'

**Table 6: A Classification of Ki-Ndia nouns based on singular and plural prefixes**

The process through which nouns are formed from other words is called nominalization or noun derivation. As Trask (1999:67) indicates, derivation involves “constructing new words by adding affixes to existing words”. Affixes added at the beginning of a word are called prefixes while those added at the end of a word are called suffixes. In Gikuyu language, noun derivation involves adding prefixes and suffixes to the roots of verbs or to other nouns. As a dialect of Gikuyu, Ki-Ndia exhibits the following noun derivation processes.

### **2.5.1.1 Noun derivation from verbs**

In Ki-Ndia, nouns are formed from verbs by adding a variety of prefixes and suffixes to the verb root as seen in the following subsections. The prefix, verb root and the suffix are abbreviated as *pref*, *VRT* and *suf* respectively.

#### **2.5.1.1.1 Derivation by the prefix *i-* and the suffix *-a***

Nouns formed by the prefix *i-* and the suffix *-a* in Ki-Ndia are apparently abstract nouns in noun class 5/6 as seen in 24.

24. / *i* - *rùg* - *á* / ‘cooking done for a certain ceremony’

*pref* *VRT* *suf*

/ *i* - *tú* - *á* / ‘judgment’

*pref* *VRT* *suf*

#### 2.5.1.1.2 Derivation by the prefix *ke-* /*ye-* and the suffix *-i* / *-ɔ*

In Ki-Ndia, nouns derived by the above prefixes and suffixes belong to noun class 7/8. These nouns are illustrated in 25 below.

25. /ké - rér - ó/ ‘mourning’

pref vrt suf

/yé - sú:ŋg - í/ ‘sieve’

pref vrt suf

#### 2.5.1.1.3 Derivation by the prefix *o-* and the suffix *-i*

In Ki-Ndia, this type of derivation gives rise to abstract nouns as seen in 26.

26. /ó - rém - í/ ‘deviance’

pref vrt suf

/ò - tùγ - í/ ‘hospitality’

pref vrt suf

#### 2.5.1.1.4 Derivation by the prefix *ro-* and the suffix *-ɔ*

Apparently, nouns derived by the prefix *ro-* and the suffix *-ɔ* in Ki-Ndia belong to 11/10 noun class. Example 27 illustrates these nouns.

27. /ró - γán - ó/ ‘narrative’

pref vrt suf

/rò - siàr - ó/ ‘generation’

pref vrt suf

### 2.5.1.1.5 Derivation by the prefix *mo-* and the suffix *-i / -o*

Nouns that are derived this way in Ki-Ndia belong to noun class 1/2 as seen in the examples given in 28 below.

28. /mò - rɛ̀β - í/ ‘drunkard’

pref vrt suf

/mó - βár - ró/ ‘one suffering from diarrhoea’

pref vrt suf

### 2.5.1.2 Noun derivation from other nouns

The table below shows examples of Ki-Ndia nouns derived from other nouns. It shows a derivation by the prefix *mo-*.

NOUN	GLOSS	DERIVED NOUN	‘GLOSS’
/óréí/	‘parenting’	/móréí/	‘parent’
/óréí/	‘farming’	/móréí/	‘farmer’
/íβáβáé/	‘pawpaw’	/móβáβáé/	‘pawpaw tree’
/òràtá/	‘friendship’	/mòràtá/	‘friend’

**Table 7: A representation of Ki-Ndia noun to noun derivation by the prefix *mo-***



## 2.5.2 Ki-Ndia verb form

Morphologically, Ki-Ndia is an agglutinating dialect. According to Trask (1999), a word in an agglutinating language, consists of a neat linear sequence of morphemes which are all clearly recognizable. In Ki-Ndia, these morphemes are meaningful affixes attached to the verb to give it various meanings. These affixes are realized through inflection and derivation processes of the verb. Thus, Ki-Ndia verbal affixes are either inflectional or derivational as seen in Sections 2.5.2.1 and 2.5.2.2 below.

### 2.5.2.1 Verb inflection in Ki-Ndia

Trask (1999: 102) defines inflection as variation in the form of a single word for grammatical purposes. In line with this definition, inflectional affixes in Ki-Ndia create variation in the form of the verb for grammatical reasons. These range from person, number to tense as seen in 29, 30 and 31 below.

#### 2.5.2.1.1 Verb inflection for person

Example 29 below illustrates verb inflection for person in Ki- Ndia verbs.

29. a) /nè – **nd** - ók - à/ ‘I have come.’  
aff 1ps vrt fv
- b) /nè – **w** - ók - à/ ‘You have come.’  
aff 2ps vrt fv
- c) /nè - **ϕ** - ók - à/ ‘She/he has come.’  
aff 3ps vrt fv

From Example 29, the morpheme that indicates the first person singular pronoun (1ps) in Ki-Ndia is -nd- and the second person singular pronoun (2ps) is marked by the morpheme -w-. Worth noting is that the underlying morpheme marker for third person singular pronoun (3ps) in Ki-Ndia is -a- but, phonetically, this is deleted hence the zero morpheme ( $\phi$ ) in 29(c). The abbreviations ‘aff’ and ‘fv’ in 29 stands for the ‘affirmative’ and the ‘final vowel’ respectively.

### 2.5.2.1.2 Verb inflection for number

Example 30 shows verb inflection for number.

30. (a) (i) /nè - **nd** - á - rɛ́g - à / ‘I have refused’.

aff Ips tns vrt fv

(ii) /nè - **tw** - á - rɛ́g - à / ‘We have refused’.

aff Ipp tns vrt fv

(b) (i) /nè - **w** - á - rɛ́g - à / ‘You (singular) have refused’.

aff 2ps tns vrt fv

(ii) /nè - **mw** - á - rɛ́g - à / ‘You (plural) have refused’.

aff 2pp tns vrt fv

(c) (i) /nè - **á** - rɛ́g - à / ‘She/he has refused’.

aff 3ps vrt fv

(ii) /nè - **m** - á - rɛ́g - à / ‘They have refused’.

aff 3pp tns vrt fv

From 30, the morphemes used to indicate number in Ki-Ndia are the following.

- nd - 'I'
- tw - 'we'
- w - 'you' (singular)
- mw - 'you' (plural)
- a - 'he/she'
- m - 'They'

### 2.5.2.1.3 Verb inflection for tense

Ki-Ndia has one grade of present tense, four grades of past tense and two grades of future tense. These grades of different tenses are marked using tense prefixes and suffixes labelled TP and TS in example 31 below. The abbreviations 'S', 'vrt' and 'fv' are used to represent subject morpheme, verb root and final vowel respectively.

31. a) Present tense (right now)
- /à - **rá** - rém - à/ 'He/she is digging'.
- S TP vrt fv
- b) Immediate past (just now)
- /á - **á** - rém - à / 'He has dug'.
- S TP vrt fv
- c) Past (earlier today)
- /à - rèm - **írè** / 'He dug (today)'.
- S vrt TS

- d) Past (yesterday)
- /à - **rá** - rém - **irè** ‘He dug (yesterday)’.
- S TP vrt TS
- e) Remote past (earlier than yesterday)
- /á - **á** - rém - **irè** / ‘He dug’.
- S TP vrt TS
- f) Future tense (today)
- /é - **kó** - rèm - à / ‘He will dig’.
- S TP vrt fv
- g) Future tense (after today)
- /á- **kà** - rèm - á / ‘He will dig’.
- S TP vrt fv

### 2.5.2.2 Verb derivation in Ki-Ndia

Verb derivation in Ki-Ndia involves adding derivational affixes to the verb root to modify its meaning. Derivational affixes in Ki-Ndia are of various types.

#### 2.5.2.2.1 Causatives

According to Crystal (2003), causatives indicate ‘who’ or ‘what’ causes something to happen. Ki-Ndia manifests two types of causatives. These are *-i-* and *-iǎi-* as seen in Example 32.

32. a) /n ó g – **í** - à / ‘tire somebody’
- vrt caus fv

- b) /mèn - **íǒí** - à/ 'cause one to hate another'  
 vrt caus fv

### 2.5.2.2.2 The benefactive

The benefactive affix indicates the beneficiary of the action signified by the verb. The benefactive in Ki-Ndia is marked with *-er-* and *-εr-* affixes. On the one hand, the affix *-er-* is attached to verb roots containing /a/, /i/, /u/, /o/ and /e/ as illustrated in 33(a) below. On the other hand, the affix *-εr-* is attached to verb roots containing /ɔ/ and /ε/ as 33 (b) illustrates.

33. a) (i) /γòr - é<sub>r</sub> - à/ 'buy for'  
 vrt ben fv
- (ii) /rùt - é<sub>r</sub> - à/ 'remove for'  
 vrt ben fv
- (iii) /βànd - é<sub>r</sub> - à/ 'plant for'  
 vrt ben fv
- (iv) /î<sub>n</sub> - é<sub>r</sub> - à/ 'sing for'  
 vrt ben fv
- (v) /rèm - é<sub>r</sub> - à/ 'weed for'  
 vrt ben fv

- b) (i) /βɔ̌ - éɾ - à/ 'pray for'  
 vrt ben fv
- (ii) /kɛ̀n - éɾ - à/ 'be happy for'  
 vrt ben fv

### 2.5.2.2.3 The passive

The passive in Ki-Ndia is marked by the affix - ɔ- as seen in Example 34.

34. (a) /ðámɓì - ɔ̌/ 'be washed'  
 vrt passive
- (b) /mɛ́n - ɔ̌/ 'be disliked'  
 vrt passive

### 2.5.2.2.4 The reciprocal

In Ki-Ndia, the reciprocal is marked by the affix - *ani* - which means 'each other.' Example

35 comprises verb roots with the affix -*ani*-.

35. (a) /tɛ̀ŋɛ̀ɾ - ání - à/ 'run after each other'  
 vrt rec fv
- (b) /tɛ̀ið - ání - à/ 'help each other'  
 vrt rec fv

### 2.5.2.2.5 Conversives

Affixes that reverse the action signified by the verb are referred to as conversives or reversives. In Ki-Ndia, conversives are marked by the affix *-or-* as seen in Example 36 below.

36. (a) /tùm - ór - à/ 'unsew'  
          vrt conv fv
- (b) /βìŋg - ór - à/ 'open'  
          vrt conv fv

## 2.6 Summary

The phonemic inventory of Ki-Ndia is first explored in this chapter. This consists of fourteen vowels and seventeen consonants as seen in Sections 2.1 and 2.2. Also discussed in the Chapter is the syllable structure of Ki-Ndia. Five types of syllables are manifest in the dialect as seen in Section 2.3.1. These are V, V<sub>1</sub>V<sub>1</sub>, CV, CV<sub>1</sub>V<sub>1</sub>, and CCV. From these types of syllable, it can be seen that Ki-Ndia exhibits an open syllable type of phonological system.

Ki-Ndia verbs and nouns are outlined in this Chapter, albeit not exhaustively. The noun in Ki-Ndia fits into the various Gikuyu noun classes as seen in Table 6 of this study. The nominalization process in the dialect is seen to be realized through prefixation and suffixation of verbs and other nouns. Being an agglutinating dialect, the verb in Ki-Ndia is seen to accommodate meaningful affixes that are either inflectional or derivational. The exploration of Ki-Ndia noun and verb in this Chapter is meant to equip the reader with

information about their structure since the data analyzed in this study is derived from the two word categories.



## CHAPTER THREE

### KI-NDIA SUPRASEGMENTAL PHONOLOGY

#### 3.0 Introduction

In this chapter, Ki-Ndia suprasegmental features are discussed. These are vowel harmony, nasalization and tone. As Section 1.1 of this study indicates, the three features have been treated by linguists as features larger than the segment, owing to their ability to spread to other segments in their domain. This property of spreading to other segments could not be accounted for appropriately in Segmental Phonology hence the introduction of Autosegmental Phonology by Goldsmith in 1976. In this chapter, the nature of each of the three features is explored and analyzed in Autosegmental Phonology's perspective. This is done with the aim of achieving the objectives of this study as postulated in Chapter One.

#### 3.1 Vowel harmony

Vowel harmony as defined in Section 1.7.1.1 of this study is a phonological process in which the vowels in a word share or harmonize for a particular feature. Ki-Ndia vowel system falls short of being described as a harmonic system though it displays some harmonic tendencies especially in some verb forms and in demonstrative adjectives of proximity. The stative and the applicative affixes in Ki-Ndia show some harmonic tendencies with the root vowel as seen in Sections 3.1.1 and 3.1.2.

##### 3.1.1. Verb forms with the stative affix

The stative affix in Ki-Ndia is either *-ek-* or *-εk-*, depending on the vowel in the verb root.

Examples 37 (a) and (b) illustrate verb forms with the stative affix.

- |     |     |               |                  |
|-----|-----|---------------|------------------|
| 37. | (a) | /βìð-ék-à/    | ‘get hidden’     |
|     |     | /rèm-ék-à/    | ‘get cultivated’ |
|     |     | /γòr-ék-à/    | ‘get bought’     |
|     |     | /rùγ-ék-à/    | ‘get cooked’     |
|     |     | /kà:ð-ék-à/   | ‘get tightened’  |
|     | (b) | /βðt - ék- à/ | ‘get defeated’   |
|     |     | /βèn - ék- à/ | ‘get cheated’    |

The examples in 37 (a) above indicate that, in Ki- Ndia, the affix *-ek-* is attached to verb roots containing any of the vowels /i/, /e/, /u/, /o/ or /a/. Verb roots with either /ɔ/ or /ɛ/ take the affix *-ek-* as seen in 37 (b).

### 3.1.2. Verb forms with the applicative affix

The applicative affix in Ki-Ndia is either *-er-* or *-ɛr-*, depending on the root vowel. The lexical examples in 38 (a) and (b) illustrate verb forms with the applicative affix.

- |     |     |             |             |
|-----|-----|-------------|-------------|
| 38. | (a) | /ĩn- ér-à/  | ‘sing for’  |
|     |     | /rèm-ér-à/  | ‘weed for’  |
|     |     | /ròm- ér-à/ | ‘bite for’  |
|     |     | /βùr -ér-à/ | ‘wipe for’  |
|     |     | /βàt -ér-à/ | ‘sweep for’ |

- (b) /sòr -ér-à/ 'draw for'  
 /rèβ -ér-à/ 'bring for'

The examples in 38 (a) above show that the affix *-er-* is taken by verb roots containing any of the vowels /i/, /e/, /u/, /o/ or /a/ while the examples in 38 (b) indicate that the affix *-er-* is taken by verb roots with either /ɔ/ or /ɛ/.

Summarily, the examples in 37 and 38 above show that the stative and the applicative affixes in Ki-Ndia, appear either with the mid-high front vowel /e/ or with the mid-low front vowel /ɛ/, depending on the vowel in the verb root. It also emerges that the vowels /i/, /e/, /o/, /u/ and /a/ in the verb root take an affix with the vowel /e/ while the vowels /ɔ/ and /ɛ/ take an affix with the vowel /ɛ/. This kind of harmony that Ki-Ndia displays is root-controlled, and it is what Aoki (1968) in Hyman (1975:233) calls partial vowel harmony. Partial vowel harmony as indicated in Section 1.7.1.1 of this study, involves a vowel being assimilated in certain features to another vowel (Hyman 1975:234). For instance, in the Ki-Ndia word *βìŋg-òr-ér-a* 'open for', the affix vowels /o/ and /e/ assimilate to the feature [+ATR] of the root vowel /i/.

In his description of vowel harmony, Katamba (1989:211) states that the vowels of a language comprise two sets that are mutually exclusive. The phrase 'mutually exclusive' indicates that vowels in one set contrast in a particular feature with vowels in the other set such that, if one set for example, harmonizes for the [+ATR] feature, the other set

harmonizes for the [-ATR] feature. Moreover, Burquest (1998:241) maintains that “all vowels in a given word must be from the same set”. Ki-Ndia vowels fall into two vowel harmony sets established through the behaviour of vowels as seen in 37 and 38 in Sections 3.1.1 and 3.1.2 respectively. The two vowels sets are shown in 39 below.

39.	<u>Set A</u>		<u>Set B</u>	
	Front	Back	Front	Back
High	i	u		
Mid high	e	o		
Mid low			ɛ	ɔ
Low	a			

The vowels in set A are produced with an advanced tongue root abbreviated as ATR while those in set B are produced with a retracted tongue root abbreviated as RTR. Languages whose vowel distinction is based on tongue root placement are [ATR] harmony systems (Hulst and Weijer 1995:511). Example 40, extracted from Hulst and Weijer (1995:511), shows vowel distinction based on tongue root placement.

40.	Advanced tongue root		Retracted tongue root	
	Front	Back	Front	Back
	i	u	ɪ	ʊ
	e	o	ɛ	ɔ
	a		ɑ	

Based on this distinction, Ki-Ndia thus displays an ATR kind of harmony. Its harmonizing feature is therefore [ $\pm$ ATR].

### 3.1.3 Vowel harmony in demonstrative adjectives

Demonstrative adjectives in Ki-Ndia play a vital role in the description of nouns in terms of proximity. Though grammatical categories other than nouns and verbs fall out of the scope of this study, demonstrative adjectives in Ki-Ndia are discussed here since their form depends on the nouns that they modify. In other words, their morpheme structure is head-dependent. Moreover, they display vowel harmony that appears more consistent than that in verbal stems.

A demonstrative adjective in Ki-Ndia is made up of a subject prefix followed by a demonstrative marker as seen in the Ki-Ndia word *ó-jò* which means ‘this’. Here, *o-* is the subject prefix while *-jo* is the demonstrative marker. It follows that demonstrative adjectives of proximity for all noun classes except 3/4 and 9/10 have their subject prefix vowel reduplicated in the demonstrative marker as seen in Table 8. In the table, a hyphen is used to

mark the boundary between the subject prefix and the demonstrative marker. For noun classification in Ki-Ndia, see Section 2.5.1 of this study.

Noun class	Singular Demonstrative adjective	Gloss	Plural Demonstrative adjective	Gloss
1/2	ó-jò	'this'	á-jà	'these'
5/6	ré-rè	'this'	má-jà	'these'
7/8	yé:-kè	'this'	í-sì	'these'
11/10	ró-rò	'this'	í-sì	'these'
12/13	yá:-kà	'this'	tó-tò	'these'
14/6	ó-jò	'this'	má-jà	'these'
14/15	ó-jò	'this'	má-jà	'these'
16/6	yó:-kò	'this'	má-jà	'these'
17/16	á-βà	'this'	yó:-kò	'these'

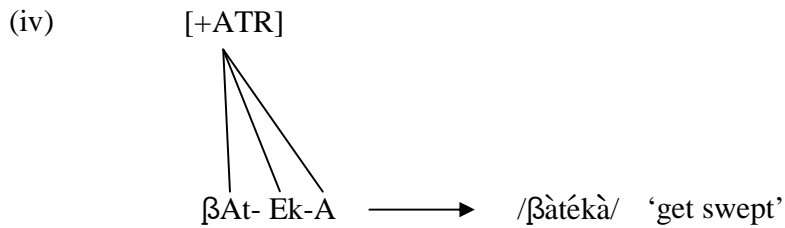
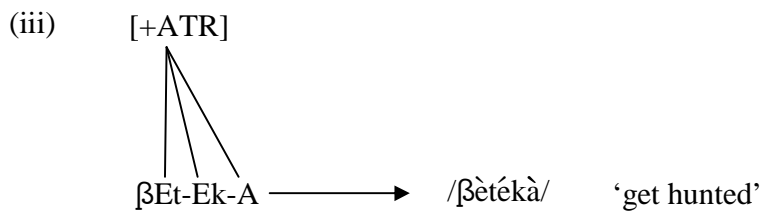
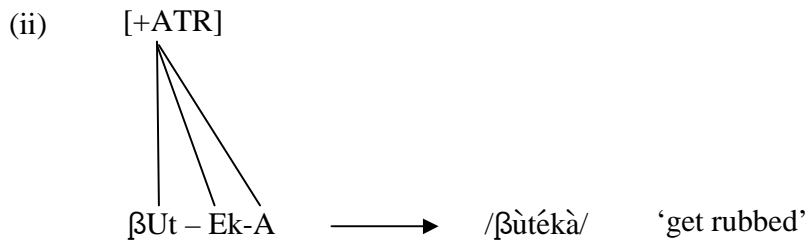
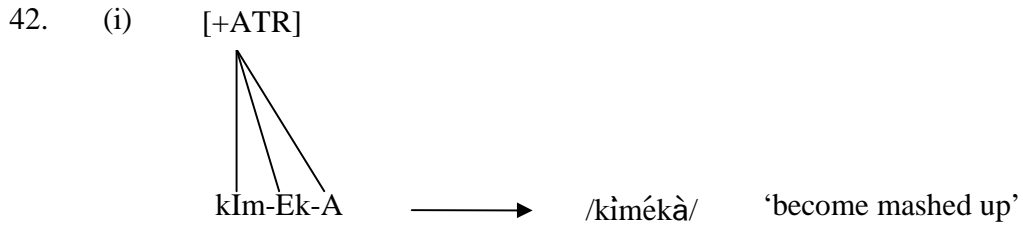
**Table 8: A representation of Ki-Ndia singular and plural demonstrative adjectives of proximity according to the nouns they modify**

As seen in Table 8 above, the vowel in the subject prefix of the demonstrative adjectives is reduplicated in the demonstrative marker. This is characteristic of all Ki-Ndia demonstrative adjectives of proximity for all noun classes except 3/4 and 9/10. Noteworthy is the fact that, if the vowel in the subject prefix is a long one, it is reduplicated as a short vowel in the demonstrative marker as seen in 7/8, 12/13 and 16/6 noun classes in Table 8 above. This kind of vowel harmony is what Aoki (1968) in Hyman (1975:233) calls complete vowel harmony, which is defined in Section 1.7.1.1 of this study.



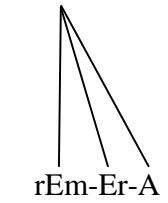
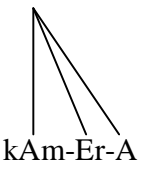


harmonic word forms. In them, vowel harmony runs from the root to the end of the word.

Examples in 42 and 43 illustrate this kind of vowel harmony.

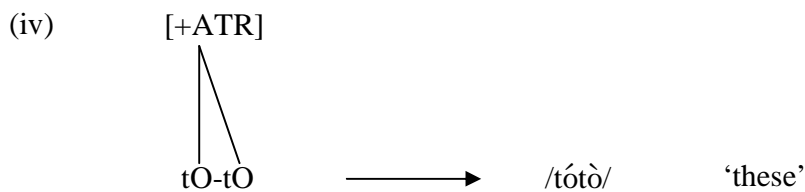
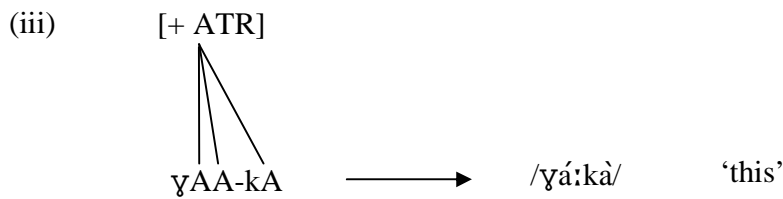
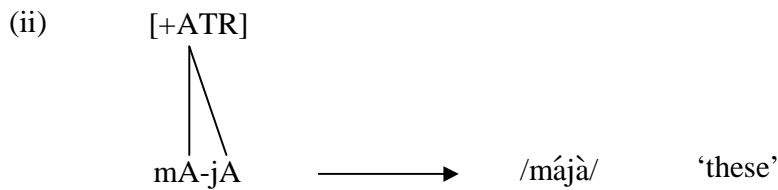




43. (i) [+ATR]  

 sIr- Er-A → /sìrérà/ 'case on behalf of'
- (ii) [+ATR]  

 γOr- Er-A → /γòrérà/ 'buy for'
- (iii) [+ATR]  

 rEm- Er-A → /rèmérà/ 'weed for'
- (iv) [+ATR]  

 kAm- Er-A → /kàmérà/ 'milk for'

Examples in 42 above are verb stems with the stative affix *-ek-* while those in 43 are verb stems containing the applicative affix *-er-*. These verb stems illustrate partial vowel harmony which is root controlled.

Demonstrative adjectives of proximity in Ki-Ndia display complete vowel harmony and they form part of harmonic word forms. The vowel in the subject prefix is reduplicated in the demonstrative marker as seen in 44.



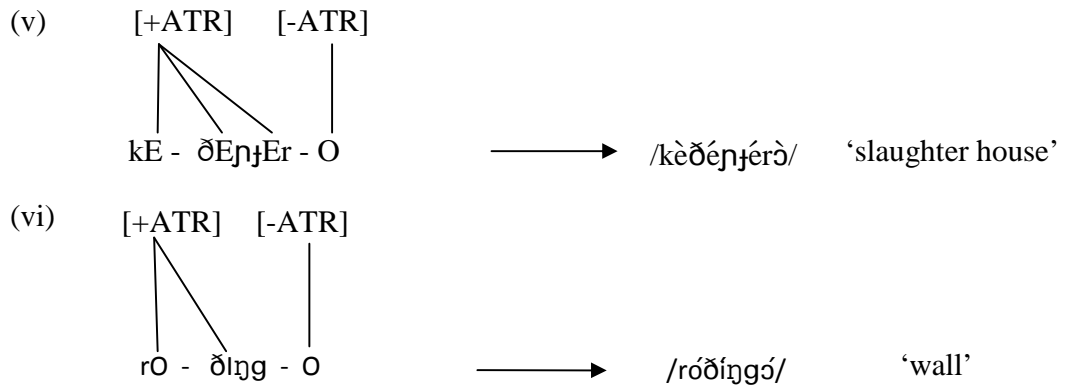
Summarily, 42, 43 and 44 above display vowel harmony in Ki-Ndia harmonic lexical items. In 42 and 43, harmony spreads from the root, through the affix, to the end of the word. In 44, the vowel in the first morpheme is reduplicated in the second morpheme. However, if the vowel in the subject marker is a long vowel, it is reduplicated as a short vowel in the

demonstrative marker as seen in 44 (iii) above. Ki-ndia Harmonic lexical items thus display both partial and complete vowel harmony.

### 3.1.6 Ki-Ndia disharmonic word forms

The majority of Ki-Ndia nouns and verbs display cases of disharmony between vowels in word domains. Vowels with [+ATR] feature freely combine with [-ATR] feature vowels without any discernible pattern. This kind of vowel disharmony is illustrated in 45 below.

45. (i)  $\begin{array}{ccc} [-\text{ATR}] & & [+ \text{ATR}] \\ & \diagdown & | \\ \beta\text{O}t & - & \text{E}k - \text{A} \end{array} \longrightarrow / \beta \grave{\text{o}} \text{t} \acute{\text{e}} \text{k} \grave{\text{a}} /$  ‘get defeated’
- (ii)  $\begin{array}{ccc} [+ \text{ATR}] & & [- \text{ATR}] & & [+ \text{ATR}] \\ & | & & & | \\ m\text{O} & - & t\text{E}m & - & \text{I} \end{array} \longrightarrow / m \grave{\text{o}} \text{t} \grave{\text{e}} m \acute{\text{i}} /$  ‘one who cuts’
- (iii)  $\begin{array}{ccc} [-\text{ATR}] & & [+ \text{ATR}] \\ & \diagdown & | \\ k\text{E}n & - & \text{E}r - \text{A} \end{array} \longrightarrow / k \grave{\text{e}} n \acute{\text{e}} r \grave{\text{a}} /$  ‘be happy for’
- (iv)  $\begin{array}{ccc} [+ \text{ATR}] & & [- \text{ATR}] & & [+ \text{ATR}] \\ & | & & & | \\ k\text{O} & - & \eta\text{O}t & - & \text{A} \end{array} \longrightarrow / k \grave{\text{o}} \eta \grave{\text{o}} t \acute{\text{a}} /$  ‘to be thirsty’



The examples in 45 show that vowels with feature contrasts occur freely without any discernible pattern. This disharmony of vowels leads to the conclusion that Ki-Ndia vowel system is not entirely harmonic. Harmonic tendencies are only displayed by demonstrative adjectives of proximity and verb stems with either the stative or the applicative affixes. The harmony that Ki-Ndia vowels display is phonologically determined because the harmonizing vowels in harmonic word forms belong to either of the two vowel harmony sets as examples in Section 3.1.5 of this study illustrate.

### 3.2 Nasalization

Katamba (1989:93) defines nasalization as a “process whereby an oral segment acquires nasality from a neighbouring segment.” Massamba (1996:92) quoted in Iribemwangi (2010:170), indicates that vowel nasalization “is usually simply referred to as nasalization.” The focus of this study is nasalization of the vowel sounds in Ki-Ndia.

Basically, as Burquest (1998:232) rightly observes, “sounds are influenced by the environments in which they occur.” In Ki-Ndia, a vowel acquires the [+nasal] property in the



47.	<u>Underlying</u>	<u>Phonetic</u>	<u>Lexical</u>
	<u>Representation</u>	<u>realization</u>	<u>Category</u>
(a)	$\begin{array}{cccc} [+N] & [-N] & [+N] & [-N] \\   &   &   &   \\ \text{n} & \text{a} & \text{m} & \text{a} \end{array} \longrightarrow$	$\begin{array}{c} [+N] \\ \diagdown \quad \diagup \\ \text{n} \text{a} \text{m} \text{a} \end{array}$	'meat'                      noun
(b)	$\begin{array}{cccc} [+N] & [-N] & [+N] & [-N] \\   &   &   &   \\ \text{m} & \text{a} & \text{t} & \text{a} \end{array} \longrightarrow$	$\begin{array}{cc} [+N] & [-N] \\ \diagdown \quad \diagup & \diagdown \quad \diagup \\ \text{m} \text{a} & \text{t} \text{a} \end{array}$	'saliva'                      noun
(c)	$\begin{array}{cccc} [+N] & [-N] & [+N] & [-N] \\   &   &   &   \\ \text{n} & \text{o} & \text{n} & \text{a} \end{array} \longrightarrow$	$\begin{array}{c} [+N] \\ \diagdown \quad \diagup \quad \diagdown \quad \diagup \\ \text{n} \text{o} \text{n} \text{a} \end{array}$	'see me'                      verb
(d)	$\begin{array}{cccc} [+N] & [-N] & [+N] & [-N] \\   &   &   &   \\ \text{n} & \text{o} & \text{m} & \text{a} \end{array} \longrightarrow$	$\begin{array}{c} [+N] \\ \diagdown \quad \diagup \\ \text{n} \text{o} \text{m} \text{a} \end{array}$	'bite me'                      verb

Examples in 47 above show clearly that a [+N] feature spreads to the vowel on the right thus nasalizing it. This is progressive assimilation process.

### 3.2.2 Regressive assimilation process

According to Crystal (2003:38), regressive assimilation involves change in a sound due to the “influence of the following sound.” In Ki-Ndia, a vowel acquires a [+N] feature if followed by a nasal consonant as seen in Example 48 below.

48.	<u>Underlying</u>	<u>Phonetic</u>	<u>Grammatical</u>
	<u>Representation</u>	<u>realization</u>	<u>Gloss</u> <u>Category</u>
a)	$\begin{array}{cccccc} [-N] & [+N] & [-N] & [-N] & [-N] \\   &   &   &   &   \\ o & n & o & r & u \end{array}$	$\begin{array}{c} [+N] & [-N] \\ / \quad \backslash \\ o n o r u \end{array}$	‘fatness’ noun
b)	$\begin{array}{ccc} [-N] & [+N] & [-N] \\   &   &   \\ o & m & a \end{array}$	$\begin{array}{c} [+N] \\ / \quad \backslash \\ o m a \end{array}$	‘hoe’ noun
c)	$\begin{array}{cccc} [-N] & [-N] & [+N] & [-N] \\   &   &   &   \\ t & u & m & a \end{array}$	$\begin{array}{c} [-N] & [+N] \\   & / \quad \backslash \\ t & u m a \end{array}$	‘sew’ verb
d)	$\begin{array}{cccc} [-N] & [-N] & [+N] & [-N] \\   &   &   &   \\ k & u & ɲ & a \end{array}$	$\begin{array}{c} [-N] & [+N] \\   & / \quad \backslash \\ k & u ɲ a \end{array}$	‘pinch’ verb

In 48, the first vowel in each of the lexical examples given assimilates to the [+N] specification of the following nasal consonant.

In Ki-Ndia, there exist internally complex units of phonemes which are realized as a result of homorganic articulation of nasals and stops. These are /mb/, /nd/, /ŋg/ and /ɲɟ/. The articulation of these units of phonemes is more pronounced in Ki-Ndia, than in standard Gikuyu dialects. That is, the nasal in these units of phonemes is audible in their production unlike in Standard Gikuyu dialects. Subsequently, the vowels that precede or follow such phonemes are nasalized. Example 49 illustrates this process.

49.	<u>Underlying</u>	<u>Phonetic</u>	<u>Grammatical</u>
	<u>representation</u>	<u>realization</u>	<u>Gloss</u> <u>category</u>
(a)	$\begin{array}{cccc} [+N] & [-N] & [-N] & [-N] \\   &   &   &   \\ \eta g & a & \gamma & \varepsilon \end{array} \longrightarrow$	$\begin{array}{cc} [+N] & [-N] \\ / & \backslash \\ \eta g & a \end{array} \quad \begin{array}{cc} [-N] & \\ / & \backslash \\ \gamma & \varepsilon \end{array}$	‘jigger(s)’      noun
(b)	$\begin{array}{ccccc} [-N] & [-N] & [-N] & [+N] & [-N] \\   &   &   &   &   \\ k & e & o & nd & o \end{array} \longrightarrow$	$\begin{array}{cc} [-N] & [+N] \\ / & \backslash \\ k & e \end{array} \quad \begin{array}{ccc} [-N] & & [+N] \\ / & & \backslash \\ o & nd & o \end{array}$	‘basket’      noun
(c)	$\begin{array}{cccc} [+N] & [-N] & [-N] & [-N] \\   &   &   &   \\ mb & o & r & a \end{array} \longrightarrow$	$\begin{array}{cc} [+N] & [-N] \\ / & \backslash \\ mb & o \end{array} \quad \begin{array}{cc} [-N] & \\ / & \backslash \\ r & a \end{array}$	‘beat me’      verb
(d)	$\begin{array}{cccc} [-N] & [-N] & [+N] & [-N] \\   &   &   &   \\ k & o & \eta \ddot{t} & a \end{array} \longrightarrow$	$\begin{array}{c} [-N] \\   \\ k \end{array} \quad \begin{array}{ccc} [+N] & & \\ / & & \backslash \\ o & \eta \ddot{t} & a \end{array}$	‘fold’      verb

Example 49 shows that a vowel that occurs before or after a prenasalized stop in Ki-Ndia is nasalized. In standard Gikuyu, such vowels are not nasalized because pre-nasalized stops are produced as if the nasal was not there. Thus, nasalization is a major phonological process in Ki-Ndia, in comparison to standard Gikuyu dialects.

### 3.3 Tone in Ki-Ndia

As earlier mentioned in Chapter One of this study, tone is a distinctive feature among Gikuyu dialects. Different Gikuyu dialects manifest different pitch variations. Mutahi (1983) and Wachera (2008) reiterate this fact as indicated in Section 1.1. In this section, Ki-Ndia lexical tone is analyzed in the context of the noun and the verb grammatical categories.



A distinction between tone languages can be drawn depending on the type of tones they exhibit. There are those with level tones and those with contour tones. Gussenhoven (2004:26) states that languages with level tones “require the syllable to reach a certain pitch height” while those with contour tones “require the syllable to be said with a pitch movement.” Pike (1948:6) identifies three types of level tones. These are high (H), mid (M) and low (L). Falling (HL), rising (LH), falling-rising (HLH) and rising-falling (LHL) tones are contour or gliding tones. Level and contour tones distinguish between register tone languages and contour tone languages respectively. However, in a register tone language, it is possible to find isolated cases of contour tones being realized in some lexical items. According to Pike (1948:12), such language systems are said to be “register tone systems with a slight overlap of contour-tone characteristics”.

In the following sub-sections, Ki-Ndia nouns and verbs are analyzed for tone depending on the number of syllables in each lexical item. Tone patterns in the two grammatical categories are established and displayed using autosegmental representations. The tone patterns established help to determine the form of tone in Ki-Ndia.

### **3.3.1 Tone patterns in monosyllables**

Monosyllables are words that comprise only one syllable. Nouns and verbs of this nature in Ki-Ndia are very few and they display high (H) level tones. However, the two differ in the amount of muscular energy exerted during their production. Monosyllabic verbs are used to issue directives and they are produced with more muscular energy than that used in the

production of monosyllabic nouns. Autosegmental representations of these nouns and verbs are seen in Sections 3.3.1.1 and 3.3.1.2.

### 3.3.1.1 Monosyllabic nouns

Monosyllabic nouns in Ki-Ndia fall under noun class 9/10. Nouns in this class undergo zero inflection for plural. These nouns exhibit high tones as displayed in the autosegmental charts in 50 below.

50. (a)   nda                   ‘stomach’  
          |  
          H
- (b)   ŋgɔ                   ‘shield’  
          |  
          H
- (c)   ɲɔa                   ‘space outside the house’  
          |  
          H
- (d)   ɔ̃a                   ‘mercy’  
          |  
          H

In 50, TBUs are seen to associate to high tones in a one-to-one fashion. This is characteristic of level tones as implied in Pike’s (1948:12) definition of a register tone language in Section 1.7.1.3 of this study.

### 3.3.1.2 Monosyllabic verbs

Monosyllabic verbs in Ki-Ndia are imperatives and they exhibit high (H) level tones.

Example 51 illustrates these verbs in autosegmental representations.

51. (a)            mbɛ                            ‘give me’  
                      |  
                      H
- (b)            kɛ                            ‘take’  
                                  |  
                                  H
- (c)            tɛ                            ‘discard’  
                                  |  
                                  H
- (d)            rja                            ‘eat’  
                                  |  
                                  H

Like in monosyllabic nouns, TBUs in monosyllabic verbs in Ki-Ndia associate to high tones in a one-to-one fashion as seen in 51 above.

### 3.3.2 Tone patterns in bi-syllabic nouns and verbs

Bi-syllabic words consist of two syllables. Ki-Ndia bi-syllabic verbs display only one tone pattern while bi-syllabic nouns display a variety of patterns as seen in Sections 3.3.2.1 and 3.3.2.2, respectively.





### 3.3.2.1.3 Falling-rising (HLH) tone pattern

The falling-rising tone pattern is characteristic of contour tones as seen in section 3.3. In Ki-Ndia, concrete and abstract bi-syllabic nouns with initial high pitched long vowels attract this pattern. Example 54 shows phonological representations of falling-rising tones in Ki-Ndia bi-syllabic words.

54. (a)      ndooma                      ‘arrowroots’  
                  | | |  
                  H L H
- (b)      s u u β a                      ‘bottle’  
                  | | | |  
                  H L H
- (c)      r o o ð a                      ‘permission’  
                  | | | |  
                  H L H
- (d)      t u u β a                      ‘a tool used for sharpening’  
                  | | | |  
                  H L H

In 54, the long vowel in each lexical item associates to two contrastive tones (HL) which characterize contour tones as seen in Pike (1948:12).

### 3.3.2.2 Bi-syllabic verbs

All bi-syllabic verbs in Ki-Ndia display high followed by low (H-L) pattern as seen in example 55.

55. (a)  $\begin{array}{c} t\epsilon ma \\ | \quad | \\ H \quad L \end{array}$  'cut'
- (b)  $\begin{array}{c} \delta uura \\ \vee \quad | \\ H \quad L \end{array}$  'elect/sort/choose'
- (c)  $\begin{array}{c} maka \\ | \quad | \\ H \quad L \end{array}$  'get surprised'
- (d)  $\begin{array}{c} \beta aanda \\ \vee \quad | \\ H \quad L \end{array}$  'plant'

In 55 above, Ki-Ndia bi-syllabic lexical items exhibit high and low level tones which are characteristic of register tone languages. In 55 (b) and (d), adjacent identical high tones are collapsed into one in accordance with the requirement of OCP in Autosegmental Phonology.

### 3.3.3 Tone patterns in tri-syllabic nouns and verbs

Tri-syllabic words consist of three syllables. In Ki-Ndia, both tri-syllabic nouns and verbs show a variety of tone patterns. These are illustrated in Sections 3.3.3.1 and 3.3.3.2 below.

### 3.3.3.1 Tri-syllabic nouns

Tri-syllabic nouns in Ki-Ndia exhibit four tone patterns. These are high (H), low followed by high (L-H), high followed by low (H-L) and high between low (L-H-L) patterns. These patterns comprise high and low level tones, which are characteristic of register tone languages.

#### 3.3.3.1.1 H pattern

A number of nouns from across all noun classes exhibit this pattern in Ki-Ndia. 56 below illustrate the pattern using autosegmental representations of Ki-Ndia lexical items.

56. (a) ndakameɛ 'blood'  
          H
- (b) βurana 'sweater'  
          H
- (c) mokanda 'rope'  
          H
- (d) itumbeɛ 'egg'  
          H

In 56, TBUs in each lexical item underlyingly associate to high level tones which are adjacent to each other. These tones are collapsed into one high level tone following OCP's requirement as seen in the autosegmental representation of each lexical item.



### 3.3.3.1.2 L-H pattern

Tri-syllabic nouns that display this pattern in Ki-Ndia apparently fall under 1/2 noun class.

The tones displayed by the pattern are level tones as seen in 57 below.

57. (a) morata 'friend'  
           $\begin{array}{c} \vee \quad | \\ \text{L} \quad \text{H} \end{array}$
- (b) mwej ni 'singer'  
           $\begin{array}{c} \vee \quad | \\ \text{L} \quad \text{H} \end{array}$
- (c) mwej si 'thief'  
           $\begin{array}{c} \vee \quad | \\ \text{L} \quad \text{H} \end{array}$
- (d) morɛβi 'drunkard'  
           $\begin{array}{c} \vee \quad | \\ \text{L} \quad \text{H} \end{array}$

Example 57 above indicates that, in tri-syllabic nouns with L-H pattern, the ultimate TBU always associate to a high tone. It also indicates that TBUs in the first and the second syllables associate to identical low level tones which in the above representations are collapsed into one. The OCP's requirement in Autosegmental Phonology is thus observed.

### 3.3.3.1.3 H-L pattern

In Ki-Ndia, tri-syllabic nouns displaying this pattern are not common. Interestingly, the few identified in this study end in the suffix *-ki* despite their noun classes. Example 58 exemplifies this. 58(a), (b) and (c) fall under 9/10 noun class while 58(d) fall under 7/8 noun class.

58. (a) mbareki 'castor seeds'  
 $\begin{array}{c} \vee \\ \text{H} \quad \text{L} \end{array}$
- (b) mbureki 'brakes'  
 $\begin{array}{c} \vee \\ \text{H} \quad \text{L} \end{array}$
- (c) ndamaki 'fish'  
 $\begin{array}{c} \vee \\ \text{H} \quad \text{L} \end{array}$
- (d) kjonεki 'vision'  
 $\begin{array}{c} \vee \\ \text{H} \quad \text{L} \end{array}$

The H-L tone pattern exhibited by the above lexical items contrast with the L-H pattern discussed in Section 3.3.3.1.2. The tones displayed by the two patterns are all level tones.

### 3.3.3.1.4 L-H-L pattern

In Ki-Ndia, nouns that display this pattern fall under 1/2, 3/4, 5/6, 7/8 and 9/10 noun classes.

The pattern comprises level tones only as seen in 59.

59. (a) mokaðe 'necklace'  
 $\begin{array}{c} | \quad | \quad | \\ \text{L} \quad \text{H} \quad \text{L} \end{array}$
- (b) irimo 'giant'  
 $\begin{array}{c} | \quad | \quad | \\ \text{LH} \quad \text{L} \end{array}$
- (c) keβεεε 'gift'  
 $\begin{array}{c} | \quad | \quad | \quad | \\ \text{L} \quad \text{H} \quad \text{L} \end{array}$

(d)            ðiyara                    ‘cigarette’  
                  | | |  
                  LHL

In 59, low and high level tones are mapped onto TBUs in each lexical item from left to right in a one-to-one fashion. This is in accordance with the requirement of UAC in Autosegmental Phonology. For details about UAC, see Section 1.5.2.2 of this study.

### 3.3.3.2 Tri-syllabic verbs

Tri-syllabic verbs in Ki-Ndia display only two patterns. These are L-H and L-H-L.

#### 3.3.3.2.1 L-H pattern

Verbs displaying this pattern have prefixes denoting ‘me’, which is the accusative case of the first person singular pronoun ‘I’. Example 60 illustrates this pattern.

60. (a)            ndɛtɛra                    ‘bring for me’  
                      \     /  
                      L   H
- (b)            mborera                    ‘beat for me’  
                      \     /  
                      L   H
- (c)            ɪgaera                    ‘share with me’  
                      \     /  
                      L   H
- (d)            ndomɛra                    ‘read for me’  
                      \     /  
                      L   H

All the lexical items in 60 above display low and high level tones characteristic of register tone languages. In each lexical item, low tone is realized in the first and the second syllable while high tone is realized in the ultimate syllable.

### 3.3.3.2.2 L-H-L pattern

In Ki-Ndia verbs that express commands display this pattern. The pattern comprises low and high level tones as seen in 61 below.

61. (a) tarora 'tear'  

$$\begin{array}{c} | \quad | \quad | \\ \text{L H L} \end{array}$$
- (b) ðomera 'read for someone'  

$$\begin{array}{c} | \quad | \quad | \\ \text{L H L} \end{array}$$
- (c) βonoka 'get saved'  

$$\begin{array}{c} | \quad | \quad | \\ \text{L H L} \end{array}$$
- (d) βuroka 'rest'  

$$\begin{array}{c} | \quad | \quad | \\ \text{L H L} \end{array}$$

In 61 above, UAC associates low and high level tones to TBUs in each lexical item from left to right in a one-to-one fashion.

### 3.3.4 Polysyllabic verbs and nouns

Any noun or verb with more than three syllables is described as polysyllabic in this study. Polysyllabic nouns exhibit three tone patterns while polysyllabic verbs exhibit only one tone pattern as seen in Sections 3.3.4.1 and 3.3.4.2, respectively.

### 3.3.4.1 Polysyllabic nouns

Polysyllabic nouns in Ki-Ndia exhibit H, L-H-L and downstepped high tone patterns. These patterns are illustrated in the following sections.

#### 3.3.4.1.1 H pattern


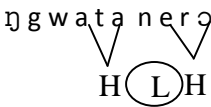
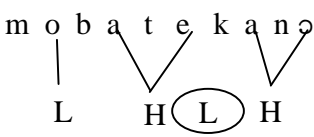

A number of Ki-Ndia polysyllabic nouns from across all noun classes exhibit this pattern. Lexical items in 62 show a series of high level tones collapsed into one in accordance with the requirement of OCP in Autosegmental Phonology.

62. (a) moran<sup>˩</sup>geri 'guard'  
          H
- (b) morutani 'teacher'  
          H
- (c) ngerεkano 'parable'  
          H
- (d) moyoroki 'madman'  
          H

#### 3.3.4.1.2 Downstepped high tone pattern

According to Kenstowicz (1994:341), “downstep indicates a situation in which a high tone has a downdrifted phonetic value”. Hyman (1975:226) describes downdrift as a situation where “two H tones are not pronounced on the same pitch level (though they are phonologically identical), but rather the second H is lower in pitch than the first”. In simple

terms therefore, a downstepped high tone occurs as a result of a high tone being lowered, but not to the low level. A number of polysyllabic nouns in Ki-Ndia exhibit this pattern. The lexical items in 63 below illustrate this pattern.

63. (a) m b u y e r e r i o 'din'  

- (b) ŋ g w a t a n e r o 'fellowship'  

- (c) m o b a t e k a n o 'crowdedness'  

- (d) k e r i r i k a n o 'memorial ceremony'  


In each of the autosegmental representations of tone in 63 above, the last H is not pronounced on the same pitch level as the one that precedes it. The floating tone between the two H implies that diachronically, there was a low tone that got lost either through deletion or through assimilation (Hyman 1975:227). Nevertheless, downstepped high tones are level tones and therefore characterize register tone languages.

### 3.3.4.1.3 L-H-L pattern

Apparently, Ki-Ndia polysyllabic nouns that exhibit L-H-L pattern belong to 1/2 and 7/8 noun classes. Example 64 illustrates nouns with L-H-L tone pattern.

64. (a)  $\begin{array}{c} \text{yekuneko} \\ | \quad \vee \quad | \\ \text{L} \quad \text{H} \quad \text{L} \end{array}$  'lid'
- (b)  $\begin{array}{c} \text{motumia} \\ \vee \quad || \\ \text{L} \quad \text{HL} \end{array}$  'woman'
- (c)  $\begin{array}{c} \text{keðeŋɔ} \\ | \quad \vee \quad | \\ \text{L} \quad \text{H} \quad \text{L} \end{array}$  'slaughter house'
- (d)  $\begin{array}{c} \text{yekunori} \\ | \quad \vee \quad | \\ \text{L} \quad \text{H} \quad \text{L} \end{array}$  'opener'

The autosegmental representations of tone in 64 above display high and low level tones which are characteristic of register tone languages.

### 3.3.4.2 Polysyllabic verbs

Ki-Ndia polysyllabic verbs display only one pattern. Apparently, the penultimate and ultimate syllables exhibit high (H) and low (L) level tones respectively as shown in 65.

65. (a)  $\begin{array}{c} \text{ɛtɛrɛra} \\ \vee \quad | \quad | \\ \text{L} \quad \text{H} \quad \text{L} \end{array}$  'wait'
- (b)  $\begin{array}{c} \text{ɣirimoka} \\ \vee \quad | \quad | \\ \text{L} \quad \text{H} \quad \text{L} \end{array}$  'regain consciousness'

- (c)             $\delta$ jororoka            ‘go round’  
                  V        | | |  
                  L        H L
- (d)            ikarera            ‘sit on’  
                  V        | | |  
                  L        H L

In 65 above, two identical tones on the first and the second TBUs in each lexical item are collapsed into one. OCP requirement as stated in Section 1.5.2.2 is therefore observed.

### 3.4 Summary

An analysis of Ki-Ndia vowel harmony, nasalization and tone has been done in this chapter, in line with the objectives of the study. The analysis is done within the tenets of Autosegmental Phonology where each of the three features is treated as an autosegment capable of spreading to an adjacent segment. The theory proves effective in its ability to handle features larger than the segment, which were the focus of this study.

In the analysis of vowel harmony in Ki-Ndia, two mutually exclusive vowel sets are first established and the harmonizing feature discovered. The harmonic and disharmonic word forms are then explored with special reference to the noun and the verb grammatical categories. These word categories undergo derivation and inflection processes and are thus appropriate for the analysis of feature spreading from the root, through the affixes, to the end of the word. The analysis of vowel harmony leads to the discovery of its nature in the dialect.

In the chapter, the process of nasalization in Ki-Ndia is also explored. Two types of nasal assimilation processes in the dialect are discussed and exemplified in order to show the



direction of [nasal] feature spreading in the dialect. The answer to the question of whether nasalization is a major phonological process or not in Ki-Ndia, is given.

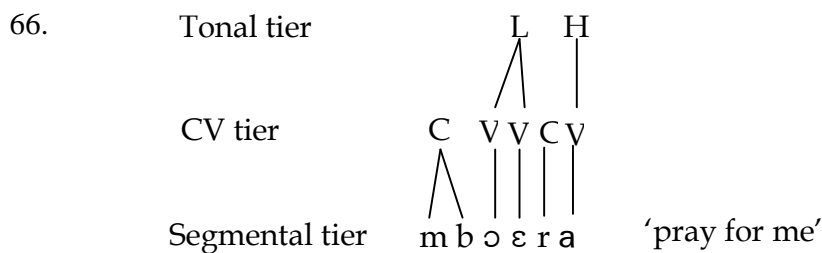
Ki-Ndia tone is also investigated in this chapter. Tone patterns in the noun and the verb grammatical categories are identified with an aim of discovering the form of tone manifested in the dialect. Tone patterns in these word categories mainly display level tones though traces of contour tones are also discovered. Ki-Ndia form of tone is thus found out in the chapter.

**CHAPTER FOUR**  
**MULTI-TIERED PHONOLOGY OF KI-NDIA**  
**SUPRASEGMENTALS**

**4.0 Introduction**

According to Hulst and Smith (1982:3), Goldsmith (1976) proposed that, in Autosegmental Phonology, “phonological representations are multi-tiered at all levels.” In Chapter 3 of this study, it is shown that vowel harmony, nasalization and tonal tiers exist in Ki-Ndia. It is thus necessary to show how these tiers, hence the features represented therein, relate to each other in the dialect. This need necessitates the writing of this chapter.

In an attempt to show how different autosegmental tiers in a language relate to each other, Hulst and Smith (1982:24) indicate the need to have “one basic tier with which all other tiers are associated.” According to them, “the basic tier, consists of the major class features [consonantal] and [vocalic] with ‘C’ standing for [+cons, -voc] and ‘V’ for [-cons, +voc].” The tier they are suggesting here is the CV tier which is also known as the skeletal tier or the timing tier (Goldsmith 1990:48). Using CV tier as the basic tier, a three-tiered phonological representation of tone in the Ki-Ndia word *mbɔ̀ɛ̀rǎ́* ‘pray for me’, would be as in 66.



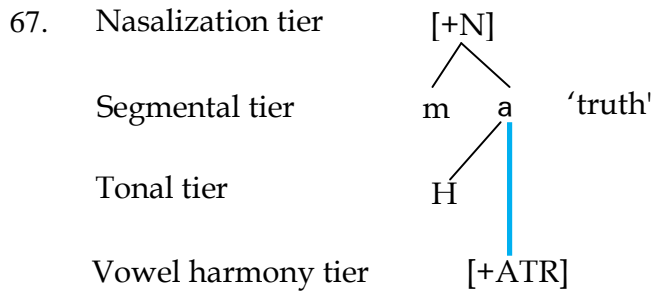
However, the segmental tier comprises segments with [+cons, -voc] and [-cons, +voc] elements which are characteristic of the CV tier as seen in 66. Katamba (1989:156) reiterates this fact when he states that a segmental tier comprises “bundles of distinctive feature matrices which represent consonant and vowel segments.” Consequently, this study finds the segmental tier adequate as a basic tier to which all the other tiers in a phonological representation associate. Besides, the tier indicates the lexical segments being dealt with.

In the following subsections, vowel harmony, nasalization and tonal tiers in Ki-Ndia are displayed in multi-tiered phonological representations in order to show how the three tiers relate to each other in the dialect. Each of these tiers consists of a string of segments specified for either vowel harmony, nasalization or tone features. These phonological features are articulated simultaneously in speech. This is in line with Hulst and Smith’s (1982:9) statement that segments on separate tiers are linked using association lines which indicate that the conjoined segments are co-articulated.

In the representations, the segmental tier acts as the basic tier to which all other tiers associate. Worth noting is that colour contrast on the association lines indicates that in the representations, segments on the vowel harmony tier associate to segments on the segmental tier behind the tonal tier. Thus, association lines do not cross and therefore conform to Goldsmith’s (1976) WFC rules as stipulated in Section 1.5.2.2. Also, the linking of segments in different tiers conforms to the association principles in the same section. Nevertheless, for the sake of variety, the choice of the words used to illustrate the relationship between different tiers is based on the number of syllables in each word.

#### 4.1 Monosyllabic words

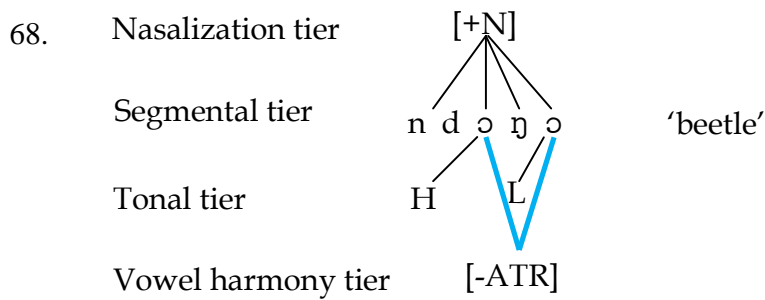
Example 67 illustrates a multi-tiered phonological representation of a Ki-Ndia monosyllabic word.



In 67 above, the nasal feature spreads from the nasal consonant /m/ to the adjacent vowel /a/ in a progressive assimilation process. At the same time, the tone melody realized in the word is high (H) and the vowel /a/ is specified for the feature [+ATR]. These phonological feature specifications, ([+N], H and [+ATR]), are mapped onto autosegment-bearing-units on the segmental tier using association lines in accordance with WFC rules and the association principles. This kind of association indicates that the feature specifications in question are articulated simultaneously.

#### 4.2 Bi-syllabic words

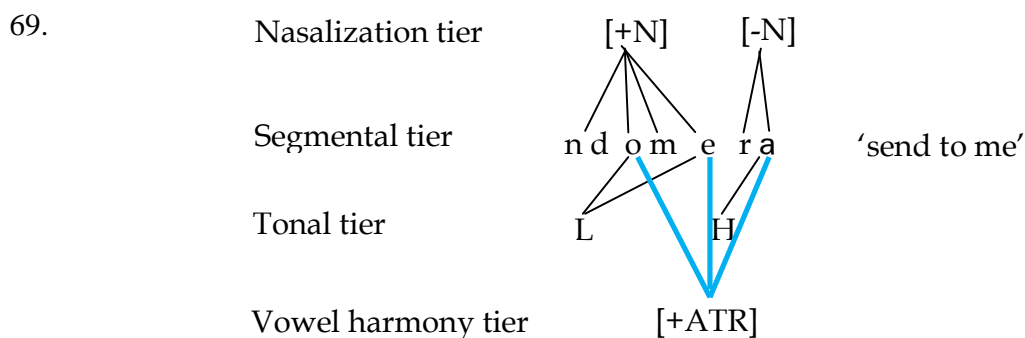
Example 68 is a multi-tiered phonological structure showing the relationship between vowel harmony, nasalization and tone features in a Ki-Ndia bi-syllabic word.



In 68, the nasal, tonal and vowel harmony features are mapped onto autosegment-bearing units on the segmental tier. Association lines do not cross indicating that WFC rules apply. In the phonological structure, the nasal feature [+N] spreads from the prenasalized consonant /nd/ and the nasal consonant /ŋ/ to the vowels adjacent to them. At the same time, both vowels are harmonized for the feature [-ATR] and a High-Low (HL) tone melody is realized. These happenings explain the simultaneous articulation of nasalization, tone and vowel harmony features in the Ki-Ndia word *ndɔŋɔ* which means 'beetle'.

### 4.3 Tri-syllabic words

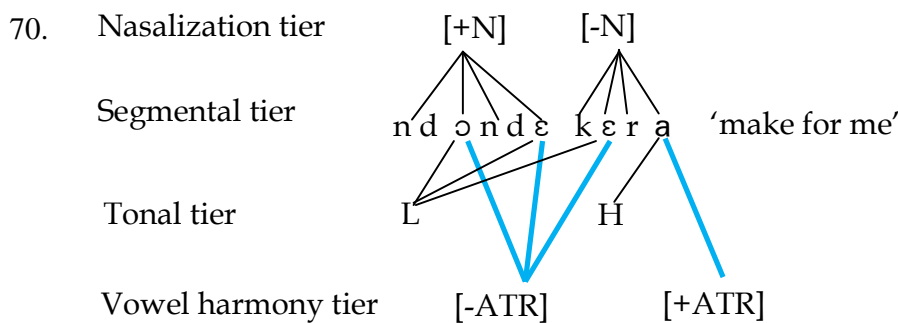
Example 69 shows simultaneous articulation of nasalization, tone and vowel harmony features in a Ki-Ndia tri-syllabic word, *ndòmèrǎ*, which means 'send to me.'



In 69, the vowels /o/ and /e/ become nasalized for occurring in a nasal environment, a Low-High (L-H) tone melody is realized and all the vowels are harmonized for the feature [+ATR]. All these articulations take place simultaneously, which explain the relationship between nasalization, tone and vowel harmony tiers in the Ki-Ndia word *ndòmèrá* which means ‘send to me’. In other words, nasalization, tone and vowel harmony features in the word are articulated at the same time.

#### 4.4 Polysyllabic words

Simultaneous articulation of multiple features is also possible in Ki-Ndia polysyllabic words. Example 70 illustrates this possibility using a polysyllabic word drawn from Ki-Ndia lexicon.



In 70, the vowel harmony tier indicates that the Ki-Ndia word *ndɔ̃ndɛkɛrǎ*, which means ‘make for me,’ is an example of a disharmonic word stem. The vowel /a/ blocks the harmony from spreading to the end of the word. However, nasalization spreads from the prenasalized consonants to the adjacent vowels /ɔ̃/ and /ɛ/ in a progressive assimilation process. The tone melody realized in the word is Low-High (LH) and the vowels in the word harmonize to [-

ATR] harmony feature though the harmony is blocked by the vowel /a/ with [+ATR] feature specification at the end of the word. In short, the association of nasalization, tone and vowel harmony features to autosegment-bearing-units on the segmental tier in accordance with WFC rules and association principles show that the three features are articulated simultaneously.

#### **4.5 Summary**

In this chapter, multi-tiered phonological representations of vowel harmony, nasalization and tone in Ki-Ndia are displayed in order to show how the three features relate to each other. The segmental tier is used as the basic tier to which all other tiers associate. The autosegments (phonological features) in different tiers are mapped onto autosegment-bearing-units on the segmental tier, using association lines in accordance with WFC rules and association principles which regulate the association of autosegments to autosegment-bearing-units. For details, see Section 1.5.2.2 of this study. In phonological representations such as the ones displayed in this chapter, features in different tiers are said to be articulated simultaneously.

The phonological structures in this chapter show the effectiveness of APT in handling features that spread to adjacent segments in their domain. It is the effectiveness of the theory that enables multiple feature associations in this chapter to be realized. APT is therefore adequate in handling Ki-Ndia suprasegmentals.

## CHAPTER FIVE

### RESEARCH FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

#### 5.0 Introduction

The purpose of conducting this research was to study the suprasegmental features of Ki-Ndia dialect of Gikuyu language. These are vowel harmony, nasalization and tone. In Chapter Three and Four, Ki-Ndia lexical items are analyzed for each of these suprasegmental features. The analysis is guided by the objectives laid down in Section 1.2 of this study. In this chapter, a summary of the findings and the conclusions arrived at during data analysis is given. The chapter ends with a recommendation for further research.

#### 5.1 Summary of findings and conclusions

The first objective of this study was to investigate the nature of vowel harmony in Ki-Ndia dialect of Gikuyu language. This study establishes that Ki-Ndia exhibits both partial and complete vowel harmonies. On the one hand, verb stems with stative affixes (ek- and -εk-) and verb stems with applicative affixes (er- and -εr-) display partial vowel harmony. This type of harmony is root controlled in that the vowel in the root determines the vowel in the affix. On the other hand, demonstrative adjectives of proximity in Ki-Ndia display complete vowel harmony. This is because the vowel in the subject prefix is reduplicated in the demonstrative marker as seen in Section 3.1.3. In the study, the harmonizing vowels were seen to belong to either of the two vowel harmony sets. This suggests that vowel harmony in Ki-Ndia is phonologically determined.



However, it was found that vowels in many Ki-Ndia nouns and verbs are disharmonic in that, those specified for [+ATR] feature combine freely with those specified for [-ATR] feature without any discernible pattern. This kind of disharmony indicates that Ki-Ndia is not entirely a harmonic dialect. It displays harmonic tendencies only in verb stems with either the stative or the applicative affixes and in demonstrative adjectives.

The second objective of this study was to investigate nasalization in Ki-Ndia dialect of Gikuyu language. This study establishes that nasalization is a two-way assimilation process in the dialect. This is because vowels in nasal environments become nasalized either through progressive assimilation or through regressive assimilation processes. In progressive assimilation process, a vowel becomes nasalized if it is preceded by a nasal consonant while in regressive assimilation process, a vowel becomes nasalized if it is followed by a nasal consonant.

In this study, it was also established that in Ki-Ndia, vowels that precede or follow prenasalized consonants are nasalized. In Northern and Southern Gikuyu dialects, which represent standard Gikuyu, such vowels are not nasalized since prenasalized stops are produced as if the nasal in them was non-existent. This leads to the conclusion that nasalization is a major phonological process in Ki-Ndia, hence validating the second hypothesis of this study.

The third objective of the study was to find out the form of tone in Ki-Ndia dialect of Gikuyu language. To arrive at the dialect's form of tone, lexical tone patterns based on the number of syllables on different nouns and verbs were identified as follows.

Monosyllabic nouns:	H
Monosyllabic verbs:	H
Bi-syllabic nouns:	L, L-H and HLH
Bi-syllabic verbs:	H-L
Tri-syllabic nouns:	H, L-H, H-L and L-H -L
Tri-syllabic verbs:	L-H and L-H-L
Polysyllabic nouns:	H, $\textcircled{\text{L}}$ H and L - H - L
Polysyllabic verbs:	L-H-L

The identified tone patterns as seen above comprised mainly of level tones with few instances of contour tones as seen in bi-syllabic nouns which exhibit falling-rising (HLH) contour tones besides register tones. Language systems with such a combination of tones are referred to as “register tone systems with a slight overlap of contour-tone characteristics” (Pike 1948:12). Ki-Ndia is thus a register tone dialect with a slight overlap of contour tone characteristics.

### **5.3 Recommendation**

In the analysis of tone patterns in Ki-Ndia lexical items, tone was seen to distinguish between word meanings as seen in /írimò/ ‘giant’ and /írimó/ ‘fools’. It was also seen to distinguish between word categories such as nouns and verbs as in /ká:nà/ ‘deny’ and /kà:ná/ ‘baby’. An investigation into lexical and grammatical functions of tone in Ki-Ndia is thus recommended.

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