

✓ A PHONOLOGICAL DESCRIPTION OF THE  
SOUNDS OF LOWER KIPFOKOMO //

by

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ABSTRACT

This study is an attempt at an analysis and description of the sounds of the southernmost dialect of the Pfofokomo language. We have called this dialect, Lower Kipfofokomo (LK).

The opening chapter introduces the Wapfofokomo and their language. We give a classification of the Wapfofokomo into dialect groups and a short review of literature on the Wapfofokomo. Chapter Two is basically analytical. We determine the underlying sounds of the language from which surface segments are derived. Chapter Three discusses vowel length in LK. We classify vowel length into three categories: derived, emphatic and underlying. We also establish a set of five underlying long vowels. Chapter Four continues from where Chapter Two and Chapter Three left off. Here the processes that both consonants and vowels undergo, are discussed. The relationship between underlying and surface segments is shown to be natural or not and explanations are given on the failure of rules to apply despite their Structural Descriptions being met.

The final chapter, Chapter Five, summarizes our discussions of the four previous chapters. We also try to explain how this work could be useful to linguistic research and to society at large.

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SYMBOLS USED IN THE STUDY

<u>SYMBOL</u>	<u>DESCRIPTION</u>
p	voiceless bilabial stop
p <sup>h</sup>	voiceless aspirated bilabial stop
t	voiceless dental stop
t <sup>h</sup>	voiceless aspirated dental stop
t	voiceless alveolar stop
t <sup>h</sup>	voiceless aspirated alveolar stop
b	voiced bilabial stop
d	voiced dental stop
d	voiced alveolar stop
g	voiced velar stop
ɓ	voiced bilabial implosive
ɗ	voiced alveolar implosive
ɟ	voiced palatal implosive
tʃ	voiceless alveolar affricate
tʃ	voiceless palatal affricate
dʒ	voiced alveolar affricate
dʒ	voiced palatal affricate
ɸ	voiceless bilabial fricative
f	voiceless labio-dental fricative
s	voiceless alveolar fricative
ʃ	voiceless palato-alveolar fricative
h	voiceless glottal fricative
β	voiced bilabial fricative
v	voiced labio-dental fricative
ʒ	voiced inter-dental fricative



<u>SYMBOL</u>	<u>DESCRIPTION</u>
z	voiced alveolar fricative
ʒ	voiced velar fricative
m	voiced bilabial nasal
ɱ	voiceless bilabial nasal
ɱ̥	voiced labio-dental nasal
ɱ̥̥	voiceless labio-dental nasal
ɲ	voiced dental nasal
ɲ̥	voiceless dental nasal
n	voiced alveolar nasal
n̥	voiceless alveolar nasal
ɲ	voiced palatal nasal
ɲ̥	voiceless palatal nasal
ŋ	voiced velar nasal
ŋ̥	voiceless velar nasal
l	voiced alveolar lateral
r	voiced alveolar tap
ɾ̥	voiceless alveolar rolled liquid
w	labio-velar glide
y	palatal glide
i	short high front vowel
i:	long high front vowel
u	short high back vowel
u:	long high back vowel

<u>SYMBOL</u>	<u>DESCRIPTION</u>
e	short non-tense mid front vowel <sup>1</sup>
e:	long non-tense mid front vowel
o	short non-tense mid back vowel
o:	long non-tense mid back vowel
a	short low vowel
a:	long low vowel

<sup>1</sup>

Note that the typewriter symbols e and o are here used to represent the phonetic symbols [ɛ] and [ɔ] respectively.

## CHAPTER ONE

### 1.0. INTRODUCTION

#### 1.1. THE LANGUAGE AND PEOPLE

The language of our study is Kipfokomo<sup>1</sup>. The people are Wapfokomo (sing. Mupfokomo). The Wapfokomo are a Bantu speaking people classified by Guthrie in his Zone E Group 70. They belong to the Coastal Group of Kenya's Bantu languages. This is a group that comprises the Ilwana, the Wapfokomo, the Mijikenda and the Waswahili.

Oral historical accounts<sup>2</sup> have it that the Wapfokomo are not the indigenous people of the land they occupy now. The Duu and Kalindi<sup>3</sup>, for example, are recorded as migrating from a place near Lamu as a result of external pressure. This seems to corroborate the Chungwaya hypothesis. However, the same source, records the Upper Wapfokomo as the product of small, ancestral migrant groups. This conflicts with Möhlig's tentative hypothesis that from a linguistic point of view, the Wapfokomo could be argued to "have spread in the Tana-Valley from north to south". The idea here seems to be that the southermost group was the first to migrate from the source to its present area hence breaking contact with the proto-language for the longest period. While we shall not allow ourselves to go into the arguments involved, it is worthwhile pointing out that while the conservativeness of the dialects increases as we go up-river<sup>4</sup>, it is also the case that the lower Wapfokomo have for a long time had

contact with foreign linguistic and cultural influences. The Upper Wapfokomo on the other hand, for a long time, strongly resisted foreign influence.

The Wapfokomo occupy the Tana-River Valley between Masabubu in the north and Kipini in the south. Except in Lamu district where many Wapfokomo have settled, some permanently and Swahilized,<sup>5</sup> there are few Wapfokomo outside Tana River District on a migratory basis. This is mainly because, there has been no internal or external pressure<sup>6</sup> sufficient enough to create a dispersal.

Statistics for the 1969 Kenya Population Census, record the Wapfokomo at slightly above 35,000 (thirty five thousand). This figure, however, is far from being a reliable estimate of the population of the Wapfokomo. This is because the title "Pokomo-Riverine" used to classify the Wapfokomo also includes non-Pfokomo peoples like the Ilwana and the Korokoro.

The Wapfokomo are not a homogeneous group. There are two major groupings among the Wapfokomo, the Upper Tana Group<sup>7</sup> and the Lower Tana Group. The former refer to the latter as "Malanchini" i.e. 'people of down-river' while the latter refer to the former as "Wantu wa dzuu" i.e. 'people of up-river'. Through the years these two names have assumed derogatory meaning because these two peoples have never liked much of each other. These two terms therefore are not indigenous to the two peoples. In this work, therefore, we have chosen to avoid the use of "Malanchini" as the group name for the people

of down-river. We also find it difficult to use Möhlig's "dialecta-areal" naming pattern which for the Lower Wapfokomo would be 'Kwina-Kalindi'. While this would be quite appropriate for purposes of areal classification, it does sound clumsy linguistically as there is no such dialect in existence in Pfokomoni. We have therefore opted for the use of the term Lower Kipfokomo.

A somewhat historiographic review of the Wapfokomo linguistic groups may be necessary here. Denhardt 1884 records twelve dialect-groups of the Wapfokomo which he sub-grouped into four as given below:

- (i) Kalindi, Ngao, Engatana, Kwina
- (ii) Ndera, Gwano, Kinakomba, Ndura, Subakini, Malalulu
- (iii) Malakote
- (iv) Korokoro.

It seems unlikely that Denhardt used solely linguistic criteria in positing these four sub-groups. Prins (1952) quotes him as saying that these four sub-groups are "apparently culturally uniform among themselves." It is therefore possible that the fact of the four sub-groups sharing a common habitation namely the Tana River Valley, and a common occupation, that is farming, greatly influenced Denhardt's classification of these peoples into one linguistic unit. However, Denhardt, like all other linguists and historians were to do after him, observed that the Wapfokomo are not homogeneous, that there are Upper

and Lower Wapfokomo.

Kirungu, S.M. (1943/44) records twelve dialects of the Wapfokomo which he calls 'tribes'. Evidently, Kirungu's classification was not strictly linguistic either. His use of tribe, particularly with respect to the Lower Wapfokomo, refers to the clan groups, veeti (sing. keeti) which represent the largest corporate unit amongst the Wapfokomo. Kirungu classifies his twelve dialects into two in terms of 'Wantu wa dzuu' (Upper Wapfokomo) as in A and 'Malanchini' (Lower Wapfokomo) as in B as shown hereunder:

- A 1. Malalulu
- 2. Zubaki
- 3. Ndura
- 4. Kinankomba
- 5. Gwano
- 6. Ndera
  
- B 7. Mwina
- 8. Kulesa
- 9. Ngatana
- 10. Dzunza
- 11. Buu
- 12. Kalindi

Möhlig (1980) sub-groups A as follows:

- A 1. MALALULU
- II. ZUBAKI

III. NDURA-NDERA

- (i) Ndura
- (ii) Kinankomba
- (iii) Gwano
- (iv) Ndera

It is evident, therefore, that Möhlig also records Kirunga's twelve dialects of Kipfokomo which he sub-divides into four sub-units. Möhlig's complete classification of the dialects of Kipfokomo is as follows:

I. MALALULU

II. ZUBAKI

III. NDURA-NDERA

Ndura, Kinankomba, Gwano, Ndera

IV. MALACHINI

Mwina, Buu II, Kulesa, Ngatana, Buu I,  
Dzunza, Buu III, Kalindi.

This work will be limited to a study of the sounds of Möhlig's sub-unit 4, the Malachini sub-unit. However, for reasons already stated above, this sub-unit shall in this work be referred to as LOWER KIPFOKOMO (LK). It is therefore not an attempt to test Möhlig's classification.

We concede that there may be some apparent linguistic variations as one moves from Kalindi in the south to Mwina in the north of the LK sub-unit. We assume that these variations are minor and indistinctive at the phonological level as the author, a speaker of Kibus, does not notice any

differences. Lower Kipfokomo is in this work therefore, treated as a single dialect. However, for purposes of verification of our data, we find it convenient to point out that our field material was collected from Buu I and Buu III, specifically from Idsowe and Ngao villages.

## 1.2 STATEMENT OF THE PROBLEM

This study takes as its subject the sound system of Lower Kipfokomo. There have been a number of works in the fields of linguistics, history and anthropology, on the Lower Wapfokomo. Most of these studies, particularly those on language, were too subjective. The authors were missionaries more often than not, non-linguists who had learned the language through their missionary activity among the Lower Wapfokomo. Their aim was mostly to satisfy the need for grammar books for missionaries commissioned to the area and who therefore required some knowledge of Kipfokomo.

Kraft (1908) gives a short note on the sounds of the language. He mentions that there are five normal, five long and five half-long<sup>B</sup> vowels. He also gives a number of consonants which he describes according to the point of articulation on the vocal tract. It must be remembered that what he actually does here is to explain symbols in the orthography and what they stand for in the spoken language. We are given neither a phonemic nor phonetic chart. No explanations are advanced for the orthographic symbols given. The work is strictly speaking not phonological.



Meinhof (1905) is more informative even on Kipfokomo phonology. The work however, is mostly diachronic with Meinhof attempting to relate synchronic sounds of Kipfokomo with his Ur Bantu forms. He gives a list of Ur Bantu forms with corresponding forms in Kipfokomo as shown below:

k, t, p, r, l, v

k h f g(?) y(?) w

Meinhof also cites examples of this correspondence. For example Ur Bantu \*/k/ is found in such synchronic Kipfokomo forms as kana 'deny', mw-aka 'year'; Ur Bantu \*/t/ in such synchronic forms of Kipfokomo as -hahu 'third', huma 'send' and mahako 'buttocks', etc. He also explains that the present cl. 9/10 /n/ of Kipfokomo in such forms as [putʃi] 'honey bee' and [pungu] 'cooking pot' is the product of the palatalization of the Ur Bantu proto-prefix \*/ni-/ to /ɲ/. While Meinhof's assumption may be right from a diachronic point of view, our work will go a step further by trying to investigate the synchronic status of /ɲ/ in the language. Is ɲ still merely a phonetic instance of /n/? Has ɲ been phonemicised through stem re-analysis? In other words, has ɲ acquired a phonemic status? Evidence from the language will be presented in our attempt to describe the synchronic status and function of ɲ in LK.

Of interest also is Meinhof's assertion that Ur Bantu \*/l/ which occurs as /y/ in LK is lost intervocallically. It is difficult to assess Meinhof's classification of this

process with respect to time. We would think, however, that Meinhof's reference here is to a diachronic process, that Ur Bantu *l* which in some instances appears as /y/ in Lower Kipfokomo, is lost intervocalically in the same dialect. There are cases of a correspondence between Ur Bantu forms with intervocalic *y* which appears as a long vowel in Lower Kipfokomo as given below:

Ur BANTU	LK	GLOSS
vili	wii	two
ik-ala	kaa	stay
ɣulu	dzuu	above

However, such a correspondence does not always hold as in the case of Ur Bantu *-ila* which appears in LK as /iya/ 'weep'. This however, is beyond the scope of this work as we do not intend to investigate diachronic issues unless they are pertinent to our analysis and description of our findings.

Meinhof also makes synchronic observations on LK. These observations, however, suffer from the shortcomings of the time in the sense that processes are listed without being explained. He points out for example, that  $k \rightarrow tʃ$  before /e/ and /i/. Firstly, it is not true that the said process takes place before /e/. It actually only takes place before /i/. Secondly, the change  $k \rightarrow tʃ$  is caused, as we shall argue later (see 4.1.5), by the palatal glide *y* which results from *i* followed by

another vowel.

The vowels are given an even shorter treatment. We are told for example, that there are five vowels in Lower Kipfokomo. These are, i, u, e, o, a. Lexical items are given in which these vowels occur. However, no vowel processes are given.

Keinhof's work therefore, has severe limitations which only a new and fresh study of LK can overcome. We propose to do a synchronic study of Lower Kipfokomo. Our first task will be to set up underlying representations from which surface representations will be said to be derived. This kind of time-limited approach, makes it possible not to confuse synchronic with diachronic data. Our sound segments and processes will be those that are attested in the language to-day.

### 1.3 SCOPE AND LIMITATIONS

Our study will deal with the phonology, both consonantal and vocalic, of Lower Kipfokomo. While this study is primarily a synchronic one, we acknowledge that it may be necessary from time to time, to refer to diachronic information in our description and explanation of our findings. At such times therefore, we shall be obliged to overstep our synchronic limits in order to achieve descriptive adequacy.<sup>9</sup> We also note that generative linguistics does not rigidly separate diachronic from synchronic linguistics.

At the same time, in the analysis of our data and

description of our findings, we may find it impossible to use strictly phonological information. We shall in such cases allow ourselves the use of grammatical information. This need not therefore be seen as misinterpreting or extending the meaning of the term 'phonology' as generally used in the literature.

Whereas a complete phonological study of Lower Kipfokomo would be expected to include such topics as the syllable, morpheme structure conditions, stress, and even tone, we regret due to limitation of time and space, our inability to take up a work of such magnitude and necessary depth.<sup>10</sup>

#### 1.4 THE OBJECTIVES OF THE STUDY

This study attempts an investigation, analysis and description of the sounds of Lower Kipfokomo. The study therefore, is not an attempt to start where others left off but a new and fresh investigation of the sound structure of Lower Kipfokomo. As such, it is imperative that we state our objectives in advance as given below:

1. To investigate and set up underlying consonant and vowel sounds to which the surface representations will be related. The distinctive features which separate the surface from underlying representations will be shown through the use of distinctive feature matrices.

2. To investigate, describe and explain the processes that vowels and consonants undergo. These processes will be formalized into rules through which explanations on their naturalness or unnaturalness will be given.
3. It will be necessary to explain the nature and function of rules. What factors restrict the application of rules and why.
4. To examine the status and function of vowel length in Lower Kipfokomo. Is vowel length underlying?

#### 1.5 HYPOTHESES

For purposes of effective and proper analysis of our data, we put forward certain hypotheses to be tested in this study.

We hypothesize as given below:

1. That Natural Generative Grammar, less abstract and with highly constrained descriptive facilities, gives the more psychologically real description of the phonology of Lower Kipfokomo.
2. That underlying long vowels do exist in Lower Kipfokomo.
3. That some non-phonological information is necessary in the description of some of our processes.

4. That the syllable is, among other things, a semantically distinctive unit in L.K.

## 1.6 LITERATURE REVIEW

As far as we know, there is very little that has been done on Kipfokomo phonology. However, there are some works on Kipfokomo grammar that date as far back as the last century. Pertinent here are works by Ferdinand Wurtz (1888/89, 1889/90, 1895, 1896). In his first work, "Zur Grammatik des Ki-Pokomo," Wurtz gives the sounds of Kipfokomo which he calls "the alphabet." These are probably the phonemes of the language which include the five vowels /i, e, a, o, u/. It would be unfair to make strong criticisms concerning these segments as they could be simply orthographic forms. However, he distinguishes between an aspirated and non-aspirated /k/ although such a distinction does not exist in the language. On the other hand, he makes no distinction between the plosive /b/ and the implosive /ɓ/, nor does he distinguish between the dental /t/ and the alveolar /t/. The fact that these are merely orthographic symbols does not really matter as the distinction between these forms must of necessity be maintained even in the orthography in order to avoid confusion. The rest of the work is a classic traditional grammar with the writer classifying the language in paradigms of grammatical classes and categories. The work is essentially descriptive to the extent that phonologically related and alternating forms are shown as totally unrelated.

A case in point is the infinitive prefix /ku-/ in the verb stems /-enda/ and /-dza/, where the prefix appears as kw- with the first verb stem [kwenda] 'to go' and as ku- with the second one [kudza] 'to come'.

Wurtz (1889/90) "Kipokomo Worterverzeichnis" is an elementary Kipokomo-German dictionary. This is later followed by "Worterbuch des Ki-Tikuu und des Ki-Pokomo" in 1895. As the title would suggest, the work is a German-Kitikuu-Kipokomo dictionary. His final work "Grammatik des Pokomo" (1896) complements his earlier work of grammar. It follows the same pattern but this time exemplifies with longer sentences and even passages.

It is evident that these works were directed at the German missionary coming out to serve among the Wapokomo and therefore needed some knowledge of Kipokomo. These works therefore, did not need to be comprehensive nor scientific. As is to be expected they served their purpose by offering simple 'teach yourself' lessons in Kipokomo.

Tucker and Bryan (1957: 66-68) complements other works by the International African Institute. This organization sought to classify the languages 'between the Great Lakes and the Indian Ocean.' The work therefore, is an attempt to provide evidence for this classification. The only information we get from this work is that Kipokomo is a five vowel system. A consonant inventory is also provided for which neither justification nor explanation is given. Most important of all, we are not

told which dialect of Kipfokomo we are dealing with. It is apparent therefore, that this work is of little consequence as a study of Kipfokomo phonology.

A literature review of the linguistic studies on Kipfokomo would be incomplete without a mention of Hinnebusch (1973). However, this work is essentially classificatory and does not deal extensively with any of the sound systems of the languages in question. As Hinnebusch himself says in the introduction to the work, "it is primarily a historical study rather than a synchronic description," so it would be unfair to expect so much synchronic linguistics information except what would be necessary for his description.

This is not to say that Hinnebusch's work is irrelevant to our study. On the contrary we find some of the issues raised in his work quite challenging and important to our own analysis. One example is his arguments on palatalization. Hinnebusch argues that it is not the case that velar palatalization is the result of two processes: high-front vowel gliding followed by velar affrication but one process from /k/ to [tʃ]. His arguments stem from the fact that the coastal languages that Hinnebusch studied all took an either-or option with respect to velar palatalization. Either the velar in the prefix /ki-/ changed to [tʃ-] in suitable environments as exemplified by his Chonyi and Digo data, or it changed to /ky-/ as in Pemba or Kipfokomo. In other words, two rules are operating and languages choose one or the other, seldom both. This together with Hinnebusch's



analysis of glide formation, nasal devoicing and prenasalization are of interest to our study.

At this point we should perhaps point out that Hinnebusch's Kipfokomo data is taken primarily from an Upper Kipfokomo dialect namely Masalani. Data from Lower Kipfokomo is only used complementarily. We feel, however, that a linguistic study of Upper Kipfokomo and any conclusions arrived at would have some fundamental implications for Lower Kipfokomo and vice versa. In spite of the fact that Hinnebusch (1973) cannot be treated as a phonological study of Lower Kipfokomo nor indeed of any of the dialects studied, our work cannot disregard the statements made there.

### 1.7 THEORETICAL FRAMEWORK

This study will use Natural Generative Phonology (NGP) as a model of our description. NGP is a theory of phonology developed by Venneman and Hooper in rejection of the limitless abstractness allowed by Transformational Generative Phonology (TGP).

The theory of phonology proposed by Chomsky and Halle (1968) was criticised by many linguists as too abstract. Excessive abstractness that is, underlying representations too remote from the surface, make the theory incapable of making valid predictions as it is impossible to disprove or verify by surface data any claims made. Commenting on this, Vennemann (1972d) in his paper "On the Theory of Syllabic Phonology" says, "An Intelligent linguist can

express any grammatical process in any framework without loss of Generality." TGP therefore, had allowed for such unrestricted abstractness that weird rules and underlying forms are created to account for certain phonological processes.

The model of our description NGP, is constrained to the extent that underlying forms with no surface alternation are not allowed. This theory therefore, does not allow for absolute neutralization and rules must be transparent; in other words, they must relate one surface segment to another. This makes it possible either to verify or to disprove any statements made.

Our use of this theory therefore hopes to achieve true and verifiable descriptions and the rules posited are actually those operating in the language.

We feel obliged to point out that there are different theories of NGP proposed by different scholars. For purposes of this work, NGP will be as propounded by Hooper (1976) in her An Introduction to Natural Generative Phonology.

### 1.8 METHODOLOGY

The dialect to be studied is my first language. I shall therefore provide the primary data. However, since no speaker of language is the ideal speaker, I shall cross-check this information with informants, particularly marginal cases where it is difficult for me to tell whether it is one form or the other.

## 1. 9 SIGNIFICANCE OF THE STUDY

There are several ways in which this work could be significant.

Firstly general linguistic theory makes certain postulations about language. Our study could be a source of insight by either confirming or disproving some of the postulations of general linguistic theory. The theory of markedness is particularly important here with regard to the functional behaviour of sounds in the language.

Secondly we hope that this work will be useful by adding more information to the on-going Bantu studies. There have been some phonological comparative studies on the coastal Bantu languages for example, Hinnebusch (1973). However, we feel that such comparative studies should ideally start with the dialects and later languages, instead of starting with given proto-forms and working down-wards. This work therefore could be a source of background information for later comparative or even historical studies.

Thirdly, we hope that this work will alleviate the need for updated source materials in any future attempts to revise the orthography of LK.

While most works on LK recognize vowel length at the phonetic level, most writers assume that it (vowel length) is not a phonological phenomenon. Tucker and Bryan (1957) points out that "length is not significant." We, however, feel (as we shall argue later in Chapter III),

that length is distinctive and that if it is represented in the orthography of IK symbolically rather than diacritically as is the case at present, it would greatly reduce the difficulty faced by readers (particularly non-pfokomo) of IK.

FOOTNOTES

1. In most of the literature, the language has been referred to using the Swahili variant, 'Kipokomo'. In this work we use the indigenous form. The use of 'pf' is an orthographic attempt to capture the realization, voiceless, bilabial fricative. The name would phonetically be represented as: [kɪp̥ɔkɔmɔ].
2. See Kirungu, S.M. (1943).
3. The Buu and Kalindi are the southernmost sub-group of the Lower Wapokomo linguistic group.
4. See Heine and Möhlig (1980: 52).
5. This is documented by Bonaya, T.W. (1969: 155). Bonaya says that some of the Wapokomo who escaped from the Galla raids of the 16th Century settled in the Lamu Archipelago. They intermarried with the inhabitants there and constitute what are today the Bajun and Waticuu.
6. Also pointed out by Hiribae, S. (1980) in the narrower context of the Ndera. He says that "the issue of inter-ethnic identity has been overstretched by historians."
7. Also used by Bonaya (1969) though not quite in the sense we will use it here. Lower Tana Group and Upper Tana Group are here used to mean the Lower Wapokomo group and the Upper Wapokomo group respectively.
8. Kraft's half-long vowels probably refer to the lengthening of vowels in single syllable (CV) morphemes.
9. This term has been used by Chomsky in his definition of grammars. A grammar is descriptively adequate if it

9. "correctly describes" the intrinsic competence of the idealized native speaker "(1965: 24).
10. Kipfokomo is not a tone language.

## CHAPTER TWO

### 2.0 THE UNDERLYING SEGMENTS

In this chapter we discuss the underlying segments. The underlying segments are systematic phonemes. We feel that they are important in a work of this kind because they provide the input for our rules. The output will be systematic phonetic segments. Our rules on phonological processes (Chapter 4), will derive phonetic segments from underlying ones. In spite of this fact, our underlying segments will not necessarily be different from their phonetic correspondents. This is because the theory of phonology that we are using as a model for this work, has a constraint to the effect that, "all rules express transparent surface generalizations" (see Hooper 1976: 13). Each underlying segment posited therefore, has a surface realization.

This chapter will have two major sections. The first major section will be on consonants. For purposes of a simple classification, the term consonant must be understood here to mean all [+ consonantal] segments plus the glides which are strictly speaking neither consonants nor vowels.<sup>1</sup> As is to be expected, the glides in Lower Kipfokomo alternate with both vowels and consonants.<sup>2</sup> However, unlike vowels glides cannot carry the feature [+ syllabic]. In other words, a glide cannot like a vowel be the peak of a syllable. They on the other hand like consonants, often carry the

onset of a syllable. This explains why the term consonant will in this work also include glides. The second major section will be on vowels. The term vowel must not be confused with vocalic but must be seen to mean only those segments which in distinctive feature theory are represented as [+syllabic]. It must be noted that in Kipfokomo only vowels, that is, [-consonantal, +vocalic] segments can carry a syllabic peak.

In our attempt to account for the underlying segments of LK, we will use the criterion of underlying morpheme.<sup>3</sup> In other words, all segments that occur in underlying morphemes, will be hypothesized as being themselves underlying. The criterion of underlying morpheme, will be used both in our attempt to posit underlying consonants and underlying vowels. This method has also been used by Mberia (1981).

#### 2.1.0 THE CONSONANTS

##### 2.1.1 THE PLOSIVES

There are two sets of plosives: the voiceless series /p, t, t, k/ and the voiced series /b, d, d, g/. The alveolar stops are the most infrequent in occurrence. In other words, there are very few lexical items which contain the alveolar stops.

d is particularly interesting in that all occurrences of it that I am aware of are post-nasal. Post-nasal d can also result from either of three sources: underlying /y/, /l/ and /d/. For example, /yeya/ 'long' becomes [ndeya] cl. 9/10, /yomba/ 'beg' becomes [ndomba] cl. 9/10,



/dodo/ 'small' becomes [ndodo] cl. 9/10 and /yulonaē/ 'spear shaft' becomes [ndonae] cl. 9/10.

However, there are several cases of post-nasal d in which we can not determine the source to be y, l, or f. This is primarily because of lack of alternating forms. Thus the d in funda 'advise' cannot justifiably be shown to be a surface form of underlying /y/, /l/ or /f/ as the surface segment [d] neither alternates with /y/, /l/ nor /f/. Nor can post-nasal d be argued to be a surface form of underlying /d/ as the two segments never alternate in the language.

The root of the word funda also occurs in Kiswahili with the meaning 'teach'. Could LK have borrowed the word from Kiswahili? The use of the word in LK is, so to say, ritualistic - associated with birth, marriage and death ceremonies. That it could have been borrowed, seems most unlikely. Examples of names of parts of the body are [ŋkundi] 'kidney' and [ɸfunda] 'check'. Most evidently, d is not borrowed.

The case of t is similar to that of d. Like d, it has the highest occurrence in post-nasal position. It is found in such common Bantu nominal stems like -ntu 'person or thing'. LK examples are [muntú] 'person', [kintú] 'thing', [ɸaptú] 'place', etc. It is evident that t is not derived and nor is it borrowed.

Since some of the occurrences of both t and d can not justifiably be shown to be derived from any other segments,

we submit that in these instances, /t/ and /d/ are underlying. The underlying plosives are illustrated by the examples below:

1. /pa:/ — [pa:] 'roof'
- /ntupa/ → [nt̥upa] 'bottle'
- /tata/ — [tata] 'bed'
- /tara/ — [tara] 'think'
- /muntu/ → [munt̥u] 'person'
- /ka:/ — [ka:] 'sit'
- /kenta/ → [kent̥a] 'cut'
- /nkundi/ → [nk̥undi] 'kidney'
- /nfunda/ → [nf̥unda] 'check'
- /baba/ — [baba] 'father'
- /ba:/ — [ba:] '(be) fat'
- /dura/ — [dura] 'first'
- /maɖa/ — [maɖa] 'injury'
- /gɛgo/ — [gɛgo] 'tooth'
- /gidzɔ/ — [gidz̥ɔ] 'hold'

The voiced plosives have one realization each at the phonetic level, that is, [b, d, d, g]. The voiceless plosives are realized as aspirated post-nasally. They therefore have two surface realizations that is, [p<sup>h</sup>, t<sup>h</sup>, t<sup>h</sup>, k<sup>h</sup>] post-nasally and as [p, t, t, k] in syllable initial position. At post-nasal position, /p, t/ and /d/ merge with /ɸ, h/ and /d/ respectively (see 4.1.2).

### 2.1.2 THE IMPLOSIVES

There is one set of implosives in IX. These are /b, d, ɗ/. These segments occur in the bilabial, alveolar and palatal regions. The voiced palatal implosive has in this work been represented as ɗ.

The alveolar implosive d (like k and n which are palatalized to ɗ and ɲ respectively), is palatalized to ɗ. This is to say that d merges with ɗ at the phonetic level (see 4.1.5).

While the historical possibility of ɗ resulting from the palatalization of d followed by i and another vowel may not be ruled out, there are data to show that at the synchronic level, there are instances of ɗ which cannot be shown to alternate with d in any way. In the forms ɗufo 'trouble' and ɗine 'stone' the voiced implosive ɗ cannot be shown to alternate with d or any other segment except ɗ. In these instances we are justified in setting up /ɗ/ as the underlying representation which then surfaces as [ɗ]. The following examples illustrate the voiced implosives:

- 2. /ba:/ — [ba:] 'tear'
- /kuba/ — [kuba] 'bunch'
- /dumi/ — [dumi] name of a place
- /ndudu/ — [ndudu] 'hearsay'
- /ɗura / — [ɗura] 'fool, foolish'
- /ɗufo/ — [ɗufo] 'trouble'
- /ɗini/ — [ɗini] 'error'

There is no velar implosive to correspond to the velar plosive *g*. This asymmetry must be seen as the result of an accidental gap.

The plosivization rule (see 4.1.4) only affects underlying *b* and *d*. The surface form of the palatal implosive affected by this rule is derived from *d*. This phenomenon for us, shows the historical relationship between underlying *f* and *d*. It does not prove that all synchronic surface occurrences of *f* are derived from underlying *d*.

The palatal implosive has one realization at the surface level. The bilabial and alveolar implosives on the other hand have at least two realizations each at the phonetic level. As [ *b, d* ] syllable initially and as [ *b, d* ] post nasally. /*d*/ has a third realization as [ *f* ] when it occurs before *i* followed by another vowel. For example, /*diangu*/ → [ *fangu* ] cl. 5.

### 2.1.3 THE AFFRICATES

There are two sets of affricates in LK: a voiceless set /*ts, tʃ*/ and a voiced set /*dz, dʒ*/. *ts* and *dz* are alveolar while *tʃ* and *dʒ* are palatal. Both sets of affricates have single realizations at the surface level [ *ts, tʃ* ] for the voiceless set and [ *dz, dʒ* ] for the voiced set.

The position of the palatal affricates is a bit

controversial particularly because there are no corresponding palatal stops. This situation is aggravated by the fact that while the plosivization rule (see 4.1.4) changes the bilabial and alveolar implosives to the bilabial and alveolar plosives respectively, the same rule changes the palatal implosive to the palatal affricate. One, therefore, wonders whether  $tʃ$  and  $dʒ$  are truly affricates.

We represent  $tʃ$  and  $dʒ$  as affricates because they are phonetically closer to affricates than stops. At the same time, at post nasal position, the segment  $tʃ$  does not, like other voiceless stops aspirate. The change of  $tʃ$  to  $dʒ$  is probably due to the fact that LK has no palatal stops and the voiced affricate  $dʒ$  is the nearest alternative to the missing voiced palatal stop. The speaker of LK does not distinguish between the palatal stops and their corresponding palatal affricates in the same way that the native speaker of Kikuyu does not distinguish between  $l$  and  $r$ .

We justify positing these affricates as underlying on the grounds that they occur in underlying morphemes as shown by the examples below:

3. /tsana/ - [ tsana ] 'river'
- /fitʃa/ - [ fitʃa ] 'hide'
- /tʃaro/ - [ tʃaro ] 'journey'
- /latʃa/ - [ latʃa ] 'search for'
- /dʒuu/ - [ dʒuu ] 'high, up'

/madzi/ - [madzi] 'water'  
 /dzara/ - [dzara] 'be old'  
 /idzi/ - [idzi] 'egg'

The distinction between the alveolar affricates and their corresponding fricatives is neutralized with [tʃ] and [dʒ] surfacing at post nasal position. In this respect, the initial NC clusters in /ntʃeo/ 'winnowing trays' (sing. yutʃeo) and /nsoho/ 'breath' (from the verb soha) are in both cases realized with an initial nasal followed by affricate to give [ntʃeo] and [ntʃoho] respectively.

There is no voiced palatal fricative hence the neutralization rule does not affect the voiced palatal affricate. While there is a voiceless palatal fricative, the SD for the neutralization rule is not met with respect to this segment. Hence, tʃ and ʃ do not neutralize. On the other hand dʒ neutralizes with z at post nasal position in such forms as [dʒungu] 'pumpkin' and [ndʒungu] 'pumpkin seeds'. Where-as [ziho] 'heavy' cl. 5 but [ndziho] cl. 9.

In the case of the alveolar fricatives the following rule can be given to represent the affrication process.

$$4. \quad \begin{array}{c} \text{C} \\ \left[ \begin{array}{l} + \text{ ant.} \\ + \text{ cor.} \\ + \text{ cont.} \end{array} \right] \longrightarrow \left[ \begin{array}{l} - \text{ cont.} \\ + \text{ del. rel.} \end{array} \right] / \left[ \begin{array}{l} + \text{ nasal} \\ + \text{ ant.} \\ + \text{ cor.} \end{array} \right] \text{ ---} \end{array}$$

That is, an alveolar fricative becomes affricate when it occurs after the alveolar nasal.

#### 2.1.4 THE FRICATIVES

The fricatives form a larger class than any of the other consonant types. The voiceless fricatives are / $\text{f}$ ,  $\text{s}$ ,  $\text{h}$ / and the voiced ones are / $\text{v}$ ,  $\text{ð}$ ,  $\text{z}$ ,  $\text{ɣ}$ /.

The case of  $\beta$  is interesting because it does not occur word-initially. As a result of this, earlier linguists analysed  $\beta$  as a phonetic reflex of  $v$ . There are no instances, however, in which  $\beta$  alternates with  $v$  in LK no does it like  $\text{p}$  which alternates with  $b$ , alternate with  $b$ . This is because, there are no cases where  $\beta$  occurs post-nasally. By this we mean that since  $\beta$  does not occur word-initially, there can be no instances where the class 9/10 prefix  $n$ -preceeds it. However, minimal pairs can be cited which show that  $\beta$  is not a phonetic reflex of either  $b$  or  $v$ . For example, [diba] 'bride price' versus [di $\beta$ a] 'intrigue', and [keva] 'hate' versus [da $\beta$ a] 'be wrong'. It seems certain therefore, that  $\beta$  is not a surface realization of  $b$  nor is it of  $v$ . / $\beta$ / is therefore underlying and has only one surface realization, [ $\beta$ ].

The case of  $\gamma$  is less controversial. However, like  $\beta$ ,  $\gamma$  has no post-nasal alternation in that it does not occur in morphemes in which it can be preceded by the class 9/10 prefix  $n$ -.  $\gamma$  does not alternate with  $g$  nor with any other segment and in fact the two, ( $\gamma$  and  $g$ ) can occur in analogous environments, for example, [du $\gamma$ a] 'apply (medicine etc.) to skin' versus [kuga] 'disagree'.

There are no corresponding voiceless segments to  $\delta$  and  $\gamma$ , and neither is there a voiced counterpart for  $\int$ . This, however, is a case of accidental gap. The whole set of fricatives occurs in underlying morphemes as shown.

5. / $\phi a:$ /	-	[ $\phi a:$ ]	'top part of skull'
/ $i\phi a$ /	-	[ $i\phi a$ ]	'pay'
/ $funda$ /	-	[ $funda$ ]	'advise'
/ $fufa$ /	-	[ $fufa$ ]	'bone'
/ $simo$ /	-	[ $simo$ ]	'hole'
/ $mosi$ /	-	[ $mosi$ ]	'smoke'
/ $\int ada$ /	-	[ $\int ada$ ]	'praise'
/ $-ja\int a$ /	-	[ $-ja\int a$ ]	'drizzle'
/ $hwa$ /	-	[ $hwa:$ ]	'take'
/ $uha$ /	-	[ $uha$ ]	'bow'
/ $da\beta a$ /	-	[ $da\beta a$ ]	'start'
/ $d\int a\beta a$ /	-	[ $d\int a\beta a$ ]	'hardworking'
/ $vara$ /	-	[ $vara$ ]	'shuffle'
/ $keva$ /	-	[ $keva$ ]	'hate'
/ $\delta upa$ /	-	[ $\delta upa$ ]	'fat' n.
/ $vo\delta a$ /	-	[ $vo\delta a$ ]	'be light' v.
/ $mwazi:$ /	→	[ $mwazi$ ]	'blood'
/ $zama$ /	-	[ $zama$ ]	'submerge'
/ $\delta u\gamma a$ /	-	[ $\delta u\gamma a$ ]	'truc'
/ $mw\delta o\gamma ola$ /	→	[ $mw\delta o\gamma ola$ ]	'shin'

/  $\phi$ ,  $\delta$ ,  $s$ ,  $z$ ,  $h$  / have got two realizations each, as [  $p^h$ ,  $d$ ,  $t_s$ ,  $\delta$ ,  $t^h$  ] post-nasally and as [  $\phi$ ,  $\delta$ ,  $s$ ,  $z$ ,  $h$  ]



syllable initially. /β, f, v, ʃ, ʒ/ have one realization each, that is, [β, f, v, ʃ, ʒ]. At post nasal position, β and h merge with p and t respectively (see 4.1.2). In the same environment, s and z neutralize with ts and dz respectively (see 2.1.3).

#### 2.1.5 THE NASALS

The question of underlying nasals is the most controversial in LK phonology. However, we submit that the underlying nasals of LK are /ɱ/, /n/ and /p/.

One may very well argue that p is not underlying but is simply a phonetic reflex of n followed by i and another vowel. Such an argument cannot be overlooked as it has long been argued that the source of the palatal nasal is the palatalization of the alveolar nasal n in the proto-Bantu prefix \*{ni-} in vowel initial nominal stems. This hypothesis is strengthened further by the fact that the process of n-palatalization is still found in the synchronic grammars of various Bantu languages. The Coastal Kenya Bantu languages (LK included), are no exception to this rule (see Hinnebusch 1973: 86). In this respect, we can by no means justifiably deny the historical relationship that exists between n and p.

In spite of this, some occurrences of p cannot from a synchronic point of view, be said to be reflexes of underlying p. This is so because there exists no surface alternation that would point to such a relationship in the synchronic grammar of LK. In such cases as {mpu} 'salt' for

example,  $\mu$  is intervocalic. The processes of homorganic nasal assimilation and palatalization could not possibly have taken place to produce  $\mu$ . This is because homorganic nasal assimilation applies to sequences of a nasal and consonant. Similarly, no alternation in the form of [m $\mu$ u] exists that would show that there might have been an  $i$  in between  $\mu$  and  $u$ . In the case of  $\mu$ u therefore,  $\mu$  is underlying.

The process of Homorganic Nasal Assimilation takes place at morpheme initial position (see 4.1.1 for fuller discussion). In this case the proto-Bantu prefix \*ni- which appears in LK as class 9/10 n- assimilates to the point of articulation of the following consonant.

This situation is not so straightforward at word-medial position. It is difficult, for example, to tell the source of the nasal in such forms as [kon $\mu$ o] 'spittle' and [kan $\mu$ ka] 'husk'. And yet the nasal in the two words is homorganic to the consonant that follows it.

One way of resolving this problem is by arguing that at word-medial position, the nasal occurring in homorganic NC clusters is underlying. However this would be undesirable firstly because these nasal consonants (that is, morpheme-medial  $m$ ,  $n$ ,  $\mu$  and their voiceless counterparts), do not occur anywhere else except at pre-consonantal position. Noting that in all cases of NC clusters in LK, the nasal is homorganic to the following consonant, we would be missing an important generalization if we argued that morpheme-medial

NC clusters are different from those in morpheme-initial position. In other words, that the morpheme-medial nasal in [hɔŋge] 'lump of food', is different from the initial nasal in [ŋɔo] 'type of fish' in the sense that the former nasal is 'underlying' while the latter is derived.

The fact that both morpheme-initial and morpheme-medial NC clusters constitute homorganic segments, points to their phonological unity and hence to the inadequacy of the analysis given above. We would like to propose an analysis in which unity between morpheme-initial and morpheme-medial NC clusters is not totally ignored or even overlooked. In this analysis, we will use Hooper's concept of archi-segment.

The concept of archi-segment was introduced into Natural phonology by Joan Hooper (1975) in her paper entitled "The Archi-Segment in Natural Generative Phonology" (Language Vol. 51 No. 3). Hooper introduces the notion in order to overcome problems associated with underlying forms and the unempirical distinction between lexical redundancy rules and phonological rules.

This model proposed by Hooper is less restrictive than Vennemann's with the Strong Naturalness Condition in that it does not require one of the surface allomorphs as the underlying morphemes but allows the underlying form of an alternating morpheme to be a composite of actually occurring surface segments. With regard to non-alternating morphemes, the underlying forms are identical to their surface forms "except that all naturally derivable-redundant features have been removed"

(Hooper 1975:555). This is to say that underlying contrasts are "those contrasts found on the surface" (Hooper 1975:555).

We apply this archi-segmental analysis in consideration of the peculiar situation pertaining to the nasals in LK. In LK, the nasal in NC clusters in the syllable type \$ NCV \$ is not only homorganic in, point of articulation, but also homorganic in voicing to the following consonant. Nasal homorganicity is a reductive process which ultimately leads to nasal-devoicing and nasal loss in cases where the consonant in the NC cluster is voiceless (see Hinnebusch 1973: 137). Homorganic Nasal Assimilation and Nasal Devoicing must therefore be seen as closely related processes.

The situation in LK is complicated by the fact that there exist on the surface, non-alternant forms in which either homorganic nasal assimilation alone or together with nasal devoicing have applied. In these cases, the NC cluster is morpheme-medial and there are no alternating forms to tell us the source of the nasals. The situation is worsened further by the fact that some of these nasal consonants never occur in isolation. This makes it difficult to argue that although  $n_j$ ,  $\eta$  and  $\eta$  including their voiceless counterparts are only found in homorganic NC clusters, they still occur in the functional system of LK. The speaker of LK does not articulate any of these sounds singly, nor does he distinguish between them and pre-consonantal  $n$ .

It would seem therefore that a realistic solution to the nasals in LK is one which recognized the functional

unity between morpheme initial and morpheme-medial NC clusters. And yet Vennemann's Strong Naturalness Condition, strongly rejects such an analysis because of lack of alternating forms.

Hooper's archi-segmental analysis is less restrictive as it requires that an underlying contrast must also be a surface contrast. In the case of IK nasals while surface contrast only obtains for word-initial NC clusters, we have already shown that morpheme medial NC clusters are similar to morpheme-initial ones and require the same analysis. The surface contrast in stem-initial NC clusters is phonetically motivated and is derivable by unordered rules. Since the processes governing stem-initial and stem-medial NC clusters are the same (except that in the former case the rules are still generative, while in the latter case they are not), we propose the same analysis for the two of them. /n/, from which the homorganic nasal in stem-initial NC clusters is derived, will also be considered underlying for stem-medial NC clusters.

The choice of n as the archi-segment that underlies the nasal in stem-medial NC clusters is strengthened both by theoretical assumptions and by practical facts of the language. Only n alternates with all other nasals. The choice of n therefore as underlying stem-medial NC clusters is verified by the rules of IK. The underlying nasals of IK are as exemplified below:

6. /mama/ — [mama] 'mother'  
/moho/ — [moho] 'fire'  
/nona/ — [nona] 'be fat'  
/honvu/ → [hoŋvu] 'tree gum'  
/sanda/ → [sanda] 'burial cloth'  
/nundu/ — [nundu] 'bat'  
/-indzi/ → [-iŋdzi] 'many'  
/nkonko/ → [ŋkonko] 'seed'  
/mapu/ — [mapu] 'salt'  
/hanga/ → [hanga] 'cucumber'

With the exception of /n/, /m/ and /p/ have one surface realization each, that is, [m] and [p]. /n/ has through the process of homorganic nasal assimilation (4.1.1.), twelve surface realizations. These are [m, ɱ, ɱ̥, ɱ̥̥, ɱ̥̥̥, ɱ̥̥̥̥, ɱ̥̥̥̥̥, ɱ̥̥̥̥̥̥, ɱ̥̥̥̥̥̥̥, ɱ̥̥̥̥̥̥̥̥, ɱ̥̥̥̥̥̥̥̥̥]. In this respect, /n/ merges with both /m/ and /p/.

#### 2.1.6 THE LIQUIDS

There are three liquids in the language. The lateral /l/ and the more frequent tap /r/ can occur in analogous environments. A voiceless rolled /r̥/ is also attested in a highly limited set of lexical items.

The voiceless r̥ is rolled and is produced with an ample flow of air. This is probably the reason why Köhlig (1981) represents this sound as [hr]. In this work, we symbolise this voiceless r̥ as simply [r̥].

This is not to be misconceived as a disregard of the 'aspiration' factor in the production of the sound but rather that it is simpler and more conveniently handled as a single symbol.

The voiceless  $\underset{\cdot}{r}$  is prevalent in Kimalalulu, the northernmost dialect of Kipfokomo. It would therefore be tempting to argue that this sound is a borrowing from the Kimalalulu dialect. The geographical distance between the two peoples and the rare, if any, contact between the LK group and the Wamalalulu, suggest otherwise. It seems more agreeable to suppose that the sound is a disappearing form carried over from the proto-language during the migration of the LK group to their present habitation. Data from other dialects of Kipfokomo confirm this as the frequency of the sound  $\underset{\cdot}{r}$  increases as we move up-river.

Present Kimalalulu  $\underset{\cdot}{r}$  corresponds to h in LK. There is, however, no surface alternation between  $\underset{\cdot}{r}$  and h in LK. The relationship between  $\underset{\cdot}{r}$  and h in LK is therefore, strictly historical. This position would be supported by Möhlig's hypothesis that as one moves up-river, every dialect is the proto-form of the one just below it (Heine and Möhlig 1981:52). We concede, however, that further research is necessary.

Whatever the status of  $\underset{\cdot}{r}$ , it is, together with the alveolar tap r and the lateral l part of the competence of the average speaker of LK. /l/, /r/ and / $\underset{\cdot}{r}$ / are described as underlying on the basis of the fact that they

can be found to occur in underlying morphemes. The following data illustrate this:

7. /latʃa/	-	[latʃ a]	'search (for)'
/lo:/	-	[lo:]	'fishing hook'
/mali/	-	[mali]	'wealth'
/reβa/	-	[reβ a]	'hurry' v.
/runwi/	-	[runwi]	'chameleon'
/ɾiʃa/	-	[ɾiʃa]	'gnash (teeth)'
/tʃ aro/	-	[tʃ aro]	'journey'
/ɾikiɾi/	-	[ɾikiɾi]	'water melon'
/irika/	-	[irika]	'(be) hungry'

Both /r/ and /ɾ/ have only one realization at the surface level, that is, as [r] and [ɾ] respectively.

/l/, however, has through the process of continuant strengthening (see 4.1.2), two realizations at the surface level, namely as [d] post-nasally and as [l] elsewhere. In the post-nasal position, /l/ merges with /y/, /ɲ/ and /d/ which also become [d] in the same position (see 2.1.1.).

/r/ and /ɾ/ never occur post-nasally and as such never have the chance to strengthen.

### 2.1.7 THE GLIDES

There are two glides in IK: the labio-velar glide /w/ and the palatal glide /y/. Glides can originate from any of the following sources:-



- (i) that the glide is underlying,
- (ii) that the glide is derived from the appropriate high vowel through the process of glide formation (see 4.1.2),
- (iii) that the glide is epenthetic.

In LK, the two high vowels /i/ and /u/ often glide to /y/ and /w/ respectively through the process of glide formation. The resultant glide is, in this case, derived and would not appear in the lexicon. Glide formation takes place under specified conditions for example, the gliding vowel must not precede an identical vowel.

Glides often result from the process of epenthesis. In LK this is particularly noticeable in verbs with roots of the type CV and in verbs which have taken derivational suffixes. In these cases, the vowel of the verb root or derivational suffix, when it is followed by the final vowel -a, epenthesis of a suitable glide takes place and the vowel cluster is broken. The condition, as is the case with the glide formation rule, is that the two vowels do not share the same vowel height. An interesting feature of this process is that only an -oa is epenthesized by w; an -ua sequence is epenthesized by y and so are the sequences -ia and -ea. The following examples illustrate.

- 8. /ɸia/ - [ɸiya] 'give for'
- /tsekea/ - [tsekeya] '(be) happy'
- /nuʌ/ - [nuya] 'remove'
- /ɸoa/ - [ɸowa] 'cool'

The forms in (8) are given as having no glide underlyingly because in each case, the glide alternates with  $\emptyset$  for example, in cases where an added suffix ends in a consonant. Hence, tsakeya but tsakean 'make happy', nuya but nusa 'make move'.

Barnitz (1974) has defined phonological epenthesis as "the result of non-synchronous articulatory movements in transition between one sound to the next." A similar view is also expressed by Heffner (1950). Heffner also points out that such excrement sounds often develop into regular speech sounds. Heffner, could in other words be understood from a generative point of view, as saying that these intrusive sounds could become phonemic in the sense that the regular form of the word comes to include what was initially only an occasional, intrusive sound.

The situation in LK seems to be developing into exactly this: that excrement glides are in the process of becoming underlying. This hypothesis is strengthened by the fact that speakers of LK do not seem to distinguish between epenthetic and underlying glides. The speaker of IK would articulate /nua/ as [nuya] 'remove' whether in fast or slow speech. By this criterion, IK glide insertion, is certainly different from the English replacement of d with b in good pen realized as [gubpen] in 'connected speech' (Gimson 1970:294).

A solution that posits underlying glides for the examples in (8) would, however, be unsatisfactory because

we would not be able to explain why this particular glide is lost when the added suffix ends in a consonant and hence the word order is of the type CVCV.....

To argue that a CGV sequence is not tolerated in LK would not be upheld by the facts of the language. In fact a CGV sequence is more tolerable than a WV one to the extent that WV sequences are broken through the processes of glide formation (see 4.2.1) and glide insertion. There are ample examples in the language that show that a CGV sequence is very tolerable as shown by the examples below:<sup>4</sup>

- 9. /ɸya/ - [ɸya] 'burn'
- /mico/ - [mɸoo] 'soft'
- /vya/ - [vya:] 'give birth'

It would seem therefore, that the glides in (8) are what Heffner has called "adventitious sounds produced in the transitions from one speech sound to the next in the speech configuration." In other words, the glides in (8) are the result of the asynchronism in the articulation of two successive vowels. This would explain why vowels sharing the same articulatory features (identical vowels) do not epenthesize. The rule of glide insertion is given below:

$$10. \ \emptyset \longrightarrow \left[ \begin{array}{l} - \text{ cons.} \\ - \text{ voc.} \end{array} \right] / \left[ \begin{array}{l} + \text{ syll.} \\ - \text{ low} \end{array} \right] \longrightarrow \left[ \begin{array}{l} + \text{ syll.} \\ + \text{ low} \end{array} \right]$$

condition: If the first vowel is o, then  $\emptyset \longrightarrow w$ .

While we do not intend to do an exhaustive discussion of glide epenthesis in LK, we would like to point out that

there is no free variation between epenthesized forms and non-epenthesized forms. In other words, all vowel sequences of the type [-low, +low] in LK carry an epenthetic glide.

Apart from neutralising the articulatory asynchrony between two successive vowels, it could be argued that glide epenthesis, like glide formation and vowel assimilation, fulfills the function of breaking up vowel clusters and consequently simplifying syllable structure. An epenthetic glide would therefore alter a word-level syllable structure from the form CV \$ V to the simpler form CV \$ CV.

Whether epenthetic glides are developing into "regularly recurrent speech sounds" (Heffner, 1950: 181), would be interesting to know. At the moment, however, we maintain that epenthetic glides are a surface manifestation and hence are not underlying. This analysis is corroborated by the fact that the epenthetic glide alternates with  $\emptyset$  in certain other surface manifestations of the same morpheme for example,

11. /  $\emptyset$ oa/  $\longrightarrow$  [  $\emptyset$ owa ] 'cool'

but [  $\emptyset$ oaa ] 'make cool'.

In (11), when the verb-root  $\emptyset$ o- takes the causative suffix -a, the glide does not surface. This shows that w is not an inherent constituent of the verb root.

In certain cases, however, glides have to be classified

as being underlying. In these cases, it is not possible for one to say that the glide has been derived. The glides in (12) for example, cannot be said to be derived because none of the words has an alternant form in which the glide has a  $\emptyset$  manifestation. In other words the glides can be said to occur in underlying morphemes and hence are themselves underlying. The underlying glides are exemplified as shown:

12. /dzuwa/ - [dzuwa] 'sun'  
/wingu/ - [wingu] 'cloud'  
/wanga/ - [wanga] 'ache'  
/wa-/ - [wa-] cl. 2 prefix  
/yomba/ - [yomba] 'pray'  
/yea / - [yeya] 'bring'  
/kuye/ - [kuye] 'far'

Glides in LK usually occur syllable initially. In the case of consonant clusters, they always occur as the last segment of the syllable onset.

The glides /y/ and /w/ have two realizations each at the phonetic level, that is, as [d] and [b] respectively when they occur after nasals and as [y] and [w] when they occur in other environments. At post-nasal position /y/ and /w/ merge with /l/, /ɖ/, /d/ and /b/, /b/ respectively (see 2.1.6).

### 2.1.8 THE CONSONANT CHART

In sections 1 - 7 of this chapter, we discussed the sounds of the language and presented arguments for the establishment of certain forms as the underlying forms. In this section, we will present the findings of the previous sections on a phonemic chart.

Our consonant phonemic chart maps out systematic phonemes. In doing this we hope to be able to show the articulatory relations between the various segments. It would be easier for example, to see on a chart why there is phonetic convergence between  $\delta$  and  $\zeta$  or between  $\phi$  and  $p$ ; it would be easier to see why it is possible for the distinctiveness between  $t_s$  and  $s$  or  $d_z$  and  $z$  to be neutralized at post-nasal position.

The consonant chart will be based on a vertical axis to show the manner of articulation and the horizontal axis to show the place of articulation as shown below:

13.	p		t̥	t		k
	b		d̥	d		g
	β			f		
				ts		tʃ
				dz		ʒ
	ɸ	f		s	ʃ	h
	β	v	ð	z		ʒ
	m			n		ɲ
				r		
				lr		
	w					y

Alternations involving place of articulation are not very common in LK. What are more commonly attested are alternations involving manner of articulation.

While these alternations are more fully discussed in Chapter four, in this section, we will look at the distinctive features of each of the segments. In this respect, we will draw a feature matrix of all the underlying consonants of LK.

The use of distinctive features in a work of this kind is indispensable. While our consonant chart in (14) above only reveals individual consonant alternations within or across points of articulation, the use of features will reveal the comparative similarities in these processes. These comparative similarities are what identify certain

segment-groups as natural classes. It is an accepted fact of linguistics that "rules typically apply to classes of phonetically related segments ..." (Hyman 1975: 24).

Through the use of features, it will be possible for us to see not merely a  $\phi \rightarrow p$ ,  $l \rightarrow d$  alternation but to see this alternation in the more general sense of continuant strengthening (see 4.1.2). A table of the distinctive features of the consonants of LK is given below:



14. p b b̥ β m w l v t̃ ð ð̃ t d d̃ t s d̃ s z n l r i f h̃ ʒ̃ ʃ ɲ y k ʁ h

CONSONANT	VOCALIC	HIGH	BACK	ANTERIOR	CORONAL	VOICE	CONTINUANT	NASAL	IMPLOSIVE	DENTAL <sup>5</sup>	DEAFND RELEASE
p	-	-	-	+	-	+	-	-	-	-	-
b	-	-	-	+	-	+	-	-	-	-	-
b̥	-	-	-	+	-	+	-	-	-	-	-
β	-	-	-	+	-	+	-	-	-	-	-
m	-	-	-	+	+	+	+	+	-	-	-
w	-	-	-	+	+	+	+	+	-	-	-
l	-	-	-	+	+	+	+	+	-	-	-
v	-	-	-	+	+	+	+	+	-	-	-
t̃	-	-	-	+	+	+	+	+	-	-	-
ð	-	-	-	+	+	+	+	+	-	-	-
ð̃	-	-	-	+	+	+	+	+	-	-	-
t	-	-	-	+	+	+	+	+	-	-	-
d	-	-	-	+	+	+	+	+	-	-	-
d̃	-	-	-	+	+	+	+	+	-	-	-
s	-	-	-	+	+	+	+	+	-	-	-
d̃s	-	-	-	+	+	+	+	+	-	-	-
z	-	-	-	+	+	+	+	+	-	-	-
n	-	-	-	+	+	+	+	+	-	-	-
l	-	-	-	+	+	+	+	+	-	-	-
r	-	-	-	+	+	+	+	+	-	-	-
i	-	-	-	+	+	+	+	+	-	-	-
f	-	+	-	-	+	-	-	-	+	-	-
h̃	-	+	-	-	+	-	-	-	+	-	-
ʒ̃	-	+	-	-	+	-	-	-	+	-	-
ʃ	-	+	-	-	+	-	-	-	+	-	-
ɲ	-	+	-	-	+	-	-	+	-	-	-
y	-	+	-	-	+	-	-	-	-	-	-
k	-	+	+	-	-	+	-	-	-	-	-
ʁ	-	+	+	-	-	+	-	-	-	-	-
h	-	+	+	-	-	+	-	-	-	-	-

This feature matrix makes certain revelations to our analysis: that rules do not operate on individual segments but on classes of segments. An example of this, is the change of the fricatives /  $\int$ ,  $\delta$ , w, y, h, l / to the stops [  $p^h$ ,  $d$ , b, d,  $t^h$ , d ]. Our feature matrix reveals that all the fricatives carry the phonetic feature [ +continuant ] whereas all the stops carry the feature [ -continuant ]. The fricatives therefore, could be said to form a natural class. This rule of stop formation could be written as:

$$15. \begin{bmatrix} \int \\ \delta \\ w \\ y \\ h \\ l \end{bmatrix} \longrightarrow \begin{bmatrix} p^h \\ d \\ b \\ d \\ t^h \\ d \end{bmatrix} \quad \begin{array}{l} / \\ \text{---} \end{array} \quad \begin{array}{l} \text{---} \\ / \end{array}$$

From the above rule, it is difficult for us to see why the rule should operate at all. A look at the feature matrix, however, reveals why. The fricatives are [ +continuant ] whereas both the stops and the nasals are [ -continuant ]. The phonetic motivation for the 'stopping' of the fricatives is therefore revealed. Rule (16), therefore, is a natural rule that is, a phonetically conditioned rule (P-rule) and is revealed to be so by the use of features as shown below:

$$16. \quad \begin{array}{c} C \\ [+ \text{cont.}] \end{array} \longrightarrow \begin{array}{c} [- \text{cont.}] / [+ \text{nasal}] \end{array} \text{---}$$

That is, a continuant becomes non-continuant (i.e. stops) when it follows a nasal consonant. Note that this rule does not account for such continuants as  $\beta$ ,  $r$ ,  $\gamma$  and  $\delta$  which do not occur in post-nasal environment.

### 2.2.0 THE VOWELS

In this section we shall only outline a partial set of underlying vowels that is, the short vowels. In a later chapter on vowel length (see chapter three), we will discuss the presence of underlying long vowels corresponding to the set of underlying short vowels. The final set of underlying vowels will be considered then.

#### 2.2.1 THE HIGH VOWELS

The choice of high versus non-high rather than a back versus front contrast is deliberate here. In IK, the two high vowels  $i$  and  $u$  display a similar functional pattern. This is not to say that the two vowels are indistinctive. They in fact are phonemically distinct. However, both  $i$  and  $u$  undergo similar rules. The rules of glide formation and vowel assimilation apply to both the two vowels. Given the fact that the two vowels undergo similar rules, we can say that they form a natural class. Hyman (1975: 139f) describes two segments as forming a natural class if they satisfy one or more of the following conditions:-

- (i) the two segments undergo phonological rules together.
- (ii) the two segments function together in the environments of phonological rules;
- (iii) one segment is converted into the other by a phonological rule;
- (iv) one segment is derived in the environment of the other.

In section 2.2.2 we have shown that the two high vowels are distinct from the underlying mid vowels by use of the structuralist method of minimal pairing. In this section we will show the two high vowels as being underlying by establishing that they occur in underlying morphemes. Since vowel processes in LK are motivated by other vowels (whether surface or underlying), our choice of underlying morphemes will be limited to cases where the two high vowels are not preceded or followed by other vowels. The following underlying morphemes illustrate the underlyingness of the high vowels:-

17. /ntsungu/	-	[ntsungu]	'ant'
/mupu/	-	[mupu]	'salt'
/uma/	-	[uma]	'bite'
/-umu/	-	[umu]	'hard'
/ima/	-	[ima]	'cultivate'
/kabago/	-	[kabago]	'stool'
/mudgi/	-	[mudgi]	'village'

/i/ and /u/ have three surface realizations each. /i/ surfaces as [y] through the process of glide formation and as [e] through vowel coalescence and as [i] elsewhere. /u/ surfaces as [w] and [o] through the processes of glide formation and vowel coalescence respectively and as [u] elsewhere. Here are some examples:

18. /miumu/ - [myumu] 'hard' cl.  
/muema/ - [mwema] 'good'  
/maindzi/ - [mendzi] 'many'  
/maumu/ - [mumu] 'hard'

For this reason /i/ merges with /e/ and /y/ while /u/ merges with /o/ and /w/. In addition, both /i/ and /u/ merge with /a/ which changes to both e and o when followed by /i/ and /u/ respectively.

## 2.2.2 THE MID VOWELS

The mid vowels of LK are phonetically realized as [ɛ] for the front mid vowel and as [ɔ] for the back mid vowel. However, since there is no distinction between open and close vowels, we shall in this work, for the convenience of typing, use the symbols e and o to refer to the LK vowels [ɛ] and [ɔ] respectively.

The mid vowels /e/ and /o/ are analysed here as a set because like the two high vowels, they show a functional patterning. As a natural class, e and o form the output

of the assimilation rule in which the low vowel *a* assimilates with the two high vowels to produce their respective mid vowels. In other words, *e* and *o* can be derived. However, this is not to say that all instances of *e* and *o* are derived but rather that in LK, there are both derived and underlying forms of *e* and *o*.

In this section we only examine those cases of *e* and *o* which can be said to be underlyingly /e/ and /o/. In our description of the mid vowels we use the notions of underlying morpheme and minimal pairs. In LK, there are no consonant motivated vowel processes. Our underlying morphemes therefore, will only be those in which the vowels are not preceded or followed by other vowels. In such cases, where the vowels are both preceded and followed by consonants, we can safely assume that the surface vowel is the underlying vowel in that it could not have been influenced to change. Here are some illustrative data:-

19. /nona/ - [nona] '(be) fat'  
/mukono/ - [mukono] 'hand'  
/gomba/ - [gomba] 'leaf'  
/gembe/ - [gembe] 'hoc'  
/nene/ - [nene] 'fat' or 'thick'  
/kekenta/ [kekenta] 'cut repeatedly'

The above examples are quite sufficient evidence that the mid vowels are underlying. However, we will still use

the traditional separation methods in order to establish the distinctiveness between the high and the mid vowels and also between e and o. Here are some examples:-

20. /mia/ - [miya] '(to) swallow'  
/mea/ - [meya] '(to) grow'  
/nuna/ - [nuna] 'to' suckle'  
/nona/ - [nona] '(be) fat'  
/nene/ - [nene] 'thick'  
/nono/ - [nono] 'fat'

The underlying mid vowels /e/ and /o/ have only one surface realization, that is, [e] and [o] respectively.

### 2.2.3 THE LOW VOWEL

The one low vowel is /a/. The low vowel has the highest frequency of occurrence of all the vowels.

We posit /a/ as underlying on the justification that it occurs in underlying morphemes. To the extent that vowels have assimilatory influence on other immediately preceding or following vowels, our choice of underlying morphemes will be limited to cases in which /a/ is not immediately preceded or followed by another vowel. Here are some examples:-

21. /mama/ - [mama] 'mother'  
/baba/ - [baba] 'father'  
/hasawa/ - [hasawa] 'discuss'  
/latʃ a/ - [latʃ a] 'search (for)'

At the surface level, /a/ has three realizations that is, [ a ] and through vowel coalescence, [ e ] and [ o ]. In this respect, /a/ converges with underlying /i/ and /u/ which become [ e ] and [ o ] respectively through vowel coalescence (see 4.2.2). /a/ also merges with /e/ and /o/.

#### 2.2.4 THE VOWEL CHART

In this section we will, having discussed and established the underlying short vowels of LK, present and map our findings on a phonemic vowel chart. This vowel chart is only partial as discussion of the nature and status of vowel length in LK is to be given in a latter chapter (see Chapter three). The complete vowel chart will therefore be given then.

A phonemic vowel chart outlining the short vowels in terms of tongue height and backness is given below:<sup>7</sup>

22.		FRONT	CENTRAL	BACK
	HIGH	i		u
	MID	e		o
	LOW		a	

A feature matrix of these vowels is also given. This will enable us to explain vowel processes in terms of what features are lost or changed and in what environments. The feature matrix of LK vowels is as shown:-



23.	<u>i</u>	<u>e</u>	<u>u</u>	<u>o</u>	<u>a</u>
HIGH	+	-	+	-	-
LOW	-	-	-	-	+
BACK	-	-	+	+	+

FOOTNOTES

1. Jakobson and Halle (1956) give the distinctive features of glides as [-cons. -voc.]. This is also adopted by Chomsky and Halle (1968).
2. Glides can be derived from vowels but at the same time, y and w alternate with d and b respectively at post-nasal position.
3. An underlying morpheme is its lexical or phonological representation in the lexicon (Hyman 1975:104).
4. The glide in /ɸya/ and /vya:/ of illustration (9) is underlying because there are no alternants of the two verbs to prove otherwise.
5. We find the Chomskyan feature 'distributed' difficult to use and has no strict correspondence to dentality. We find Ladefoged's feature 'dental' ideal for our description.
6. LK does not distinguish between two levels of mid. Assuming that  $\begin{bmatrix} - \text{high} \\ - \text{low} \end{bmatrix} \text{equal} [+ \text{mid}]$ , LK certainly distinguishes one level of mid in that we have high vowels, mid vowels and a low vowel. However, the feature mid is still redundant as it is adequately described by the feature composition  $\begin{bmatrix} - \text{high} \\ - \text{low} \end{bmatrix}$ . We shall for the same reason also dispense with the feature  $\begin{bmatrix} + \\ - \text{tense} \end{bmatrix}$ .
7. For purposes of symmetry, the vowel [a] is represented as 'central' in the Vowel Chart. We hasten to clarify that [a] as it occurs in LK is best described as low and back as shown in the feature matrix.

## CHAPTER THREE

### 3.0 VOWEL LENGTH

In this chapter we shall discuss the synchronic status of vowel length in Lower Kipfokomo. In our discussion on length we shall attempt to determine whether length has a functional role in the language.

As a starting point for our analysis, we have classified length in LK into three categories as shown below:

- (i) phonemic vowel length
- (ii) phonetic vowel length
- (iii) emphatic vowel length

We shall consider vowel length to be phonemic if it cannot be said to be derived by rule. In such cases, the only plausible analysis of the morpheme is that it occurs in the lexicon with an identical VV sequence that is, V:. A VV sequence occurring in the lexicon will be analysed as being underlying and hence, as a systematic phoneme.

Vowel length will be considered to be phonetic if its occurrence can be predicted. For example, while vowel coalescence would normally, through vowel assimilation, result in a short vowel, there are predictable cases in which the resultant vowel is long (see 4.2.2.). It is also a predictable feature in the language that the vowel in single syllable

morphemes is long. This phenomenon can be represented by the following morphophonemic rule,

$$24. \quad V \longrightarrow [+ \text{long}] / \$C \text{ --- } +$$

Emphatic vowel length occurs only in diminutives and augmentatives. Although emphatic length is strictly speaking phonetic, we have considered it separately because in this case, the duration of the long vowel, is ideally, limitless. In other words, in emphasizing the smallness or bigness of an item, the speaker can use the sequences VV, VVV, VVVV, etc. without any limitation. It is as can be expected the case, however, that in actual speech situations, the length of the emphatic vowel is kept at VV, seldom at VVV or more. Emphatic vowel length could be represented by rule as shown:

$$25. \quad V \longrightarrow [+ \text{long}] / \left[ \begin{array}{l} \#C_0 \text{ --- } \$ \\ \alpha \text{ diminutive} \\ + \text{ emphatic} \end{array} \right]$$

where #.... refers to a diminutive or augmentative word-stem in which the vowel of the initial syllable preceded by one or more consonants or none becomes long when the word-stem is in the emphatic mood. The rule would account for data as shown:

26. /ka + tutu/ → [katu:tu] 'very small'  
/ndodo/ → [ndo:do] ' " small'  
/nku / → [ɲku:] ' " big'

### 3.1 PREVIOUS ACCOUNTS OF VOWEL LENGTH IN LK

A number of linguists have mentioned the existence of long vowels in LK. None of these treated length as a phonemic entity. In other words, for most of these writers underlying vowel length does not exist in LK.

Kraft (1908) says that there are five long, five half-long and five normal vowels in LK. This is one of the few works that acknowledges the presence of long vowels in LK. However, no further explanation is given concerning these three vowel categories. As such it is difficult for us to say precisely what Kraft meant by 'half-long' vowels.

Kraft's category of half-long vowels is probably the same as our notion of automatic lengthening. In the case of automatic lengthening, the final vowel in single syllable words, is automatically lengthened. However, automatic length is not quite the same as derived length or underlying length. For a speaker of LK, while the major distinctions are between long vowels and short vowels, the vowels in single syllable words are certainly not short, neither can they be said to have the same length as double vowels. Here are some examples:

- 27' a /fwa/ - [fwa:] 'die'  
b /hwa:/ - [hwa:] 'take'  
27' a /kufwa/ - [kufwa] 'to die'  
b /kuhwa:/ - [kuhwa:] 'to take'

The final vowel in the surface form of (27a) is noticeably longer than that of its two syllable infinitive form but clearly shorter than the final vowels in (27b) and (27'b). If the final vowel in (27'a) is short and the final vowels in (27b) and (27'b) are long, then it is logical that the final vowel in (27a) be assigned medium length.

In this work, the duration of the production of a vowel sound, will, for practical purposes, be described in binary terms. A vowel segment therefore, is either [+long] or [-long]. This means that the final vowels in (27a) and that in (27'b) will be described by the same feature [+long]. We do this because there is no distinction between the two levels of length and also because there is no functional reason that would require our distinguishing them.

Tucker and Bryan (1957:66) give the LK vowel system as i, e, a, o, u. They also note that "vowel length is not significant in word stems." This quotation from Tucker and Bryan, summarizes the attitude of most of the linguists of the time to the vowel system of LK. Before we discuss the issue further, we need to explain what is meant by significant length.

According to Mario Pei (1966) significant is synonymous with distinctive. The term distinctive is in turn defined thus: "capable of making a segment of utterance different in meaning as well as in sound from an otherwise identical utterance." This then, takes us back to the structuralist notion of minimal pair, that is, two forms are identical in all but one feature.

In structural analysis, two segments are said to be distinctive (or to have significant opposition or contrast), if they can be shown to occur in identical environments and thereby causing a difference in meaning. Examples in LK where sounds contrast in identical environment are not so readily available as in English but a few can be given here.

28. [ɸona] 'be cured'  
[pona] 'bruise'  
[ɸa:] 'bonnet (of head)'  
[pa:] 'roof'

In these data we find that ɸ and p contrast in identical environments. /ɸ/ and /p/ are therefore distinctive sound units.

It seems to us that earlier linguists neglected the existence of contrastive vowel length simply because of lack of exhaustive data comprising of minimal pairs contrasting in the length of one vowel.

In this chapter, therefore, we shall attempt to present evidence by way of similar morphemes which differ solely because the one has a short vowel and the other has an identically articulated but long vowel in an identical environment. We shall distinguish between underlying long vowels and derived long vowels. We shall also analyse the functional roles of both.

### 3.2 THE STATUS AND FUNCTION OF VOWEL LENGTH IN LK

In this section we shall look at two aspects of vowel length in LK - derived vowel length and underlying vowel length.

As we said earlier, derived vowel length is mostly the product of vowel coalescence through affixation. For example, the prefixes *mu-* cl. 3 and *ma-* cl. 6 can combine with the noun stems *-ungo* and *-anga* to give the following forms:

29. /*mu* + *ungo*/ - [*mu:ŋgo*] 'boundary'  
      /*ma* + *anga*/ - [*ma:ŋga*] 'holes'

As we shall show later (Chapter 4), vowel coalescence does not always result in long vowels. In fact the tendency is for the resultant vowel to be short. This happens through a reciprocal assimilation of the two vowels after which the resultant long vowel is reduced by one unit of length. For example,



30. /maumu/ → moomu → [mɔmu] 'hard'  
/maɪndzi/ → meendzi → [mɛndzi] 'many'

Whenever vowel shortening through vowel assimilation is blocked, the reason is almost always semantic. It could be argued that the rule fails to apply in (29) because of the existence of a near minimal pair [mɔnga] 'type of tree' and [manga] 'type of grass.' It is therefore apparent that if the rule was allowed to operate, there would be a convergence of similar forms with different meanings. As such, in the absence of tonemic distinction it would have been even more difficult to differentiate between the two forms. Both [ma:nga] and [manga] belong to class 5/6 and both do take singular and plural pronominal prefixes as shown:

nyga kuu 'big hole'

maanga makuu 'big holes'

maɪga dɔema 'good grass' sing.

maɪga nema 'good grass' plur.

It seems apparent, therefore, that even derived length can have a functional property that is, it can also be meaning distinctive. Some examples of this could be cited:

31. /mia/ - [miya] 'swallow'  
 /mi:a/ - [mi:ya] lit. 'swallow for'  
 /kaisa/ - [kaisa] 'he/she finished it'  
 /kai:sa/ - [kai:sa] 'he/she fed it'

In the examples above (31) we have minimal pairs differing solely by the length of the vowel *i*. This difference in vowel length is sufficient to cause a difference in meaning. But the long vowels in (31) are not underlying but derived. In the case of [mi:ya] the vowel *i* of the root morpheme combines with the vowel *i* of the applicative function to produce the long vowel [i:]. For example,

32. /mia/ → mi -i - a → [mi:ya] 'swallow for'

As we shall show later in chapter four (see 4.2.2), LK has a tendency to shorten long vowels. However, in cases where the shortening of a vowel could create semantic opacity or semantic ambiguity, the shortening rule is blocked and vowel length is maintained.

The functional application of derived length is most clearly illustrated by examples from vowel lengthening. In this process (see 4.2.4), the vowel *i* is lengthened due to the gliding of *u* as illustrated below:

33. /nu-i-a/ → nwi-a → [nwi:ya] 'remove for'  
 /ku-i-a/ → kwi-a → [kwi:ya] 'uproot for'

/fu-i-a/ → fwi-a → fwi:ya 'wash (clothes) for'  
/gu-i-a/ → gwi-a → gwi:ya 'buy for'

In (33) above, both the underlying and surface forms, have three morae each. The intermediate forms, however, have only two, with the applicative mora *i*, absorbed by the root. This results in the loss of the applicative meaning constituted by the central mora *i*. The lengthening of the vowel *i* is to be seen as a way of maintaining this mora and hence the applicative meaning. The examples in (33) therefore, clearly illustrate the functional role of certain instances of derived vowel length.

At this point, we can now turn to look at a type of vowel length that we propose to call underlying.

Underlying vowel length, cannot be said to be the result of the lengthening of an initially short vowel. In other words, a solution that claims that the form has underlyingly a short vowel which is at some point in the derivation lengthened by rule would not be plausible. Such a rule would be arbitrary in the sense that the rule would not be motivated either phonetically or morphologically. It would therefore mean marking all lexical forms with phonetically and morphologically unexplainable vowel length with a diacritic feature, say *X* and formulate the following rule:

33'. 
$$\left[ \overset{V}{- \text{long}} \right] \longrightarrow \left[ + \text{long} \right] / \left[ \bar{X} \right]$$

That is, a short vowel should be written as long if it occurs in a lexical form marked X.

While such a rule would undoubtedly simplify the grammar, for a description relying heavily on the simplicity criterion in the description of grammars, it would certainly not be describing the psychological reality of the speaker.

NGP developed as an attempt to overcome such abstractness requires that an underlying form must have a surface occurrence. Our theory, therefore, would not allow us to describe non-derived long vowels in LK in terms of absolute neutralization nor do we wish to disregard the topic altogether as is the case with some earlier studies on the language. Our description of the vowels of LK will therefore give some instances of long vowels as underlyingly so.

Kisserberth and Abasheikh (1974) in their paper entitled "Vowel Length in Chi-Mwiini - A Case Study of the Role of Grammar in Phonology", used the criterion 'minimal pair' and 'near minimal pair' as a factor that necessitated establishing underlying long vowels. In this work we shall use both these criteria in addition to the notion of underlying morpheme in our attempt to establish the presence of underlying vowel length in LK.

In LK underlying long vowels are fewer distributionally when compared to underlying short vowels. This could account for the fact that some earlier treatments of LK phonology disregarded the question of underlying

vowel length altogether. Vowel length was possibly viewed by these linguists as only marginally phonemic and inconsequential in a phonological description of LK.

In this work we do not distinguish between marginally phonemic and fully phonemic segments. A segment is either underlying, and therefore, systematic phonemic or it is not. We shall, however, point out whether a segment has limited occurrence or not. Vowel length in LK, could be said to be underlying on the basis of the following minimal and near minimal pairs:

34. mo:ngo 'east'	mongo 'back'
kuɸe:ya 'to shave'	kuɸeya 'to sweep'
kutse:za 'to send down river'	kutseza 'to play'
kuhe:ya 'to slide on slippery surface'	kuheya 'to throw down- carelessly'
kupa:za 'to grind'	paza 'banana plantation'
ku'co:wa 'to cough'	ku'k'owa 'snail shell'
kuka:nɰa 'to fry'	kukanɰa 'to heat up (a baby) etc.'
kuɸi:ka 'to send'	kuhaɸika 'to vomit'

In these examples, it has been shown that vowel length cannot be predicted from its phonological or morphological context. Vowel length must therefore be seen to be underlying.

Thus the forms in the left hand column of ( 34 ) must be shown to occur in the lexicon with the long vowels.

This would mean that the long vowels also appear in the underlying morphemes and hence are themselves underlying as illustrated below:

34.	/mo:ŋgo/	→	[mo:ŋgo]	'east'
	/kuʔe:a/	→	[kuʔe:ya]	'to shave'
	/kua:ra/	→	[kwa:ra]	'to be lost'
	/kuhe:a/	→	[kuhe:ya]	'to slide on a slippery surface'
	/kupa:za/	→	[kupa:za]	'to grind'
	/kuko:a/	→	[kuko:wa]	'to cough'
	/kuka:ŋga/	→	[kuka:ŋga]	'to fry'
	/kuʔi:ka/	→	[kuʔi:ka]	'to send'
	/yuku:/	→	[yuku:]	'big' cl. 11
	/dzu:/	→	[dzu:]	'up'

After having satisfactorily shown that vowel length in LK is also distinctive and underlying we are now left with the task of solving the conflict between the claims we made in 2.2.4 and those we are making here.

In section 2.2.4 we said that LK has got only five underlying vowels. These five short vowels were shown to contrast chiefly in terms of height and backness. The introduction of another set of five long vowels in this section implies that LK, in addition to employing height and backness distinctively, also uses length contrastively. Length is underlying and phonemic and must be represented in our phonemic vowel chart. Similarly, length must be

recognised as a distinctive feature in LK phonology and must therefore be included in the vowel feature matrix. These factors necessitate a review of the vowel chart and feature matrix as given in section 2.2.4.

The revised vowel chart representing all the underlying vowels of LK is given below. Since we do not perceive any qualitative difference between long and short vowels and since there is no other distinguishing feature between them other than duration of articulation, we shall represent the long vowels as sharing the same height and backness with their corresponding short counterparts as shown below:

		FRONT	CENTRAL	BACK
35.	HIGH	i, i:		u, u:
	MID	e, e:		o, o:
	LOW		a, a:	

A distinctive feature matrix is also given. This will enable us to see clearly the features which separate the different vowel sounds as shown:-

36.		i	e	a	o	u	i:	e:	a:	o:	u:
	HIGH	+	-	-	-	+	+	-	-	-	+
	LOW	-	-	+	-	-	-	-	+	-	-
	BACK	-	-	+	+	+	-	-	+	+	+
	LONG	-	-	-	-	-	+	+	+	+	+

## CHAPTER FOUR

### 4.0 PHONOLOGICAL PROCESSES

In this chapter we will analyse and describe the rules and processes that govern the phonology of IK. We shall not simply present our observed processes, but will attempt to formalise them into rules. Our rules will be based on the distinctive features of Chomsky and Halle (1968).

In our description of the phonological processes of IK, we shall not limit ourselves to a presentation of the bare facts. We shall attempt to explain the observed processes in the light of the predictions made by phonological theory. Some of these processes will be revealed to be natural and therefore expected. We shall further explain why certain rules fail to operate in spite of the fact that their SDs are met.

#### 4.1.0 THE PHONOLOGICAL PROCESSES OF CONSONANTS

In this section we shall concern ourselves with the phonological processes of consonants. These are: Homorganic Nasal Assimilation, Continuant Strengthening, Nasal Devoicing and Aspiration, Plosivization and Palatalization. Each of these processes will be formalized by the use of distinctive feature rules. We shall also attempt to show whether a rule is phonetic, morphological or via.



#### 4.1.1 HOMORGANIC NASAL ASSIMILATION

Homorganic Nasal Assimilation is the process by which the alveolar nasal *n* assimilates to the point of articulation and voicing<sup>1</sup> of a following consonant. The rule is highly productive but generative only at the stem-initial position. In this environment, the alveolar nasal of the class 9/10 prefix *n-* homorganizes with the following stem-initial consonant.

The rule of Homorganic Nasal Assimilation is natural, that is, phonetically motivated and it is attested in many Bantu languages. The rule is attested in all the Coastal Kenya Bantu languages (cf. Hinnebusch 1973: 136).

In order to explain the phonetic motivation of this process, we must first of all look at the nature of assimilation. Hefner (1950) describes assimilations as adaptive changes whereby two sounds which become contiguous in the speech configuration tend to become similar to each other. Hefner goes on to add that assimilations do not always necessarily involve contiguous segments and hence makes a distinction between "contact assimilations" and "remote assimilations" (Hefner 1950: 189).

Abercrombie (1967) notes that assimilations need not always be a mutual adaptation and therefore distinguishes between "regressive assimilation" and "progressive assimilation". In the former type of assimilation, the assimilative force moves backwards whereas in the latter type, the

assimilative force moves forwards. Whatever the type, assimilations are "the result of neuromotor adjustments to promote facility of movement and economy of effort" (Heffner 1950: 189).

We see therefore, that assimilations are entirely phonetic processes resulting from the delimitation of the human articulatory facilities. In the case of LK, homorganic nasal assimilation, is a regressive, anticipatory process in which the articulators resolve the problem of first articulating the alveolar nasal n and then shifting to the labial, dental, palatal or velar positions in order to articulate the following stop, by articulating both the nasal and the following consonant at the same point. This, however, is in favour of the consonant as it is the nasal that adapts to the point of articulation of the following consonant.

We recognize that homorganic nasal assimilation often takes place only if the nasal and the consonant form one syllabic unit. This constraint, however, will not be observed in our rules as there are no NC clusters in LK in which the nasal and the consonant form separate syllables. The rule of homorganic nasal assimilation, can therefore be formulated as shown below:

$$36. \left[ \begin{array}{l} + \text{nasal} \\ + \text{alveolar} \end{array} \right] \longrightarrow \left[ \begin{array}{l} \alpha \text{Coronal} \\ \beta \text{Back} \\ \gamma \text{High} \end{array} \right] / \text{---} \left[ \begin{array}{l} \overset{C}{\alpha} \text{Coronal} \\ \beta \text{Back} \\ \gamma \text{High} \end{array} \right]$$

This rule will derive the following forms:

37. /n - buzi / → [mbuzi] 'sheep'  
/n - fefo/ → [mbefo] 'wind'  
/n - vuma/ → [mvuma] 'rumour (s)'  
/n - funda/ → [mfunda] 'cheek (s)'  
/n - data/ → [nda:ta] 'barren'  
/n - tana/ → [ntana] 'comb' n  
/n - dumi/ → [ndumi] 'tick'  
/n - tʃadza/ → [jtʃadza] 'jaw'  
/n - go:/ → [ŋgo:] 'type of fish'

From the above data, it may be noticed that voice assimilation also takes place. However, this is not included in rule (36) as we shall discuss the issue of nasal devoicing in (4.1.3).

#### 4.1.2 CONTINUANT STRENGTHENING

This is the process by which a continuant becomes a stop when preceded by a nasal.

This process can be analysed in two ways. First, continuant strengthening is really a continuant stopping process in which the continuant assimilates to the stop characteristics of the preceding nasal stop. Seen in this way, the process is absolutely natural and expected.

However, there is a second way in which this process can be seen. Foley (1970) in an attempt to describe

Germanic and Spanish consonant shifts, devised a matrix of consonant strength values in which the continuants  $\gamma, \delta, \beta$  are least strong. While these strength relationships were not meant to be universal, there are nevertheless, universally accepted strength relationships amongst segments. Vennemann (1972a) proposed relative strength values of consonants in Icelandic in which the continuants  $y, v, l, r$  are the least strong of the consonants.

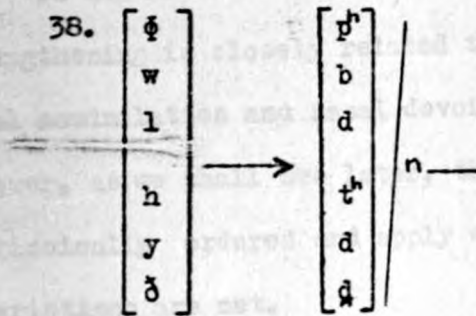
Thus it is generally accepted that continuants are weaker than stops. A rule that changes stops into continuants would therefore be a strengthening rule whereas one that spirantizes stops would be a weakening rule.

The rule of Continuant strengthening is productive and applies to all forms in which its structural description is met. Certain continuants for example,  $\beta, r, \gamma$  and  $\delta$  are restricted in occurrence to the extent that they do not occur post-nasally. Our rule of continuant strengthening would therefore pass these forms vacuously. Exempt from this rule also are those continuants which are covered by the feature [+strident].  $f$  and  $v$  for example, are not influenced by a nasal consonant preceding them (see 37 above).  $s$  and  $z$  on the other hand, change to  $ts$  and  $dz$  respectively when preceded by  $n$ .

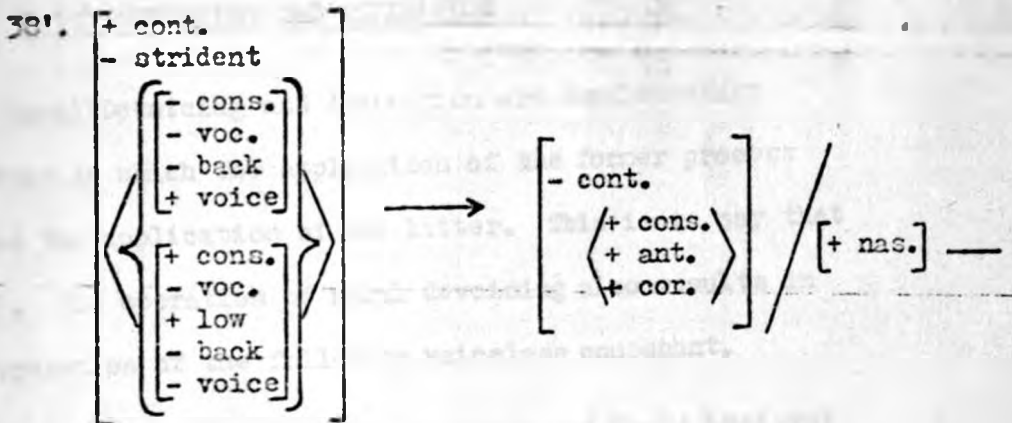
However, we have treated the  $s \rightarrow ts$  and  $z \rightarrow dz$  changes as different from continuant strengthening. This is because what is really evident is that  $s$  and  $ts$  and  $z$

and dz neutralize at post-nasal position. We have therefore not treated this change as a strengthening rule in which for example, s becomes ts. This rule of s and ts and z and dz neutralization, has already been discussed in 2.1.4.

The rule of continuant strengthening discussed in here is as given below:



We formulate this rule in distinctive features as given below:



This rule, would account for forms like the following:

39. /yuʃanga/ → [ɲp<sup>h</sup>anga] 'type of knife'  
 /yuʃeketso/ → [ɲp<sup>h</sup>eketso] 'wooden mixer'  
 /wingu/ → [mbingu] 'sky, heavens'  
 /yuwanda/ → [mbanda] 'grasslands'  
 /yulonae/ → [ndonae] 'spear shaft'  
 /huma/ → [ɲt<sup>h</sup>umi] 'messenger'

/yomba/ → [ndomba] 'act of begging'

/yeya/ → [ndeya] 'long'

/yuḏiri/ → [ḏiri] 'line of grains on maize  
cob'

/ḏeḏya/ → [ḏeḏya] 'ill-behaviour'

We see from the above data that the rule of continuant strengthening is closely related to the rules of homorganic nasal assimilation and nasal devoicing and aspiration. However, as we shall see later, the three rules are intrinsically ordered and apply whenever their structural descriptions are met.

#### 4.1.3 NASAL DEVOICING AND ASPIRATION

Nasal Devoicing and Aspiration are complementary processes in which the application of the former process implies the application of the latter. This is to say that in *IK*, the operation of nasal devoicing also results in the aspiration of the following voiceless consonant.

Hinnebusch (in Hinnebusch, Nurse and Mould 1981:73) lists changes involving *NC* clusters in Northeast Coastal Bantu as follows:

- |            |            |           |
|------------|------------|-----------|
| (a) $NC^h$ | (b) $NC^h$ | (c) $C^h$ |
| (d) $N$    | (e) $NC$   | (f) $N$   |
| (g) $NC$   |            |           |

The *IK* *NC* cluster type for voiceless consonants

is  $ŋç^h$  as shown in (b) above. The NC cluster in LK is in a way unique in that the nasal and the following consonant are so fused together that they are realized as one segment. Using a mora-counting analysis we could say that the same length of time is taken to pronounce an NC formation as is taken to articulate anyone of the two segments involved.

Our contention is that the peculiarity of the NC cluster in LK is what really causes voice assimilation of the preceding nasal consonant and the subsequent aspiration of the following voiceless consonant.

As we have already pointed out with respect to homorganic nasal assimilation, Nasal Devoicing is a phonetically motivated adaptive change in which the articulatory asynchrony that would have resulted in the production of a voiced nasal consonant immediately (or almost simultaneously) followed by a voiceless obstruent is resolved by devoicing the nasal consonant. This process also creates the environment for the rule of aspiration of the voiceless stop to take place. We therefore have two rules which could be represented as

$$\begin{array}{l} 40. \text{ a. } \underline{N} \longrightarrow \underline{N} / \text{ — } \underline{C} \\ \text{ b. } \underline{C} \longrightarrow \underline{C}^h / \underline{N} \text{ — } \end{array}$$

It is worth pointing out that whereas the rule of nasal devoicing applies whenever the nasal precedes a voiceless obstruent, aspiration does not apply to affricates. We have of course already pointed out that post-nasal

fricatives are realized either as stops or as affricates (see 4.1.2) above). The two rules therefore, that is, nasal devoicing and voiceless stop aspiration, would account for forms like the following:-

41. /npuya/	→	mpuya	→	[mp <sup>h</sup> uya]	'nose'
/ntana/	→	ntana	→	[nt <sup>h</sup> ana]	'comb'
/nteku/	→	nteku	→	[nt <sup>h</sup> eku]	'type of fish'
/nkonde/	→	nkonde	→	[nk <sup>h</sup> onde]	'farm'
/yufongo:/	→	mpongo:	→	[mp <sup>h</sup> ongo:]	'type of palm'
/ntfingo/	→		→	[nt <sup>h</sup> fingo]	'skin'
/nsoho/	→		→	[nt <sup>h</sup> soho]	'breath'

The processes represented in the above data can be given in distinctive feature rules in order to reveal the motivation of the processes as shown:

$$42 \text{ a. } [+ \text{nasal}] \longrightarrow [- \text{voice}] \left/ \begin{array}{l} \text{C} \\ \text{---} \\ [- \text{voice}] \end{array} \right. [+ \text{obstruent}]$$

That is, a nasal assimilates to the voicelessness of a following voiceless obstruent. The aspiration rule is represented as shown:

$$42 \text{ b. } \left[ \begin{array}{l} \text{C} \\ + \text{obstruent} \\ - \text{voice} \\ - \text{cont} \end{array} \right] \longrightarrow [+ \text{ aspirated}] \left/ \begin{array}{l} \text{---} \\ [+ \text{nasal}] \\ - \text{voice} \end{array} \right. \text{---}$$

That is, a voiceless stop is aspirated when it occurs after



a voiceless nasal.

Looking at these two rules one can observe a lot of redundancies particularly with respect to the rule of homorganic nasal assimilation given in (4.1.1). Our proposition is that since both homorganic nasal assimilation and nasal devoicing are assimilation processes operating in similar environments, the two rules can be collapsed into one. In doing this we shall achieve two goals: fewer rules in our grammar and capturing the important generalisation namely, the relationship between homorganic nasal assimilation and nasal devoicing. We represent this rule as follows:

$$43. \left[ \begin{array}{l} + \text{nasal} \\ + \text{alveolar} \end{array} \right] \xrightarrow{\text{voiceless}} \left[ \begin{array}{l} \alpha \text{Coronal} \\ \beta \text{Back} \\ \gamma \text{High} \\ \delta \text{Voice} \end{array} \right] / \text{---} \left[ \begin{array}{l} \alpha \text{Coronal} \\ \beta \text{Back} \\ \gamma \text{High} \\ \delta \text{Voice} \end{array} \right]^{\text{C}}$$

That is, an alveolar nasal assimilates to both voicing and point of articulation of a following consonant.

The rule of voiceless consonant aspiration takes place as given in (42 b above).

#### 4.1.4 PLOSIVIZATION

Plosivization is the process in which the implosives  $\text{b}$ ,  $\text{d}$  and  $\text{ɓ}$  change to  $\text{b}$ ,  $\text{d}$  and  $\text{ɓ}$  respectively when preceded by a nasal. It will be noticed that although this process has been called 'plosivization', the palatal

implosive  $f$  changes to the palatal affricate  $ɟ$  rather than the palatal stop  $ʃ$ . We have already shown (see 2.1.2) that there is no palatal stop in LK and the nearest to a stop in the palatal position is the affricate  $ɟ$ .

Fronkin and Rodman (1974) define affricates as sounds "produced by a stop closure followed immediately by a slow release of the closure characteristic of a fricative." This is to say that an affricate is really a stop onset in which the plosion is fricated. It does not therefore seem too far fetched for us to argue that on account of the lack of contrastiveness between stop and affricate at the palatal position, the affricate replaces the stop in that position. Thus while the palatal implosive  $f$  does not change into a stop but an affricate, the process is nevertheless termed plosivization.

We therefore represent plosivization as a single process regardless of the fact that we have got two cases, one of stopping and the other of affrication. This rule can be given as:

$$44. \begin{bmatrix} b \\ d \\ f \end{bmatrix} \longrightarrow \begin{bmatrix} b \\ d \\ ɟ \end{bmatrix} / n \text{ ---}$$

This rule operates on forms as shown on the data below:-

45. /yubao/ → [nbao] 'timber'  
 /bawa/ → [nbawa] 'wings'  
 /dodo/ → [ndodo] 'small'  
 /ʃangu/ → [ɲʒangu] 'mine'  
 /ʃenu/ → [ɲʒenu] 'yours'

It must be noted that the palatal implosive that changes to  $\text{ɲ}$  is derived from underlying implosive  $\text{d}$ . Cases of underlying  $\text{ʃ}$  are few in the language and do not plosivize. This is because the few cases of underlying  $\text{ʃ}$  that are found in LK do not have the SD of the rule met for the rule to operate on them. It so happens therefore that the rule operates on forms derived from /d/.  $\text{ʃ}$  plosivization could also be analysed as follows:

46. /diangu/ → ʃangu → [ɲʒangu]

That is, the plosivized form is derived from another actual surface form, so that the relationship between  $\text{ʃ}$  and  $\text{ɲ}$  is a relationship between allophones. In this case then, the rule of palatalization (see 4.1.5) palatalizes  $\text{d}$  to  $\text{ʃ}$  which then provides the structural description for the operation of the plosivization rule.

The plosivization rule can be represented in distinctive features as shown below:-

$$47^2. \left[ \begin{array}{c} \text{C} \\ + \text{implosive} \\ + \text{voice} \end{array} \right] \longrightarrow \left[ - \text{implosive} \right] / \left[ + \text{nasal} \right] \text{C}$$

#### 4.1.5 PALATALIZATION

In the process of palatalization the sound segments /k, ʃ, n/ change and become [tʃ, ʃ, p] respectively, when they are followed by i and another vowel.

The process of palatalization cannot be seen exclusive of the process of glide formation. In the latter process (see 4.2.1) the two high vowels /i/ and /u/ are changed to y and w respectively when they are followed by non-identical vowels. The motivation for the rule of glide formation is syllable structure simplicity.

The process of palatalization has a motivation similar to that of glide formation. Palatalization takes place when the consonant that undergoes the rule is followed by i and another vowel. When the rule of palatalization takes place, it changes a syllable of the type \$ CVV \$ to the type \$ CV \$. This is syllable structure simplification as CV syllable type is given by Jakobson (1941) as the least marked.

There has been a lot of controversy concerning the motivating factor for the palatalization rule. Some linguists argue that the vowel i first glides to y and that it is the resultant glide which causes the palatalization of the preceding consonant. The process can be represented as follows: -

kiema → kyema → tʃema

Hinnebusch (1973) argues that the languages of the Northeast Coastal Bantu took either of two options:-

(i) gliding e.g.

kiema → kyema

(ii) palatalization e.g.

kiema → tʃema

If we followed Hinnebusch's analysis, LK would belong to category (ii). However, we do not adopt Hinnebusch's analysis.

We reject Hinnebusch's analysis because in LK, if the CVV syllable type contains a consonant which cannot palatalize, then the glide remains. When the pronominal prefix *mi-* for example, and the adjectival stem *-ema* are brought together, then *n* does not palatalize and the glide remains as shown by the following derivation:-

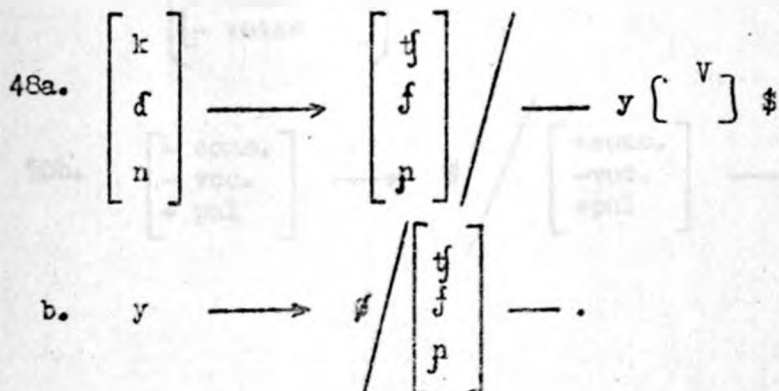
miema → myema 'good' class 4

This for us shows that we do not have two rules in LK related to the segment *i* and both in almost identical environments that is gliding and *i* deletion as Hinnebusch's analysis would have us understand. We therefore go along with the several other linguists in arguing that what we really have in LK is a case of regressive assimilation in which the articulators resolve the problem of first raising the back of the tongue and

making contact with the velum in order to articulate k followed by a raising of the front of the tongue close to the hard palate in order to articulate y by k itself being articulated at the same point with y. The same goes for f and n.

The deletion of y could be explained by the fact that since its phonetic distinctiveness has been absorbed by k to become tʃ, y in a way becomes redundant. In the class 7 prefix ki-, the vowel i distinguishes the class belonging of the prefix as opposed for example, from ku- and ka-. The change of i to y it seems, does not interfere with the definitiveness of the vowel. However, once the prefixal consonant itself palatalizes, it takes with it the class marking that would otherwise be carried by the vowel or glide and hence the glide becomes redundant. The glide ceases to be the focus of the prefix and therefore deletes. No wonder then that in the case of the prefix mi- for which the m does not palatalize, the glide remains.

The rules of palatalization and y-deletion could be given as:-



These two rules would account for the following forms:-

49. /kiema/ → kyema → [tʃema] 'good'  
 /kiangu/ → kyangu → [tʃangu] 'mine'  
 /dienu/ → dʒenu → [dʒenu] 'yours' pl.  
 /diako/ → dyako → [dʒako] 'yours' sing.  
 /nienda/ → nyenda → [penda] 'I went'  
 /niamba/ → nyamba → [pamba] 'I said'

Although the introduction of the glide is not dealt with here, it is as we have already mentioned, discussed in section 4.2.1. The glide formation rule therefore, is the one that produces the glide in the forms given in (49).

The palatalization and y-deletion rules can be presented in distinctive features as shown:-

50<sup>3</sup>a. 
$$\left[ \begin{array}{l} + \text{nasal} \\ + \text{alveolar} \\ + \text{implosive} \\ + \text{alveolar} \\ + \text{voice} \\ + \text{high} \\ + \text{back} \\ - \text{voice} \end{array} \right] \rightarrow \left[ +\text{palatal} \right] / - \left[ \begin{array}{l} -\text{cons.} \\ -\text{voc.} \\ +\text{pal.} \end{array} \right] \left[ +\text{syll.} \right]$$

50b. 
$$\left[ \begin{array}{l} - \text{cons.} \\ - \text{voc.} \\ + \text{pal} \end{array} \right] \rightarrow \emptyset / \left[ \begin{array}{l} +\text{cons.} \\ -\text{voc.} \\ +\text{pal} \end{array} \right] -$$

#### 4.2.0 THE PHONOLOGICAL PROCESSES OF VOWELS

This chapter discusses the phonological processes of vowels. These are: Glide Formation, Vowel Assimilation, Vowel Harmony and Vowel Lengthening. We will attempt to explain the nature and domain of the rules that govern these processes. The rules will be formally presented in distinctive features. This, we hope, will clarify the relationship that exists between the Kipfokomo surface forms and their underlying counterparts.

#### 4.2.1 GLIDE FORMATION

Glide Formation is the process by which the high-front and the high-back vowels are changed to the palatal and bilabial glides respectively. This process however, takes place only if the high-front vowel /i/ is followed by a vowel other than [ i ] and likewise, the high-back vowel /u/ is followed by a vowel other than [ u ]. The following examples will illustrate:

51. /muana/ → [mwana] 'child'  
/muivi/ → [mwivi] 'thief'  
/kuenda/ → [kwenda] 'to go'  
/mucɔla/ → [mwɔɔla] 'chin'  
/niumu/ → [myumu] 'hard' cl. 4  
/moo/ → [myoo] 'soft' cl. 4  
/mianana/ → [myanana] 'unripe' cl. 4  
/nieusi/ → [myeuci] 'black' cl. 4



These processes could be represented by rule as shown below:

$$52. \begin{bmatrix} i \\ u \end{bmatrix} \xrightarrow{\text{sing consonant}} \begin{bmatrix} y \\ w \end{bmatrix} / \text{---} V$$

CONDITION: that V following /i/ & /u/ is not  
 [i] & [u] respectively.

This rule is phonetically motivated and very productive in the language. We shall argue that the motivation for the rule is syllable structure simplicity and therefore syllable structure strengthening. However, before coming to the main argument, it may be necessary for us to first of all make certain clarifications on the preferred syllable structure of Kipfokomo.

Kipfokomo like most Bantu languages, is a \$CV\$ language. In other words, it makes use of the most basic and universal syllable structure. It is a reasonable assumption therefore, that complex consonant clusters would not be permitted as the onset or the coda of a syllable in the language. This is particularly apparent in forms borrowed into the language from languages that allow such consonant clusters. Here are some examples:

53.	<u>KIPFOKOMO</u>		<u>ENGLISH</u>
	ankoli [aŋk <sup>h</sup> oli]	from	uncle [aŋk <sup>l</sup> ]
	gilasi [gilasi]	"	glass [glæs]
	gurupu [gurupu]	"	group [gru:p]

We see in the above examples that the consonant clusters of English are simplified through the insertion of vowels in between two succeeding consonants. It is interesting to note that the nasal-consonant cluster which is tolerated in Kipfokomo is not changed.

Syllabification rules do not just operate on consonant clusters but also on vowel sequences. In Kipfokomo, vowel sequences of the same height are more tolerable than those of different heights. This observation has also been made by Mutahi (1977) where he cites examples from Ki-Mbeere, Ki-Embu and Ki-Gichugu in which vowel sequences of different heights are restricted by the application of certain rules. In this case, Mutahi cites the vowel assimilation and glide formation rules as examples.

In the examples given in (51) we find that Kipfokomo also applies the gliding rule where the two vowels that occur sequentially as a result of coalescence differ in height. In Kipfokomo however, the gliding rule also extends its domain to difference in point of articulation. /i/ therefore would glide before u and vice versa.

While the problem of the motivation for the rule is seemingly resolved, another question remains yet to be answered: Why doesn't the syllabification rule, in this case the glide formation rule simply delete one of the vowels instead of creating another cluster? After all the elision of one of the vowels would produce the desired effect for the language, that is a CV syllable structure.

At this point we find that grammatical and therefore semantic information becomes necessary.

While it is a widely accepted fact of phonetics that the desire is to have the simplest possible means of articulation, this has to be weighed against its consequences on auditory perception. This fact also holds true in other components of a grammar. In the case of Kipfokomo, while a CV syllable would be simpler than a CGV one, the consequence of a change from CWV syllable structure to a CV structure has to be weighed against general implications on other components of the grammar. Such a rule applying to our Kipfokomo examples in (51) for example, would completely upset the syntactic-semantic relations in the language. Taking the first word in (51) as an example, we find that if such a rule applied to the form /muana/, we would have the following results.

54. /muana/  $\xrightarrow{\text{APPLY V-DELETION}}$  \* $\left[ \begin{matrix} \text{na} \\ \text{mana} \end{matrix} \right]$

The application of the rule in (54) completely destroys the derivational history of the word. It would therefore, be impossible to identify the word 'mana' with any class.

The Kipfokomo language like most Bantu languages makes use of the noun-class system. A noun class can, following Leech (1974), be assigned contrastive semantic features of cognitive meaning. All words of noun class 1 in LK could be specified the features [+ HUMAN + SINGULAR]. These semantic features are carried by a particular morpho-syntactic

unit, the class prefix. Any noun stem qualified by this prefix will adopt these semantic features inherent in the class prefix.

In the case cited above (54), however, the vowel of the syllable that carries this class distinctiveness, has been deleted. There is no evidence left concerning the class origin of the word and hence the word loses the function of denotative meaning.<sup>4</sup> A change of  $u \rightarrow w$ , however, preserves the class distinction and belonging of a stem and hence its ability to function as a referential term. We conclude therefore, that a change from a complex syllable type to a simpler one is restricted by rules in other components of the grammar.

As we have said earlier, glide formation is a phonetically motivated process in LK and is found in many Bantu languages. There are, however, some counter-examples to the rule. The only ones I could get involve the labio-velar glide  $w$ . Here are some examples:

55. /kuiɸa/  $\rightarrow$  [kuiɸa] 'to pay' or 'you paid'

/kuiɸa/  $\rightarrow$  [kwi:ɸa] 'to pay it' or 'you paid it'

/kuiima/  $\rightarrow$  [kuiima] 'to cultivate' or 'you cultivated'

/kuiima/  $\rightarrow$  [kwi:ma] 'to cultivate it' or 'you cultivated it'

Mould (1972) in his analysis of the modified base of Ruvyankore, Kirundi and Luganda, found some surface

irregularities with no apparent surface explanation. The problem was later resolved when Mould recognized an underlying boundary which resulted from an earlier consonant loss. Such a boundary symbolized  $\emptyset$  was first used by Givon (1970a) also quoted by Mould.

Our apparent exceptions in (55) could also be analysed in the same manner. The presence of  $\emptyset$  in the underlying forms of (55) is strengthened by the fact that Upper Tana Kipfokomo dialects have initial  $l$  for the verb stems  $-i\phi a$  and  $-ima$ . If Mould's and Givon's analysis was accepted, the underlying representations in (55) could be given as shown: -

- |       |            |   |          |
|-------|------------|---|----------|
| 55'a. | /kuɕiɕa/   | → | [kuiɕa]  |
| b.    | /kuɕiɕiɕa/ | → | [kwi:ɕa] |
| c.    | /kuɕima/   | → | [kuima]  |
| d.    | /kuɕiɕima/ | → | [kwi:ma] |

In (a) and (c) glide formation is blocked by the consonant loss boundary. In (b) and (d), however, the consonant loss boundary  $\emptyset$  is preceded by the object infix  $i$  which causes the gliding of  $u$ .

While the problem of exceptions is supposedly resolved, one wonders whether it is psychologically possible for speakers of LK to keep  $\emptyset$  in their mental reality after so many generations of the loss. How could they after so many generations be able to pass on this never surfacing form to later generations? The theory of Natural Phonology

upon which this work is based, would never tolerate such an explanation. The expected thing to happen is that the rule of glide formation would be generalized to the new forms.

Our assumption is that there is another and more persistent reason for the failure of the glide formation rule on some forms. While the consonant loss boundary explanation cannot be left out altogether, we would like to think that the failure of the glide formation rule to apply in (55) is prompted by semantic factors. As we have already shown, the application of a rule may be restricted by semantic considerations.

If for example we suppose that the present vowel-initial verb stems *-iɸa* and *-ima* were historically consonant-initial as *\*/-liɸa/* and *\*/-lima/*, then the loss of the consonant is still recent in LK, being still evident in some Upper Tana dialects of Kipfokomo. The glide formation rule therefore, historically never applied to *\*/-liɸa/* and *\*/-lima/*. This is to say that the infinitiveness of the verb was marked by the infinitive prefix *ku-* not the derived form *kw-*. It may therefore be the case that after the loss of the initial consonant, the *ku-* prefix persisted as the gliding of *u* would result in a form difficult to classify. The case of *-ima* and *-iɸa* then, may be similar to that of */muana/* (54) where deletion of *u* is restricted by semantic considerations.

Our hypothesis is that while consonant loss has a role to play in the failure of glide formation to apply, it is not

wholly nor presently responsible. In other words, what prevents the operation of the rule on the forms in (55' a and c) is the historical relationship between ku- and /-liɔ̄a/ and /-lima/ to the extent that even after the deletion of l, ku- persists as the possible infinitive prefix for the vowel initial verb stems. Since the application of glide formation on /kuiɔ̄a/ and /kuima/ would result in forms aberrant and unidentifiable due to the absence of ku-, then the constraint against the application of the rule is semantic. The forms /kuima/ and /kuiɔ̄a/ would therefore be represented in the lexicon as exceptions to the rule.

The glide formation rule is given in features as below:-

$$56. \left[ \begin{array}{l} + \text{syllabic} \\ + \text{high} \\ \alpha \text{ back} \end{array} \right] \rightarrow \left[ \begin{array}{l} -\text{cons} \\ -\text{voc.} \\ \alpha \text{ back} \end{array} \right] / \text{---} \left[ + \text{syllabic} \right]$$

Condition: that  $\left[ +\text{syllabic} \right]$  is not identical to  $\left[ \begin{array}{l} + \text{syllabic} \\ + \text{high} \\ \alpha \text{ back} \end{array} \right]$

#### 4.2.2 VOWEL ASSIMILATION

We discuss in this section, vowel assimilation in Lower Kipfokomo. This process like glide formation involves differences in vowel heights. The high vowels i and u are lowered to e and o respectively when they occur after the low vowel a. In this section we shall only discuss vowel assimilation through contact that is, vowel coalescence.

Vowel harmony which is also an aspect of vowel assimilation (at a distance) will be treated in a later section (4.2.3).

Vowel assimilation is a phenomenon common to most Bantu languages. Polome (1967) in his analysis of vowel assimilation processes in Kiswahili argues that they constitute a single process rather than two. We also feel that a solution that analyses vowel assimilation in LK as two processes, that is, Lowering and Deletion, would be extravagant.

The vowel assimilation changes in LK can be listed as shown:

57. a + i → e  
a + u → o  
a + e → e  
a + o → o  
a + a → a

Polome terms the first two assimilations, that is, a + i and a + u, reciprocal in that in this type of assimilation each of the two vowels involved assimilates to the other in terms of height. Thus while a rises to either i or u to become e or o respectively, i also lowers to a by becoming e and so does u which becomes o. Ideally then the result should be a long vowel which, however, surfaces as a short vowel through loss of one mora (Polome 1967: 59).

The second pair of assimilations is termed by Polome as regressive. That is to say that the mid vowels e and



o influence a preceding a so that it becomes like them. The assimilative force moves backwards and is therefore regressive. As in the case cited above, the resulting vowel which should be long surfaces with loss of one mora as a short vowel. This is to say that the a + e and a + o coalescences surface as [e] and [o] respectively.

The third and final assimilation process, that between a and a, is termed by Polome as total assimilation. In this process, both the two low vowels assimilate to each other's features. As in the assimilation cases already discussed above, the resultant surface vowel is short, that is, [a].

We understand Polome's analysis as arguing that vowel assimilation and mora loss are one and the same process. Because of this we feel that Polome's analysis is simpler as it means that there will be fewer rules in our description.

There is also another reason why we take Polome's analysis as opposed to any other. Polome's analysis of the Kiswahili vowels is also strongly in agreement with the data in LK. For example, in LK, vowels that do not assimilate never undergo the mora loss change. Since vowel assimilation in LK automatically implies mora loss, it could be said that mora loss is the result of vowel assimilation as shown by the examples below:-

58. /ma + ini/ — [maini] 'liver' plural  
 /ma + anga/ — [maŋga] 'holes'  
 /ma + ua/ — [maua] 'flowers'  
 /ma + ongwa/ — [maoŋgwa] 'honey combs'

The above examples (58) show that the non-application of assimilation imply the non-application of mora loss.

Our analysis will therefore not recognise two rules, that is vowel assimilation and vowel deletion but only one that is, vowel assimilation with simultaneous mora loss. The rule is given as follows:

$$59. \begin{matrix} \vee \\ [+ \text{low}] \end{matrix} + \begin{bmatrix} \langle + \text{low} \rangle \\ \langle - \text{low} \\ \langle \alpha \text{ back} \rangle \end{bmatrix} \longrightarrow \begin{bmatrix} \langle + \text{low} \rangle \\ \langle - \text{low} \\ \langle - \text{high} \\ \langle \alpha \text{ back} \rangle \end{bmatrix}$$

This rule accounts for the following forms:-

60. /mainzi/ —→ [mɛpɛzi] 'many'  
 /maia/ —→ [mɛya] 'songs'  
 /mauma/ —→ [mɛmu] 'hard'  
 /mao:/ —→ [mɛ:] 'soft'  
 /maema/ —→ [mɛma] 'good'  
 /kaana/ —→ [kana] 'child' dim.

#### 4.2.3 VOWEL HARMONY

Vowel harmony is also attested in Kiswahili (see

Polome 1967:66). This process takes place only in the applicative function of verbal extensions. That is, the vowel *i* of the applicative function agrees in height with the root vowel. This height agreement, however, only takes place if the root vowel preceding the applicative vowel *i* is either *e* or *o* as illustrated by the forms below:-

61. /endia/ → [endeja] 'go for'  
 /tsezia/ → [tsezeya] 'play for'  
 /ɸeketsia/ → [ɸeketseja] 'mix with/for'  
 /koria/ → [koreja] 'write with/for'  
 /korisia/ → [koreseja] 'make write with/for'  
 /yowisia/ → [yoweseja] 'make look with/for'

As can be seen from the data, vowel harmony is a height assimilation process. This is to say that whether the mid vowel in question is + or - back is immaterial. What really takes place is that the high front vowel *i* assimilates to the midness of either *e* or *o*. And *i*, being a front vowel, lowers to the position of the mid front vowel *e*.

Since there is no process in LK in which a front vowel becomes back or vice versa, the constraint that *i* does not in fact become *o* but *e* will not be observed.

The rule,

$$62. \quad i \longrightarrow e / \left\{ \begin{array}{c} e \\ o \end{array} \right\} \$C \_$$

to account for the forms in (61) above is given in features

as shown: -

$$62'. \quad \begin{bmatrix} + \text{high} \\ - \text{back} \end{bmatrix} \xrightarrow{V} \begin{bmatrix} - \text{high} \\ - \text{low} \end{bmatrix} / \begin{bmatrix} - \text{high} \\ - \text{low} \end{bmatrix} \text{ } \#C -$$

The rule of vowel harmony is a global rule in the sense that it has the power to "refer back to earlier (often erased) stages of derivation" (Hyman 1975: 131). By this we mean that if the mid vowel of the verbstem is derived through for example, vowel assimilation, then vowel harmony does not apply. For example,

63. /isia/  $\longrightarrow$  [isiya] 'finish for'  
 /kaisia/  $\longrightarrow$  [kesiya] 'he/she finished for'  
 /kaimbia/  $\longrightarrow$  [kembiya] 'he/she sang for'

As the examples in (63) show, while the surface root vowel of the verb is e, as shown by the forms [kesiya] and [kembiya], the suffixed vowel of the applicative function i, does not harmonize with the surface root vowel e as might be expected. However, looking at the forms in (63), the root vowel is underlyingly not /e/ but /i/. The reason for the vowel harmony rule being blocked in (63) is therefore revealed. As such, rule (62') must be given the following constraint:

Condition: that  $\begin{bmatrix} - \text{high} \\ - \text{low} \end{bmatrix}$  of the verb root is not derived.

4.2.4 VOWEL LENGTHENING

Vowel lengthening is the process by which the vowel of the applicative suffix *i* becomes long when preceded by the high back vowel *u*. This process is related to the vowel harmony rule in that it is, as is the case with vowel harmony, the vowel *i* of the applicative suffix that is involved. It is similarly related to glide formation in that it is, as we shall soon show, the high back vowel *u* which causes the lengthening of *i*.

While we have mentioned that lengthening of *i* takes place when preceded by *u*, we must point out that it is the glide *w* which results from *u* followed by *i* that actually causes the lengthening of *i*. This may not seem too far fetched if we recall our earlier discussion on palatalization (see 4.1.5). We argued in our section on palatalization that it is the palatal glide *y*, derived from *i* that actually causes the palatalization of /k/, /d/ and /n/. In this case then, our vowel lengthening rule, will not use *u* as the participant in the rule but *w*. We feel that this is quite in order as the *u* → *w* change is taken care of by the glide formation rule which we have already discussed (see 4.2.0). The rule of vowel lengthening, is therefore given as shown:-

$$64. \begin{array}{c} \text{v} \\ [+ \text{ high} \\ - \text{ back} \end{array} \longrightarrow [+ \text{ long}] \left/ \begin{array}{c} - \text{ cons.} \\ - \text{ voc.} \\ + \text{ back} \end{array} \right. \text{---}$$

That is, a high front vowel, is lengthened, when it occurs after the labio-velar glide. This rule would account for the following forms: -

65. /nuia/ → [nwi:ya] 'remove for/with'  
/guia/ → [gwi:ya] 'buy for/with'  
/fuia/ → [fwi:ya] 'wash clothes for/with'  
/kuia/ → [kwi:ya] 'uproot for/with'

One wonders why a vowel should be lengthened here when we have seen in previous sections (for example 4.2.2) that the tendency is for vowels to shorten.

In our discussions on glide formation and vowel assimilation (see 4.2.1 and 4.2.2 respectively), we noted that a rule may fail to operate due to semantic constraints. For example, in the case of [kwisa] 'you finished' and [kuisa] 'you finished it'; the operation of the glide formation rule would produce two synonymous forms with different meanings. We have argued in (4.2.1) that the tendency is to restrict such convergences of forms with separate meanings.

The motivation for the vowel lengthening process seems to be different from that in glide formation. However, as in glide formation, the reason is semantic. In vowel lengthening, the morpheme { i } has got definite meaning, that is, to show instrumentation. Polome (1967) refers to it as the applicative suffix. It seems that in IK, the applicative infix i carries definite meaning if it

occurs as a distinct morpheme, that is, distinct in the sense of functioning as a separate mora.

In the case of the data given in (65) once the applicative morpheme *i* is introduced into the verb, the glide formation rule applies. The application of glide formation results in a resyllabification of the verb which produces a merger between the verb root and the applicative morpheme as shown:-

66. /nuʃ i ʃ a/ → nwiʃ a

The loss of the distinctiveness of the applicative morpheme implies a loss of its semantic value. In other words, the intermediate form *nwia* is not an applicative verb.

The lengthening of the applicative vowel, must therefore be seen as an attempt to restore this distinctiveness of *i* so that it stands as a separate mora. The process of vowel lengthening can therefore be seen as shown:-

67. /nuia/ → nwia → [nwi:ya]  
 /ɠuia/ → ɠwia → [ɠwi:ya]  
 /fuiia/ → fwia → [fwi:ya]  
 /kuia/ → kwia → [kwi:ya]

Rule (64) is morphophonemic in that it is the morphophoneme

*i* which lengthens in the environment of a derived *w*.

Hence the following condition on Rule (64): That  $\begin{bmatrix} -\text{cons.} \\ -\text{vcc.} \\ +\text{back} \end{bmatrix}$  is derived through glide formation.

FOOTNOTES

1. Nasal Devoicing has been treated separately under "Nasal Devoicing and Aspiration" (see 4.1.3).
2. An implosion feature is suggested by Chomsky and Halle (1968:322) but not actually used. Ladefoged (1975) uses 'implosive' as a 'phonological term' covered by the prime feature 'Glottalic' which also includes the phonological terms 'ejective' and 'pulmonic.' The prime feature glottalic, being too wide for our purposes, we adopt the use of the term 'implosive' as a phonological feature.
3. The feature 'palatal' is used as given in Hyman (1975).
4. A similar view of the Bantu noun class systems is observed by Maundu (1980) who points out that the prefix in Kikamba carries referential meaning.



## CHAPTER FIVE

### 5.0 SUMMARY AND CONCLUSION

This chapter is a brief assessment of the discussions held in the foregoing chapters. In section (5.1) we shall make summaries of the major points of discussion in each of the previous chapters. The final section (5.2) will give concluding remarks. We shall also attempt to point out the practical significance of the work from both linguistic and educational points of view.

### 5.1 SUMMARY

In our first chapter, we showed that the Wapfokomo are a heterogenous group. The study therefore, limits itself to a particular linguistic area whose dialect we called Lower Kipfokomo. We pointed out the lack of linguistic materials on Kipfokomo and hence the need for linguistic studies on the language as a whole. Our study is made within the model of Natural Generative Phonology (NGP) as expounded in Hooper (1976).

The second chapter outlined the underlying segments. These are not traditional phonemes nor are they the transformational kind, but they are the less abstract natural systematic phonemes. This is to say that each segment posited as underlying has a surface manifestation. A total of thirty six (thirty one consonantal and five vocalic) segments were posited as underlying. Only the short vowels are discussed in this chapter.

The next chapter is on vowel length. Three sources of long vowels are shown to exist that is, by vowel coalescence, by vowel lengthening and as underlying. We have tried to show in this chapter, that though few, some cases of long vowels in LK cannot be adequately explained except as underlying segments. In doing this we used both the notions of minimal pair and underlying morpheme. As such we established five underlying long vowels bringing the number of underlying vowels to ten and the total number of underlying segments to forty one.

Chapter four discusses the phonological processes. The first major section is on the phonological processes of consonants. These are, Homorganic Nasal Assimilation, Continuant Strengthening, Nasal Devoicing and Aspiration, Plosivization and Palatalization. The second major section is on the phonological processes of vowels that is, Glide Formation, Vowel Assimilation, Vowel Harmony and Vowel lengthening. Rules are given on every phonological process discussed. The rules are mostly in Chomskyan features. Where necessary other features are used as, for example, in the case of the feature Palatal quoted from Hyman (1975).

The motivation for the operation of rules is discussed and their naturalness shown. In the case of rules failing to apply despite their structural descriptions being met, valid explanations are given.

## 5.2. CONCLUSION

This work is a phonological study on Lower Kipfokomo. It will be seen however, that certain domains of phonology have been left out. This, as we have already explained, is mainly due to a limitation of time. We however, feel that a segmental study of a language is fundamental to any linguistic study of that language. Ours being the first of its kind on any one of the dialects of Kipfokomo, is of vital importance as an initial study.

We feel that our study could be useful not only as a contribution to general linguistic theory but also to the current studies on the languages of the Northeast Coastal Bantu.

More important, there have been a number of theories concerning the origin of Kiswahili. The most prominent is that Kiswahili is basically a Bantu language related to such other languages as Kidawida, Kipfokomo and the Mijikenda group of languages. We feel that any valid and practical hypotheses on the origin and genetic relationships of the Kiswahili language must first take into account studies of the languages related to it.

Krapf (1967) mentioned as early as 1844 that Kipfokomo speech is very closely related to that of Kiswahili. He says, "Their (Poko) language has been greatly blended with Galla and Jubeli expressions and the Author often supposed that the Jubeli tongue might have originated

from that of the Pokomo". Krapf also mentioned that the Wapfokomo traded with the Waswahili of the Coast. Could this have been the source of the spread of a Pfikomo dialect which later emerged as Kiswahili?

Stories of the Wapfokomo relate of their having migrated from Mungini near Lamu. The closeness of Kipfokomo speech to Kiswahili is even now unquestionable. Many speakers of Kiswahili can without much difficulty understand some Kipfokomo. Is it mere borrowing that makes the two languages so close? Or could it be that at some point in history, much more recent than our linguists tell us, the two languages were one? All these are questions that we feel call for further research into the languages closely related to Kiswahili.

Historical studies have been done by Hinnebusch and others, but they are, in our opinion, too peripheral in that they dealt with the various languages and dialects all in one volume and limitations of space could not allow for detailed analyses of individual dialects. May be, as some linguists have suggested, historical-comparative studies should be done which start with detailed analyses of the individual dialects in question and then work upwards to draw proto-forms, first at dialect level and then at language level. We believe that in this way only can the full dynamics of the changes be properly drawn.

At a time when the government is initiating adult literacy programmes throughout the republic, we feel that

our work could also be useful in the revision of the present LK orthography which has unnecessary influences of the German orthography. [  $\text{f}$  ] for example, which we in this work represent orthographically as 'pf', is represented in the LK orthography as 'bf' because 'pf' represents a different sound in German orthography! [  $\beta$  ] is in turn represented in LK orthography as 'v'. Furthermore, we feel that this work could be useful in any future attempts to standardize Kipfokomo.

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