A LINGUISTIC ANALYSIS OF LUYIA VARIETIES SPOKEN IN WESTERN KENYA

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A Linguistic Analysis of Luyia Varieties Spoken in Western Kenya

by

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ABSTRACT

The Luyia people identify themselves as a group that uses the language Luyia. However, there are significant linguistic differences among the speakers, a situation described as the existence of Luyia dialects. The sound realizations differ in each variety, a condition that the Luyia speakers themselves are aware of. Hence they talk of speakers of other varieties as having a characteristic articulation of a particular sound. These differences are a result of the way in which each Luyia variety has developed from the proto-language, Proto-Luyia. The Luyia varieties show a high degree of correspondence at all levels, but differ one from another to the extent that a separate treatment of each variety could be justifiable. At the phonological level for instance, a majority of the phonological correspondences appear to be regular and predictable. However, there exist some sound differences that are quite distinct because of processes such as Bantu Spirantization, Dahl's Law and the Luyia Law, which operate differently. Therefore, attempts at a rigid classification of Luyia varieties based on the status of these processes are likely to fail. The results indicate that Bukusu, Kabras, Wanga, Xaayo, Marachi, Saamia and Kisa attest Bantu Spirantization. These varieties represent the northern and central varieties of the geographical classification of Luyia varieties. Dahl's Law occurred across Luyia, but its results are complicated by the later application of the Luyia Law that obscures the results of Dahl's Law. The trigger consonants for Dahl's Law in Luyia include p, t, and k, which affect p, t, and k as target consonants in Logooli, and affect only t in Xaayo, Marachi and

Saamia. The Luyia Law is attested across Luyia except in Logooli where it is not attested and in Saamia where it is not uniform. Saamia shows the Luyia Law for *p, *k and *g, but not for *t.

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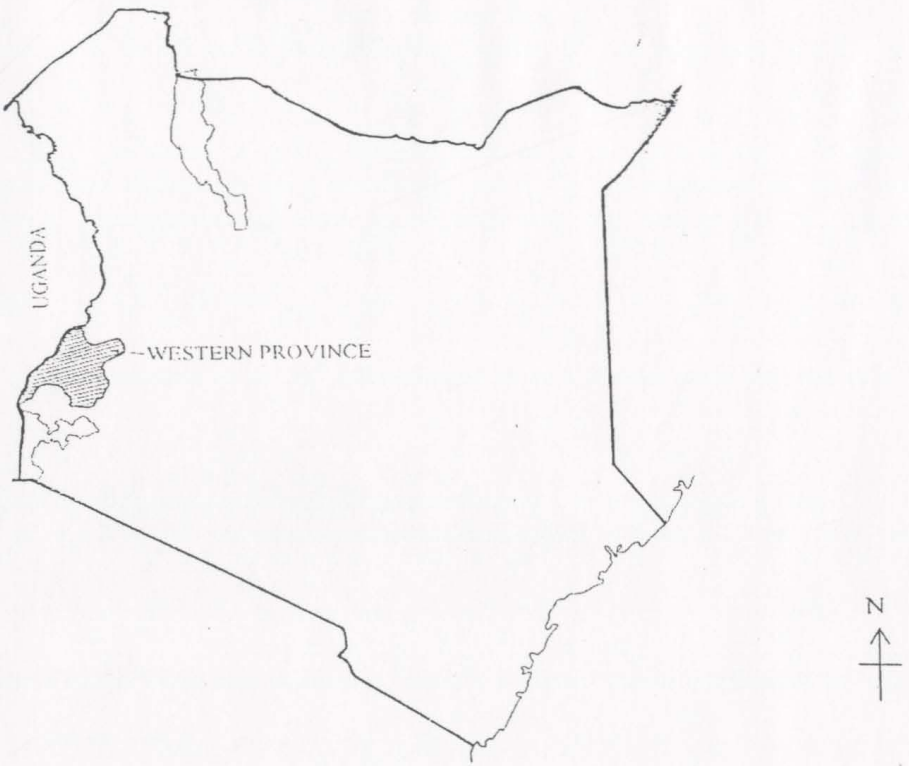
LIST OF ABBREVIATIONS

PB	Proto-Bantu
PL	Proto-Luyia
NEV	North East Victoria
BS	Bantu Spirantization
DL	Dahl's Law
LL	Luyia Law
Ptn	position
G	Ganda
B	Bukusu
K	Kabras
W	Wanga
X	Xaayo
M	Marachi
S	Saamia
NyB	Nyala B
Id	Idaxo
Is	Isuxa
T	Tiriki
K	Kisa
L	Logooli
Gu	Gusii

CHAPTER ONE: Introduction

The Luyia are a group of some four million people (Grimes 2000) residing in western Kenya on the Kenya-Uganda border, adjacent to the (non-Bantu) Kalenjin and Luo to the east and south, respectively, and whose northern limit is Mount Elgon. Maps 1 and 2 show the geographical location of Luyia within Kenya and the Luyia varieties spoken in various districts of Western Province respectively.

Map 1: Western Province location within Kenya



Map 2: Luyia varieties spoken in each district of Kenya and the surrounding languages

Scale
1 2 3km

The Luyia form the second largest linguistic group in Kenya. The Luyia people identify themselves as the group that uses the language Luyia. There are significant linguistic differences among the speakers, a situation described as the existence of Luyia dialects. These differences are as a result of the way in which each dialect has developed

from Proto-Luyia. The number of dialects that form Luyia is dependent upon the way they are counted, since there is no generally accepted method for distinguishing between dialect and language. Because of this, I choose to use varieties as a substitute for dialects. Luyia varieties number either sixteen or seventeen within an area of over 3000 square miles, (Itebete 1974). Map 3 shows the twelve Luyia varieties undertaken in this study, with the control languages Ganda (E15) to the north and Gusii (E42) to the south.

Map 3: The twelve Luyia varieties studied together with Ganda and Gusii

1.1 The research problem

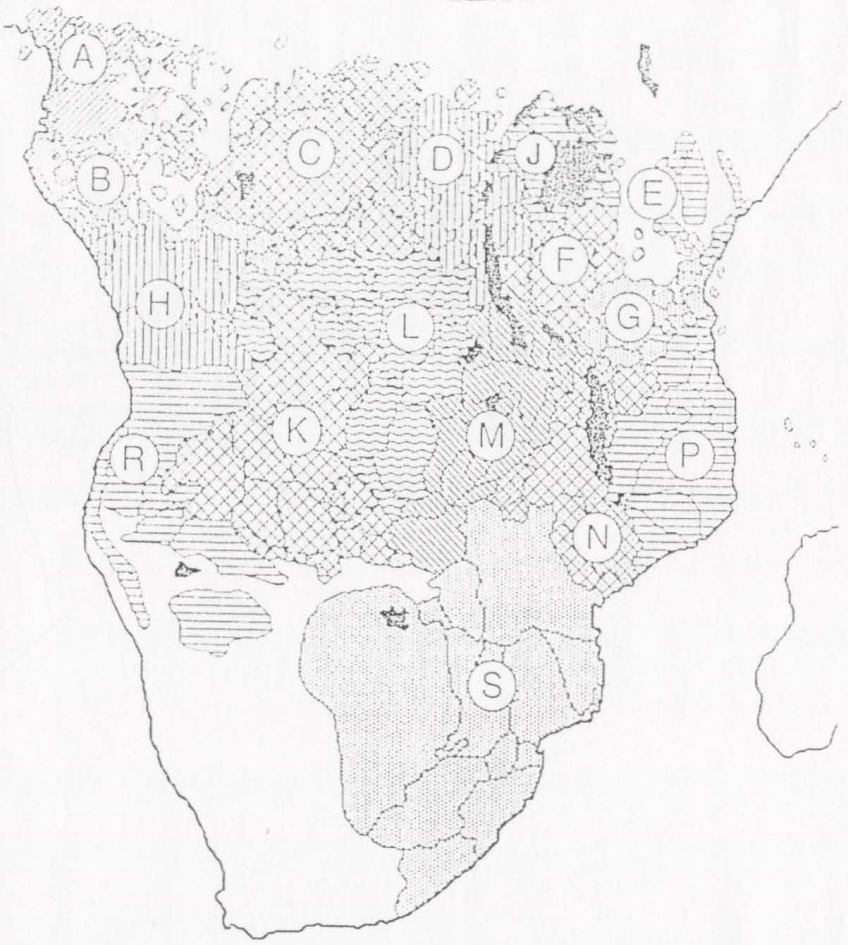
1.1.1 Background to the research problem.

Three kinds of approaches have been used in determining the genetic relations among Luyia varieties. The first can be seen in Guthrie (1967), who uses a set of criteria not purely linguistic and divides the Bantu area into 15 zones, with each zone divided into a variable number of groups, for example, A10, E20, etc. Map 4 (page 5), shows Guthrie's zones. Guthrie has the group Masaaba-Luyia under zone E30. Masaaba-Luyia divides into Gisu, and Kisu in Uganda, and Bukusu, Hanga, Tsotso, Nyore, Saamia and Nyuli in Kenya.

The second approach involves lexicostatistical analysis, which (Nurse and Philippson 1980) evaluates the degree of similarity between the Bantu languages of East Africa, by comparing a set of vocabulary. They group the languages into immediate groups, and where possible, into larger groups. Nurse and Philippson (1980) combined Guthrie's E30 (Luyia) and E41 (Logooli), forming a larger group than previously. They then subdivided Luyia into northern and southern dialect areas. The northern area consisting of Masaaba-Saamia and the southern area Logooli-Isuxa.

The third approach characterises the whole group on the basis of a small number of sound correspondences and some shared inflectional morphology (Angogo 1980, Bennett 1973, and Mould 1981). Each of these authors uses different criteria in analysing Luyia. Angogo (1980) compares the structural aspects of the Luyia varieties, using phonology, morphology, syntax and lexicon/semantics. Based on this, she groups the dialects into three, namely northern Luyia (centered around Bukusu), central Luyia (centered around Wanga)

Map 4: Guthrie's Zones



and southern Luyia, with Logooli being the locus. Bennett (1973) uses phonological isoglosses, and postulates a tripartite division of the language family he referred to as North-East Victoria Bantu (NEV) which includes northern (Gisu, Masaaba and Bukusu), southern (Idaxo, Isuxa and Logooli), and central, which comprises all the intervening dialects of Xaayo, Saamia, Nyole, Gwe, Nyuli, Hanga, Nyala and Tsotso. Mould (1981) examines

Luyia within the context of Bantu languages of the western section of East Africa. He assumes a geographical subdivision of Luyia into northern, eastern, southern, western and central Luyia. The scope of his work covers five representative dialects from four sub-divisions, (excluding the eastern sub-division), because his claim is that eastern Luyia dialects resemble those of central and northern. In his discussion, Mould distinguishes between Greater Luyia (Luyia and Logooli) and Luyia (rest of Luyia dialects). He focuses on the linguistic status of Greater Luyia vis-a-vis Interlacustrine (North Nyanza, Rutara, Western highlands) and East Nyanza (Gusii, Kuria). Mould uses lexicostatistical (200 word list) and phonological (sound correspondences, consonant internal reconstruction, Bantu Spirantization and the 7-to-5 vowel merger, spirant devoicing, the Luyia Law and nasal cluster rules) and morphological (tense/aspect system) data in describing Greater Luyia. The initial focus is on Greater Luyia as a group, followed by a discussion on the group's relationships with its immediate neighbours. Mould concludes that Greater Luyia is justified in so far as nasal cluster rules are concerned, and that Bantu Spirantization distinguishes northern and central Luyia from the rest of Luyia.

1.1.2 Research objective

Linguists have long puzzled over the dialect divisions within Luyia and especially over the concept of north versus south Luyia. Why should varieties, perceived to be mutually intelligible and viewed by their speakers as belonging to one group, be divided by their different treatment of certain phonological phenomena (Bantu Spirantization, seven

versus five vowels), which elsewhere only divide major Bantu subgroups from their neighbours? The question that is still left unanswered is whether the overall varieties grouped as Luyia should in fact be so classified, or should they be classified differently.

The goal of this study is to determine boundaries between Luyia varieties that are primarily motivated by linguistic factors with the hope of contributing knowledge to the linguistic classification of Luyia varieties for the creation of a linguistic dialect map of Luyia. The main focus of the work is to show the linguistic variation that exists in Luyia. These varieties are examined using three phonological innovations affecting consonants, namely Dahl's Law, Bantu Spirantization, and the Luyia Law. Dahl's Law is defined as a dissimilation process that voices the first of two voiceless obstruents which are always separated by an intervening vowel (Bennett 1976). Bantu Spirantization is a phonological process whereby the non-nasal consonants of Proto-Bantu became most often fricatives before high vowels /i̧/ and /u̧/, with the effect of producing fricatives /s, f, v, z/ not formerly present in the system (Schadeberg 1995). The Luyia Law is a process which involves the spirantization of voiceless stops and the devoicing of voiced stops (Mould 1981). Details of these processes are dealt with in section 1.2.

1.1.3 Theoretical/conceptual framework

This work is partly based on Chambers and Trudgill's (1980) space models of diffusion. Their discussion also includes lexical diffusion as an explanation for incomplete sound changes. The models of diffusion discussed by Chambers and Trudgill will be

incorporated with a simple taxonomic model that will involve drawing of isoglosses in maps for each relevant feature. A look at how the processes operate within Luyia reveals a pattern which indicates the existence of a focal area from which the innovations originate and in which the process is regular.

The Luyia continuum is represented as below.

Northern Southern

|----------|----------|----------|----------|

Bukusu Wanga Saamia Idaxo Logooli

Bantu Spirantization has its focal area in northern Luyia and spreads through to central Luyia, with southern Luyia not affected at all (Bennett 1973). Southern Luyia varieties and the control language Gusii which do not undergo Bantu Spirantization have seven vowels, while north and central varieties and the control language Ganda have five vowels as shown in Map 6 (page 28). Map 7 (page 42) shows Bantu Spirantization in Luyia, where a single line drawn separates the northern and central Luyia region, where Bantu Spirantization occurs, from the southern Luyia region, where it does not occur. The control languages on each end show similar results to those of the neighboring Luyia variety. Ganda, which is in the north, attests Bantu Spirantization, while Gusii which occurs in the south does not attest Bantu Spirantization. Bantu Spirantization is normally followed by the 7-to-5 vowel merger process (Schadeberg 1995).

Dahl's Law for instance, has its focal area within southern Luyia where the process is regular, as in the neighboring control language Gusii (E42), and leaves only traces as it spreads through central Luyia to northern Luyia, and the neighboring control language Ganda (E15), where Dahl's Law is not attested. Dahl's Law results in Luyia being divided into three categories. Category A: Logooli, Category B, Xaayo, Marachi and Saamia: and Category C, Bukusu, Kabras, Wanga, Nyala B, Kisa, Idaxo, Isuxa and Tiriki as shown in Map 9 (page 70). A single line is drawn to separate the southern Luyia region where active Dahl's Law is attested and another line drawn to separate the central Luyia region where both active Dahl's Law and traces occur, and the remaining region showing varieties with Dahl's Law traces.

The Luyia Law occurs in all varieties of Luyia except Logooli (Bennett 1973), and in Saamia, where it is not uniform. This is represented by a single line that separates the region occupied by Logooli speakers, where the Luyia Law does not occur, from the rest of the Luyia geographical region, where it occurs.

The phonological innovations spread through the transition area in which the spread loses its generality (because some sound changes are incomplete), towards the relic area which is not affected by the spread. Chambers and Trudgill (1980) mention that the transition area contains mixed varieties.

In a geographical dialect continuum, dialects on the outer edges of the geographical area may not be mutually intelligible, but they will be linked by a chain of mutual intelligibility (Chambers and Trudgill 1980). The further one gets from the starting point,

the larger the differences will become, if the distance involved is large enough. Thus, finding a particular isogloss delimiting areas in more than one part of the survey region with no continuity is a possibility (Chambers and Trudgill 1980). Chambers and Trudgill (1980) further mention that such linguistic features that exist in two or more parts of the region are separated from one another by an area in which a different feature occurs. Such a pattern, they remark, indicates a late stage in the displacement of a formerly widespread linguistic feature by an innovation, because in the earlier times the feature which occurs in isolated areas was also found in the in-between areas. These types of areal features, they state, are as a result of linguistic innovation originating in one dialect and then spreading to neighbouring varieties, regardless of the language boundaries, presumably through the medium of bilingual individuals.

1.1.4 Justification

No good linguistic investigation of Luyia varieties has ever been published. The above statement is supported by Angogo (1980:11:)

> *The fact that the local dialect divisions also roughly coincide with the locations is to be expected in the light of the composition of the Abaluhyia clans, but from a linguistic point of view it means that we still lack an accurate dialect map of Buluhyia. The majority of phonological correspondences among the Luyia dialects appear to be regular and predictable, though no systematic study of them has yet been made.*

A more recent call for research focussing on Luyia varieties is seen in Nurse's (1999:32) suggestion for future work examining the overlap between linguistic and ethnic boundaries. Nurse poses the question:

> *What happened on the eastern side of Victoria, where the Luyia speak of themselves as one group, but their dialect area is split by what linguists would consider major differences?*

This study therefore aims at contributing knowledge towards an analysis of Luyia varieties from a linguistic point of view.

1.1.5 Scope

The overall scope is primarily a linguistic one, analysing Luyia varieties in question using three diachronic phonological processes, Bantu Spirantization, Dahl's Law and the Luyia Law. Although Luyia is also spoken by groups of people who live on the Uganda side of the border, the scope of this research is limited to varieties spoken on the Kenyan side. The varieties covered in this study are Logooli, Idaxo, Isuxa, Tiriki and Kisa (southern Luyia), Bukusu and Kabras (northern Luyia), and Saamia, Wanga, Xaayo, Marachi and Nyala B (central Luyia).

1.2 Methodology

1.2.1 Phonological component

This study focuses on Dahl's Law, Bantu Spirantization and the Luyia Law. These processes are briefly described in this section but each will be dealt with in greater detail in subsequent chapters.

Why phonological analysis? Despite the fact that Bantu languages are related and exhibit common structural features at the phonological level, dialect differences are nevertheless considerable. A number of differences are the result of Bantu Spirantization, Dahl's Law and the Luyia Law, which operated differently in different dialects. For instance, a look at the Proto-Bantu system from which Luyia is derived, shows the absence of fricatives /s/ and /f/ at the phonemic level but which exist in some of these dialects after the occurrence of Bantu Spirantization. Let us compare the Proto-Bantu inventory (1) with that of Wanga (2) where Bantu Spirantization took place.

(1) Proto-Bantu Consonant Inventory

p	t	c	k	
b	d	j	g	
m	n	ň		(Meinhof 1932)

(2) **Wanga Consonant Inventory**

	t		k
b	d	j	g
f	s		x
m	n	ň	
	y		

(Mould 1981)

Luyia speakers are aware of the phonological differences in each variety and hence talk of speakers of other varieties as having a characteristic articulation of a particular sound. Thus one will hear statements such as "Bukusu's pronounce [muxono] while we pronounce it as [mukono]," from Logooli speakers. Thus a phonological analysis, I believe, will clearly show the variation.

1.2.1.1 Dahl's Law

As defined earlier, Dahl's Law is a dissimilation process which in its most general form voices the first of the two voiceless obstruents that are always separated by an intervening vowel (Bennett 1976:133). Bennett points out that Dahl's Law manifestations vary from language to language. For instance, within East Africa, the process is active in some languages, while in others there are traces, and in a few languages (such as Swahili) there appear to be none (Nurse 1979:118). Bennett (1976) claims that even in those

languages where the process occurs regularly, it varies considerably in both form and range of application. Dahl's Law works in a variety of environments, from restrictions to a wide range of application. For instance, in Luyia, it does not apply except within a morpheme; in other Bantu languages such as Kikuyu, elements prefixed to the morpheme are affected, while in Gusii, both prefixes and morpheme final consonants followed by suffixes are affected (Bennett 1976: 113). Restrictions on the occurrence of Dahl's Law are imposed not only by the position within the word or morpheme of the two consonants, but also the range of consonants which may condition or be conditioned. Details of this are dealt with in Chapter 3.

1.2.1.2. Bantu Spirantization

Bantu Spirantization is a phonological process whereby the non-nasal consonants of Proto-Bantu became most often affricates, then fricatives, before degree 1 vowels (* į and *ų), the two highest vowels in the seven-vowel system. This process is normally followed by the 7-to-5 vowel merger where į and the next high vowel i merge to become i, and ų and u merge to become u. Thus, the seven vowels are reduced to five. Details of this merger are discussed later in subsequent chapters. See Nurse and Hinnebusch (1993:115) for detailed examples in table form showing the effects of Bantu Spirantization in Swahili. Some examples from Giryama are quoted in (3) below.

(3) **Bantu Spirantization in Giryama**

PB	Giryama	Gloss	
**-pi̧da*	*ufira*	pus	
**-ti̧ku*	*siku*	day	
**-tu̧ngo*	*fungo*	genet cat	
**-pu̧ngate*	*fungahe*	seven	Nurse and Hinnebusch (1993:113)

1.2.1.3 The Luyia Law

A number of Luyia varieties show a group of rules involving a consonant shift, similar to that of Grimm's Law in Germanic languages. This phenomenon is subsequently referred to as the Luyia Law. The Luyia Law involves the devoicing of voiced stops and the spirantization of voiceless stops (Mould 1981:194). The two Luyia Law processes will be treated separately (Maps 10 and 11, pages 71 and 72 respectively). The following examples illustrate the Luyia Law. The segments affected are underlined. The Proto-Bantu form **-ku̲ba* > *-xupa* 'hit', **-g̲uda* > *-kula* 'buy'. The voiced stops b and g devoice to p and k respectively. The spirantization of voiceless stops is seen in the example, **-k̲ono* > *-xono* 'arm' (Mould 1981:194).

Luyia Law spirantization and Bantu Spirantization are different in several ways. Whereas Bantu Spirantization was only triggered by first-degree vowels * i̧ and * u̧, the Luyia Law occurred in any remaining intervocalic environment. And whereas Bantu Spirantization affected all non-nasal consonants, the Luyia Law only affects voiceless *p,

t, k that spirantize to h, r, and x respectively. This analysis assumes that the changes of *b, d, > ß, l, t, s, and maybe of *c > s are not part of Luyia Law spirantization. The change of *t to r assumes an intermediate step, where [ɽ] was a voiceless retroflex fricative. Bukusu variety has a voiceless fricative [ɽ]. For example, *ɲuuɲa* means 'take some load off from one's head', while *rura* means 'get out of here'. Examples illustrating the Luyia Law drawn from Bukusu and Wanga are given in (4), with the affected segments underlined.

(4) The Luyia Law in Bukusu and Wanga

Proto-Bantu	**Bukusu**	**Wanga**	**Gloss**
**-teg-*	*ɽeka*	*reka*	set a trap
**teek*	*teexa*	*teexa*	cook
**-gumba*	*o-mu-kumba*	*mu-kumba*	barren woman

The second line in (4) assumes *teek > deek → deex → teex. The PB *t undergoes Dahl's Law to d, which then devoices to t.

1.3 Data collection

The linguistic data presented here are drawn from twelve Luyia varieties, which help establish the various groups into which these varieties may be categorized from an objective point of view. A questionnaire was used for data collection. This questionnaire comprised a list of 250 words for each variety of Luyia under study.

1.3.1 The 250 word list

The 250 word list was derived from Guthrie's (1967) reconstructed Common Bantu lexical items, Masele's (2001) word list used for eliciting lexical items for a discussion of Dahl's Law in three Bantu languages spoken in Tanzania, Bickmore's (1998) data used in examining Dahl's Law in Gusii, Hyman (1967) for data in Ganda, and Grimes' (2000) data found on the Summer Institute of Linguistics' web page.

The list contained standard vocabulary widely known to speakers of all Luyia varieties. Care was taken such that words elicited were unambiguous and reliable. That is, the list consisted of body parts, names of common animals and plants, household implements commonly used, natural phenomena, and verbs referring to clear functions. The list was translated into English and is found in the Appendix.

1.3.2 The interview session

Interview sessions were carried out where the informant responded to the items on the list in her/his own variety. During the interview, two copies of the lists were used. The interviewer filled one list, while the informant followed along in the second. The list was read out to the informant as she/he followed along and the elicitation was tape-recorded. Questionnaires were filled as the interview progressed. The tape-recorded information was later transcribed.

1.3.3 The informants

The informants selected fell within the age category of 30-60 years and were trilingual in their ethnic language, Swahili, and English. The purpose of drawing upon this sample was to eliminate use of interpreters. Target informants were university students and professors, as well as employees within the government and private sector in Nairobi. Later on the older generation of speakers in Luyialand served as key informants as a means to validate the collected data. Overall twenty-four respondents participated in this study with two informants selected for each of the twelve varieties of Luyia under investigation. The variety I speak is Bukusu.

1.3.4 Data analysis

The following are some of the questions that were used as a guiding tool in the data analysis process.

(a) Identification of variation patterns of Bantu Spirantization, Dahl's Law, and the Luyia Law within the various varieties. Resulting patterns are used as diagnostic criteria in the classification.

(b) While some changes may apply only to particular segments, others may apply entirely to natural classes of segments with each correspondent change noted. For example in Logooli, Dahl's Law affects **p**, **t** and **k** (*-pita > ßita, *-tap- > daha, *-kut- > guta), while in Saamia **t** is the only affected consonant (*-tap- > daya), and not **k** as seen in the example *-kụt- > kụta.

1.4 Literature review

Not all the literature written on Luyia is relevant to this study. The literature dealt with in this section focuses on the theme of the work and not on 1Luyia issues in general. The literature review therefore, deals with works on Luyia dialectal/ variation, and not with Bantu Spirantization, Dahl's Law and the Luyia Law. Why? Besides (Mould 1981), who samples five representative Luyia varieties, and uses Bantu Spirantization, Dahl's Law and the Luyia Law to compare Luyia in general to other eastern Bantu languages spoken in Uganda, there are no other works available that I am aware of that analyze Luyia using these processes. However, in cases where additional works are discussed within the study, titles will be included in the Bibliography. Very few articles have appeared to date in which the focus has been a Luyia dialect analysis. Most works examine individual grammars of different Luyia varieties.

Bennett (1973) study describes the Bantu languages of North-East Victoria. These include members of Guthrie's E30 and Logooli E41. Bennett divides the NEV area into subgroups as follows:

Northern — Gisu, Bukusu.

Central — Nyuli, Luyia (spoken in eastern Uganda and western Kenya), Nyole, Wanga.

Southern — Logooli, Gusii, Kuria.

His sub-grouping is based on a discussion of eight areas of phonological innovation he views as important to the dialectology of the NEV area, namely 7-to-5 vowel shift, certain

phonological changes including ***ai** > ***aaj** and ***u** > ***uu**, ***k** > **x**, ***t** > **r**, reflexes of ***j**, pre-nasalization, treatment of ***p**, and behaviour of velars before vowels. He discusses each individual innovation, its distribution and the original source point and concludes that there exists an areal distribution of the various changes, and that relative ordering of the innovations can be used to account for certain data.

His claim on the existence of areal distributions is based on the fact that the NEV languages under study are in contact, and that one will find some sound shifts in some languages that share similar patterns. This could be an indication that one language could have borrowed the property (hereby referring to the phonological change) from the other, or both could have borrowed it from some third language. Bennett claims that NEV forms an areal group sufficiently coherent to allow fairly easy communication and transmission of linguistic innovations. Some innovations are restricted to certain areas within the group. He uses the geographical facts of distribution to account for the chronology of the changes, by comparing the number of innovations that he discusses as they occur within the restricted subgroups to get the relative ordering of the changes.

His conclusion is based on the fact that NEV's affiliations are with the languages to the south, that is, Gusii and Kuria, rather than those to the north and west, and because there are relatively few features common to all members of the NEV group that are not shared with E40, he views them as resulting from linguistic diffusion.

Varieties such as Isuxa and Idaxo, which belong to the southern group and which resemble more closely the central group, do not undergo the 7-to-5 vowel merger, although

they show the replacement of voiceless stops with fricatives. A number of lexical isoglosses link them with Logooli rather than the central group. The southern group also shows a number of forms with s replacing the expected consonant before i̧. Bennett's work provides a good basis of analysis for the Luyia varieties in question.

Brown's (1968) work is worth mentioning, since it deals with Gisu dialect divisions. The results indicate that Gisu is divided into two major dialects which coincide with the geographical division of the area. She explains that the geographical and administrative structure of the Gisu dialect region not only influence the dialect distribution, but also appear to have shaped the analysis of dialect distribution. Brown's study deals in particular with phonology.

The most important work and the one which has provided the ground for this study is Mould (1981). This work offers a linguistically based sub-classification of the western Kenya and eastern Uganda Bantu languages and partial reconstruction of their immediate proto-form. Mould's (1981) work on Greater Luyia is valuable and his findings significant. Mould acknowledges a geographical subdivision of Luyia into northern, eastern, southern, western and central, and selects the representative varieties for his study which include Saamia for the west, Wanga for central, Bukusu for north and Logooli for south. His findings are discussed in detail in subsequent chapters. The present study has benefited considerably from it and has in some part followed his approach. However, the goals and scope of each are different. Mould sees Luyia as a discrete group, and the present study sees Luyia as a cluster of distinct and identifiable varieties from a linguistic point of view.

CHAPTER TWO

BANTU SPIRANTIZATION AND THE 7-TO-5 VOWEL MERGER

2.0 Introduction

This chapter discusses Bantu Spirantization, a process that is widely attested in Bantu languages (Nurse 1999, Schadeberg 1995), and the 7-to-5 vowel merger process in Luyia, based on the principle that sound change is regular. The principle that sound change is regular allows one to identify problematic data and often find explanations for them. The problematic data in this chapter will be listed as footnotes.

As defined earlier on, Bantu Spirantization is conditioned by the highest Proto-Bantu vowels *į and *ų following the affected consonants. For maps showing the spread of Bantu Spirantization across Bantu languages, see Guthrie (1967), Moehlig (1981), or Nurse (1999). Hinnebusch and Nurse (1981) mention that Bantu Spirantization varies from language to language. For example, in Swahili, Bantu Spirantization results in **f**, **v**, **s**, **z** and **š**, while in Luyia, the resulting fricatives are limited to **f** and **s**, as will be seen later on in the chapter. Examples provided from Swahili are as shown below:

(5) Bantu Spirantization in Swahili

Proto-Bantu			**Swahili**	
*p/ _*į	*-pįnia	'pinch'	f:	finya
*t/ _*į	*-tįtu	'forest'	s:	m-situ
*b/ _*į	*-bį	'excreta'	v:	ma-vi
*g/_*į	*-gįge	'locust'	z:	n-zige
k/_ į	*-kįna	'tree base'	š:	šina

(Hinnebusch and Nurse 1981)

In stating the formal rule for Bantu Spirantization, Hinnebusch and Nurse (1981) and Nurse and Hinnebusch (1993) state that any combination of features which involve the feature [labial], such as *p, *b and *ų, all [labial], yield labiodental f or v depending on the voicing feature of the input segment. Combinations not involving the feature [labial], that is, *t, *d, *k, *g and *į as part of the conditioning environment yield s and z. Based on this analysis, Hinnebusch and Nurse (1981) hold the view that development involving Bantu Spirantization should be seen as a single unitary innovation rather than individual shift which occurs independently, and therefore Bantu Spirantization can be utilized as a subgrouping innovation for languages that share it.

In most Bantu languages, the plosives *p, *t, *k, *b, *d, *g, *c, followed by *į and *ų, weaken to fricatives possibly via an affricate stage (Nurse 1987, Hinnebusch and Nurse 1981) and become distinguishable from plosives followed by the other vowels *i, *e, *a, *o,

*u. That is, in languages that exhibit Bantu Spirantization, the reflexes of the plosives before Proto-Bantu *ị and *ụ must be different from those before Proto-Bantu *i, *e, *a, *o, *u; otherwise the process is not Bantu Spirantization. The Proto-Bantu vowel system referred to in this study follows that of Guthrie's (1967) vowel notation, an important point since the notation forms the major background to the Bantu Spirantization process. The seven-vowel system is represented as below.

(6) The seven-vowel system

Level 1	ị		ụ
Level 2	i		u
Level 3	e		o
Level 4		a	

The Bantu Spirantization process had the effect of producing fricatives f, v, s, z, not formerly present in the system. According to Guthrie (1967), reflexes of *p/_*ị and those of *b/_*ị are usually distinct from the reflexes of the other stop consonants *t, *d, *k, *g. Guthrie however mentions that exceptions may occur. He goes further to state that in many languages reflexes of *t/_*ị and *k/_*ị are identical as are those of *d/_*ị and *g/ _*ị. Schadeberg (1995) summarizes the sound shifts produced as a result of Bantu Spirantization as shown in (7).

(7) Sound shifts produced as a result of Bantu Spirantization

before ị	**before ụ**
*p, *b > f,v (or: s, z)	*p, *b > f,v
*t, *d > s, z	*t, *d > f, v (or: s, z)
*k, *g > s, z	*k, *g > f, v

According to Schadeberg (1995), a characteristic property of this sound shift is that it affects all or most consonants, and it is triggered by both the front and the back high vowels. The effect of the sound shift cannot be fully described as the spreading of the place features of these vowels (that is, palatalization, labialization/velarization); therefore, it should not be confused with the process of palatalization. Palatalization may in some instances involve an introduction of a vocalic release in the form of an off-glide (Hyman 1976), whereas the only complex segments derived from Bantu Spirantization are affricates (Hyman 1976, Nurse 1987).

The 7-to-5 vowel merger

Proto-Bantu has been reconstructed with seven vowels /ị, ụ , i, u, e, o, a/ (Guthrie 1967). In many Bantu languages, the two segments / ị, ụ/ have merged with /i, u/ phonetically yielding the five vowel system /i, u, e, o, a/. The 7-to-5 vowel merger is coterminous with the Bantu Spirantization process, in that Bantu Spirantization is normally

followed by the 7-to-5 vowel merger. Vowel merger is usually represented in the following way.

(8)

e o

a (Mould 1981)

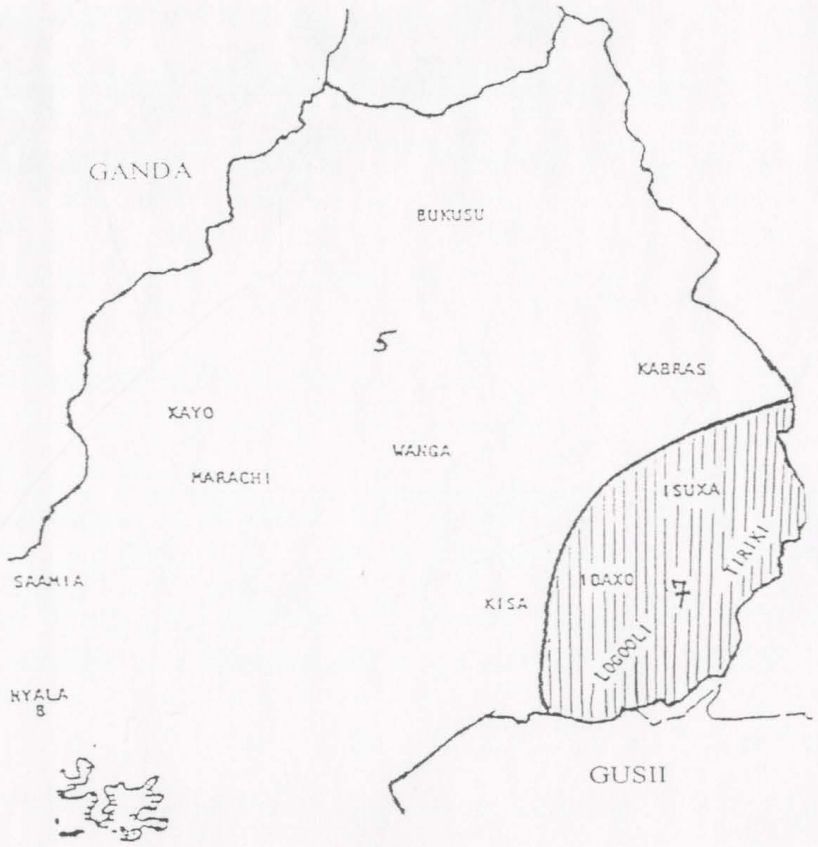
Schadeberg (1995) claims that languages that have undergone the 7-to-5 vowel merger exhibit Bantu Spirantization, and there are only a few languages that have undergone Spirantization but not the 7-to-5 vowel merger. In languages that have undergone both, Bantu Spirantization always precedes the 7-to-5 vowel merger. Map 5 below shows the co-occurrence of 7-to-5 vowel merger and Bantu Spirantization adapted from Schadeberg (1995).

Map 5: Co-occurrence of 7-to-5 vowel merger and Bantu Spirantization

Schadeberg (1995) notes that Map 5 is based on Guthrie's 'Inventory of Bantu languages' (1971:28-64) and he selects from each 'zone' (A - S) one language with the best coverage.

Map 6 shows seven versus five vowels in Luyia varieties and the neighboring control languages, Ganda, which undergoes both Bantu Spirantization and the 7-to-5 vowel merger (Schadeberg 1995), and Gusii, which does not.

Map 6: Seven versus five vowels in Luyia



The examples of Bantu Spirantization from Luyia varieties show reflexes of *į, *ų in stems. In some other Bantu languages, for example Ganda (E15), suffix-initial reflexes of the high vowels may still differ phonologically from those of the regular vowels, changing stops into fricatives and affricates and often replacing the consonants' place of articulation (Zoll 1995). Zoll quotes Hyman (1976), who states that in many languages the high vowels have merged phonetically with the regular vowels, but some languages show that the ability to mutate the affected consonants before high vowels has been phonologized. This is illustrated with examples from Ganda with the case of the nominal stative ų, where the high vowel turns the preceding consonant into a fricative.

(9) Consonant mutation in Ganda

-menyek-a	'break'	-menyef-u	'broken'	
-sanyuk-a	'be pleased'	-sanyuf-u	'joyful, pleased'	
-kogg-	'become thin'	-kovv-u	'thin'	
-tamiil-a	'become drunk'	-tamiiv-u	'drunk'	(Zoll 1995:537)

Alternations involving reflexes of ų occur only with the stative suffix as opposed to those involving į, which are more productive as they occur with the *į agentive, *ų causative and the *įde perfective suffixes that trigger synchronic alternations throughout Bantu (Zoll 1995).

2.1 Linguistic results of Luyia Bantu Spirantization

Mould's (1981) work on Greater Luyia, which focuses on five Luyia varieties, namely Bukusu, Wanga, Saamia, Idaxo and Logooli, concludes that Bukusu, Wanga and Saamia attest Bantu Spirantization, while Idaxo and Logooli do not. Based on the data collected from the twelve Luyia varieties, it is quite clear that Bantu Spirantization occurs in northern Luyia [Bukusu, Kabras] and central [Wanga, Xaayo, Marachi, Saamia, Nyala B and Kisa] varieties as seen in Table 1, showing reflexes of Proto-Bantu stops; *p, *b, *t, *d, *k, *g, before *į and *ų, resulting in s and f.

Notes for Table 1. (next page)

1) A proto-sound usually has one reflex, or if more than one, then the phonetic context plays a role. The non-bracketed reflex is regular (phonologically or statistically).
2) (?) – not expected sound for Idaxo, Isuxa, Tiriki and Logooli because these varieties do not attest Bantu Spirantization. Secondly, only few examples with the sound change to s and f exist. See numbers 51, 52, 89 (for s), 104 and 125 (for f). Details of this are explained in the text on pages 34 ff., with exceptions shown in (16).

Table 1: Reflexes of Bantu Spirantization

	B	K	W	X	M	S	Ny	K	Id	Is	T	L
*p	Ø,(ß)	Ø,(ß)	Ø,(ß), (y,h)	Ø,(ß), (y)	Ø,(y), (ß)	Ø,(ß)	Ø,(h)	Ø,(h)	Ø,(h), (ß)	Ø,(h), (ß)	Ø,(h), (ß)	h,(ß)
*p/_			f	f	f	f		f				
*p/_	F	f	f	f	f	f	f	f	s (?)	f (?)	s (?)	f (?)
*b	ß	ß	ß	ß	ß	ß	ß	ß	ß	ß	ß	ß
*b/_	f (w)	f (w)	f (w)	f (w)	f (w)	f (w)	(s)	f (w)	(f), ß	ß	ß	ß
*b/_	F	f	f	f	f	f	f		ß	ß	ß	ß
*t	r,(t),(l)	r,(t),(l)	r,(t),(l)	r,(d), (t),(l)	r,(d), (t)	t,(d), (r)	č,(t), (l)	r,(t),(l)	r,(t), (d)	r,(t),(l)	r,(t), (d),(l)	t,(d)
*t/_	S	s, (č)	s, (ts)	s, (č)	s, (ts)	s, (č)	s	s, (č)	r,(s), (l)	r,(s), (l)	r,(s), (l)	r,(l)
*t/_	F	f	f	f	f	f	f		t	t	t	d, (t)
*d	l, (t,r)	l, (t)	l,(r)	l, (r)	l,(r)	l, (r)(t)	l,(r)	l, (r)	l, (r)	l, (r)	l, (r)	l,(r)
*d/_	S	s	s	s	s	s	s, (l)	s, (l)	l, (dz)	l, (ts)	l, (ts)	l,(s)
*d/_	F	f	f	f	f	f	f	f	l,(f), (r)	l,(f), (r)	l,(f), (r)	l,(t)
*k	X	x	x, (š)	x	x, (š)	x	x	x, (š)	x, (š)	x, (š)	x, (š)	k,(g)
*k/_	S	s	s				s	s	š, (s)	š	š, (s)	s, (č)
*k/_	F	f	f	f	f	f	f	f	x	x	x	k
*g	K	k	k	k	k	k	k	k	k	k	k	g
*g/_	S	s	s	s	s	s	s	s				
*g/_	F	f	f	f	f	f	f		(f)	k	k	g

The following representative examples from Kabras (north), Xaayo and Kisa (centre) illustrate Bantu Spirantization for Luyia. I chose to use examples from Kabras, Xaayo and Kisa, because Mould (1981) already has evidence of Bantu Spirantization in Bukusu, Wanga and Saamia. However, the reader should refer to the Appendix for examples from the rest of the varieties that attest Bantu Spirantization. The affected Proto-Bantu segments are in bold. These examples are derived from lines 7, 14, 51, 53, 73, 85, 93, 98, 106, 108, 128, 129 in the Appendix. Compare these examples with those of Ganda.[1]

(10) Bantu Spirantization in Luyia

Proto-Bantu	Kabras	Zaayo	Kisa	Ganda	Gloss
*p**ị**go-	-	-fuko	-fiko	m-sigo	kidney
*p**ụ**an-	-fuanana	-fuanana	-fuanana	-fanana	resemble
*-b**ị**	ama-fwi	ama-fwi	ma-fi	-bi	excreta
*-b**ụ**da	i-fula	i-fula	i-fula	-	rain
*kot**ị**	li-kosi	eli-kosi	li-kosi	-	neck
-t**ụ**up-	-fuua	-fuβa	-	-fuu	be blunt
*-d**ị**to-	-siro	-siro	-siro	-zito	heavy
*-d**ụ**at-	-fuala	-fuala	-fuala	-	wear dress
*-k**ị**pa	olu–sia	omu-si	mu-si	-	vein
*-poku	omu–βofu	omw-ofu	mu-βofu	-	blind person
*-g**ị**ge	či-sike	-	i-siče	-	locust
*-jog**ụ**	in-jofu	en-jofu	-	-	elephant

[1]Personal communication with Doreen Ayoo, Ganda speaker.

Below is a comparison of the above examples drawn from Isuxa and Tiriki, varieties from southern Luyia, and Gusii, where Bantu Spirantization does not occur.

(11) Comparison of Bantu spirantization in southern Luyia and Gusii

Proto-Bantu	Isuxa	Tiriki	Gusii	Gloss
*pi̧go-	im-bi̧ku	am-bi̧ko	eny-i̧go	kidney
*pu̧an-	**-fuana[2]	-	-	resemble
*-bi̧	ma-ßi̧	-	ma-ßi̧	excreta
*-bu̧da	im-bu̧la	im-bu̧la	em-bu̧ra	rain
*koti̧	lin-gori̧	lin-gori̧	eßi̧-goti̧	neck
-tu̧up-	-tu̧u̧ha	-tu̧u̧ha	-tu̧u̧	be blunt
*-di̧to-	-li̧toxo	-li̧to	-ri̧to	heavy
*-du̧at-	**-fu̧ala	*-fu̧ala	-	wear dress
*-ki̧pa	-	-	omo-ki̧a	vein
*-poku̧	mu–ßexu̧	mu–ßexu̧	omo-uku̧	blind person
*-gi̧ge	-	**-siči	en-gi̧ge	locust
*-jogu̧	-	-	en-čogu̧	elephant

[2]The double starred (**) forms in (11) illustrate examples where /s/ and /f/ replace the expected consonant before i̧ and u̧ in these varieties. This does not however, mean that BS occurred in these varieties, because based on the rest of the data, BS does not occur. See details of this in section 2.2.

2.2 Explaining the linguistic changes

Based on Schadeberg's (1995:75) remark on the reflexes of *p and *b, we would expect *p, *b > f, v but this is not the case in Luyia. The labial consonants *p and *b have the reflex f before the vowels į and ų, and the non-labial consonants have s and f before į and ų respectively. The devoicing part of the Luyia Law (discussed in the next chapter) is responsible for these voiceless fricatives. Bukusu, Kabras, Kisa, Idaxo, Isuxa and Logooli voice *p after the nasal prefix to [b][3], which pre-empts Bantu Spirantization, which is the reason for the empty slots in the *p/_ row in Table 1 (page 31). The example to illustrate this is found in the Proto-Bantu word *-pįgo 'kidney' which is *m-biko/ m-biku/ m-bigu* in the above named varieties that have nasal consonant clusters.

Another point to note about the labial consonants is that there is also w- insertion for *b/ _ after the f. The forms *-b > *-fwi* 'excreta' in Bukusu, Kabras, Xaayo, Marachi, Saamia and Kisa, and *-gib > *-fwi* 'thief' in Bukusu, Kabras, Xaayo and Nyala B indicate this. However, Nyala B has an s appearing in the slot, instead of the fw for the word

---

[3]Voicing of stops when they occur after nasals is a feature that defines Luyia. See Bennett (1973) and Mould (1981). The [mb] is derived from the nasal /m/ followed by /p/, thus m + p > [mb]. This process, where sequences of nasal plus voiceless consonant stops are realized as pre-nasalized voiced stops, is attested in a number of Bantu languages. The voiceless stops become voiced when they occur after nasals:

/N/ + /p/ = [mb]
/N/ + /t/ = [nd]
/N/ + /k/ = [ng]
Examples from Bukusu
/N + texa/ [ndexa] I cook
/N + kona/ [ngona] I sleep
/N + paxa/ [mbaxa] I ferment

'excreta', replaced by bracketed (s) in Table 1. Assuming the regularity principle, we take the reflex /f/ for *b/_į, for Bukusu, Kabras, Wanga, Xaayo, Marachi, Saamia, Kisa and Nyala B. The rule summarizing the behaviour of the labial consonants before the high vowels in these varieties is shown in (12).

(12) Rule showing the devoicing of labial consonants before high vowels

*p, *b > f / _ į, ų

Because southern Luyia varieties do not attest Bantu Spirantization, Isuxa, Idaxo, Tiriki and Logooli have ß from *b before the high vowels. The rules representing the situation in these varieties are illustrated in (13).

(13) Rules showing the behaviour of labial consonants before high vowels in southern Luyia

*p > Ø (?) /_ į

*p > s, f (?) /_ų

*b > ß /_ į, ų

The question mark sign (?) means that there is some element of doubt. See notes for Table 1 (pages 31).

The normal sound pattern change for the coronal stops *t and *d is that they attest s from *t, *d /_ į and f from *t, *d/_ ų. This occurs in Bukusu, Kabras, Wanga, Xaayo, Marachi, Saamia, Nyala B, and Kisa. However, some of these varieties, namely Kabras, Wanga, Xaayo, Marachi, Saamia, Nyala B, and Kisa have č and ts occurring alongside the expected s as reflex of *t / _į. This is exemplified in the form for *-*tįtu* 'forest', -*čiru, -tsuru, -tsuru, - čiru* for Kabras, Wanga, Marachi and Kisa respectively. The non s segment, represented as č, and which is labelled out in brackets, only appears in one word; 'forest'. Southern varieties Idaxo, Isuxa, Tiriki and Logooli attest l, r, s, ts as reflexes of *t, *d /_-į and t, l, r, f as reflexes of *t, *d/_ ų as seen in (14). The resulting f and s reflexes are doubtful (see notes on Table 1), because these varieties have the seven vowel system, and therefore do not attest Bantu Spirantization.

(14) Reflexes of *t and *d before high vowels in southern Luyia varieties

/r, l, s/ < *t / _į

/t/ < *t / _ų

/l, ts, s, dz/ < *d / _į

/l, r, f/ < *d / _ų

These southern varieties therefore, do not undergo Bantu Spirantization because the resulting fricatives before į and ų are strictly restricted to f and s. This is not the case for these varieties as evidenced from the rules in (14).

The velar consonant pattern is quite regular with s as the reflex for *k, *g /_į and f for *k, *g /_ų, in Bukusu, Kabras, Wanga, Xaayo, Marachi, Saamia, Nyala B, and Kisa. Empty slots exist for Xaayo, Marachi and Saamia because no forms were elicited for *k /_į, but what we would expect is s. Idaxo, Isuxa, Tiriki and Logooli do not attest Bantu Spirantization, hence the patterns seen in (15). The reflexes of *k /_į seem to result from palatalization.

(15) Velar consonant mutation in southern Luyia

/š, č, s/ < *k /_į

/x, k/ < *k /_ų

/k, g/ < *g /_ų

One will notice that the southern varieties, which do not undergo the 7-to-5 vowel merger, show some forms with s and f that replace the expected consonant before į and ų. Examine the examples in (16).

(16) Exceptional forms in southern Luyia

	Idaxo	Isuxa	Tiriki	Logooli
*-yatị ‘grass’	bunyasị	bunyasị	bunyasị	-
*-**d**ịm- ‘extinguish’	-	-	-	-sịmina
*-**k**ịge ‘éyebrow’	-sịči	-	-sịči	-siji
*-**g**ịge ‘locust’	-	-sịči	-sịči	-sịge
*-**p**ụana ‘resemble’	-	-fụana	-	-fụana
*-**d**ụat ‘wear dress’	-fụara	-fụala	-fụala	-
*-jo**g**ụ ‘élephant’	i-nzofụ	-	-	-

The realization of s, f in Idaxo, Isuxa, Tiriki and Logooli can perhaps be explained to be as a result of borrowing. This is so because southern Luyia does not undergo Bantu Spirantization (Mould 1981), the process behind the formation of s, f in Luyia varieties as well as other Bantu languages, which can be seen by comparing the consonant systems of these varieties with Meinhof’s (1932) reconstruction of the Proto-Bantu consonant system that lacks the fricatives. Idaxo, Isuxa, Tiriki and Logooli maintain the seven vowels and therefore, did not undergo the spirantization of consonants associated with the mergers of ị and ụ. Another explanation of the occurrence of the s could be as a result of the Proto-Bantu *c > s, since a number of Luyia varieties show this similar change of *c > s. Thus, loanwords and *c > s are the most plausible hypotheses to explain the existence of s and f in Idaxo, Isuxa, Tiriki and Logooli.

2.3 Comparison between Luyia, Ganda and Gusii

A summary of the results of Bantu Spirantization in Luyia compared to Ganda (E15), a typical Bantu language to the north of Luyia spoken in Uganda indicates broad similarities. The main difference is that Bantu Spirantization produces both voiced and voiceless fricatives in Ganda while Luyia varieties have voiceless fricatives only (see examples in 10). Gusii (E42), just like those varieties to the south of Luyia, does not undergo Bantu Spirantization (see examples in 11).

(17) Bantu Spirantization reflexes in non-southern Luyia

PB	/- į	/- ų
*p, * b	f	f
*t, *d	s	f
*k, *g	s	f

Ganda (E15) has the following reflexes for Bantu Spirantization (Schadeberg 1995). See data in (10) that shows the reflexes in (18).

(18) Bantu Spirantization reflexes in Ganda

PB	/- į	/- ų
p	s	f
b	z	v
t	s	f
d	z	v
k	s	f
g	z	v

2.4 Conclusion

We conclude that Bukusu, Kabras, Wanga, Xaayo, Marachi, Saamia, Nyala B and Kisa attest Bantu Spirantization and that the Luyia labial consonant rule indicating Bantu Spirantization in these varieties is as follows:

(19) Bantu Spirantization labial consonant rule

/f/ < *p, *b / _ į, ų

For the non-labial consonants, reflexes for the Bantu Spirantization rules are as follows:

(20) Bantu Spirantization non-labial consonant rule

/s/ < *t, *d, *k, *g / _ i̯

/f/ < *t, *d, *k, *g / _ u̯.

It is clear therefore that Bukusu, Kabras, Wanga, Xaayo, Marachi, Saamia, Nyala B, and Kisa are quite distinct from Idaxo, Isuxa, Tiriki and Logooli with the former attesting Bantu Spirantization and the latter not. Mould (1981) mentions the occurrence of Bantu Spirantization in Bukusu, Wanga and Saamia. This work adds Kabras, Wanga, Xaayo, Marachi, Nyala B, and Kisa with the evidence provided from the data onto Mould's list. Mould (1981) also mentions Gisu (a Bantu language spoken in Eastern Uganda and which neighbours Bukusu) as having undergone Bantu Spirantization resulting in f, v, s, and z. Ganda also shows similar results to those of Gisu. The Luyia case however, indicates voiceless fricatives as the resulting segments. This means that the fricatives in Luyia devoice because the focal point from which the process originates has both voiced and voiceless fricatives, thus the process fricative devoicing. We therefore conclude that Bantu Spirantization has its focal point in the north and spreads through central Luyia, but does not go through southern Luyia. The Bantu Spirantization process in Luyia is summarized in Map 7 (page 42), which shows the varieties that attested Bantu Spirantization in Luyia, by drawing a phonological isogloss that separates these varieties from Logooli, Idaxo, Isuxa and Tiriki, that do not attest Bantu Spirantization. Based on what Hock (1996) and Anttila (1972) say about analysing dialect geography in Old High German, the phonological isogloss

drawn in Map 7 represents varieties where Bantu Spirantization is attested as the focal area from which Bantu Spirantization innovations spread because the process is regular, and the relic area is represented by Isuxa, Idaxo, Tiriki and Logooli varieties, which has not been affected by the spread of Bantu Spirantization.

Map 7: Bantu Spirantization in Luyia

CHAPTER THREE

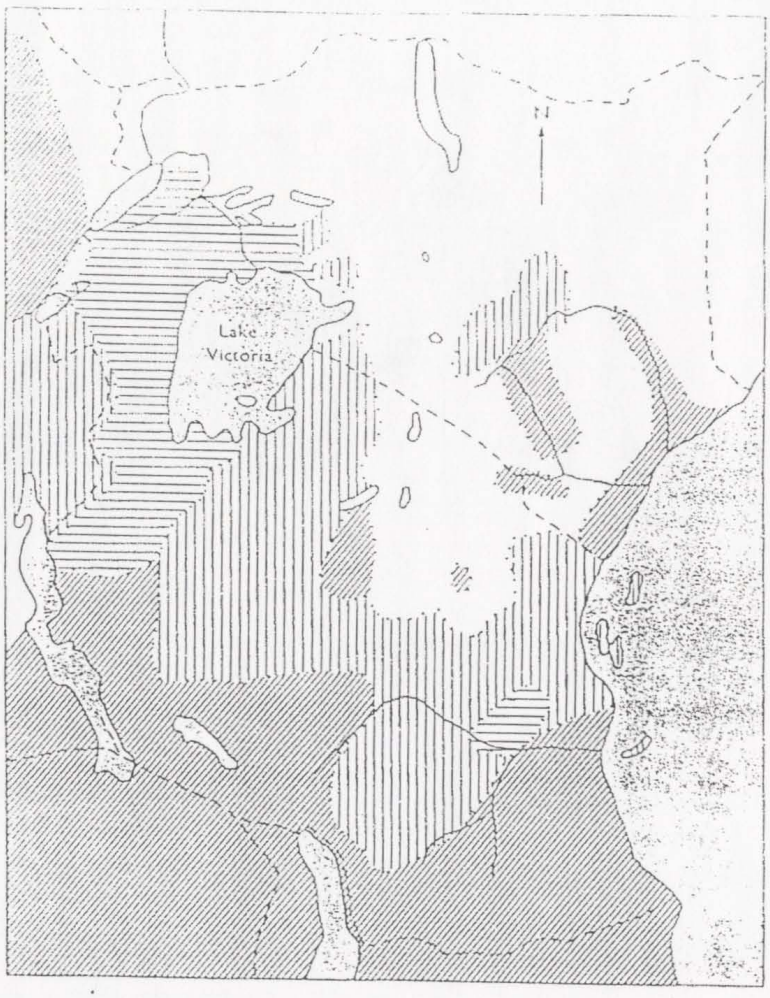
DAHL'S LAW AND THE LUYIA LAW

3.0 Introduction

Dahl's Law is a dissimilation process that voices the first of the two voiceless obstruents that are separated by an intervening vowel (Bennett 1976). Dahl's Law is found in a number of Bantu languages in East Africa, for example Nyamwezi, (Bennett 1976), Kikuyu, (Davy and Nurse 1982), Gusii, (Bickmore 1998) and Sukuma, (Masele 2002). Bennett (ibid) notes that within East Africa, the further the west the language is geographically, the stronger its form of Dahl's Law. See Map 8 (page 44) on the distribution of Dahl's Law in East Africa, adapted from Bennett (1976). Thus, for languages near Lake Victoria, one finds forms of Dahl's Law which are regular.

According to Nurse (1999), Dahl's Law is found in the north-east of the Bantu-speaking area in six groups namely: Central Kenya (E60), Kilimanjaro-Taita (E60 and E74), Great Lakes (roughly zone J), North East Coast (E71-2-3, G10, G20, G30, G40), West Tanzania (roughly zone F) and Southern Tanzania Highlands (G60).

Map 8: Distribution of Dahl's Law in East Africa



Bennett (1976) mentions that in those languages where Dahl's Law is found, its existence is limited. He states further that in those languages where Dahl's Law is regular, it varies in both form and range of application. Form refers to the position of the affected consonant in the word, while range refers to the consonants that are conditioned (target consonants) or may condition (trigger consonants) the process. With respect to form, Dahl's Law works in a variety of environments. For instance, in Luyia, it does not apply except within a root (Bennett 1976, Davy and Nurse 1982). In Bantu languages such as Kikuyu, elements prefixed to the root are affected (Davy and Nurse 1982), while in Gusii both prefixes and root final consonants followed by suffixes are affected (Bennett 1976, Bickmore 1998).

Restrictions on the occurrence of Dahl's Law in different languages are imposed not only by the position of the two consonants within the word or morpheme, but also the range of consonants which may condition or be conditioned. In Kikuyu, for example, Bennett (1976) points out that the only consonant affected is **k**, with the conditioning consonants being **k**, **c**, **t**, and **θ** (Davy and Nurse 1982). Within Luyia, the consonants affected are **p**, **t**, **k**, while those conditioning the shift include **p**, **t**, **k** (Bennett 1976). Davy and Nurse (1982) mention that traces of one or more of the affected consonants **p**, **t**, **k** undergoing mutation before a voiceless obstruent exist in Luyia, and this can be seen by comparing contemporary stems with their Proto-Bantu reconstructions.

Within East Africa, the process is active in some languages, while in others there are traces and in a few languages (such as Swahili) there appear to be none (Nurse 1979). The

following is a comparison between a language where Dahl's Law does not occur (Swahili), and two where it occurs (Logooli and Bukusu)[4] The Swahili data is from Nurse (1979), while the Logooli and Bukusu data is derived from the Appendix.

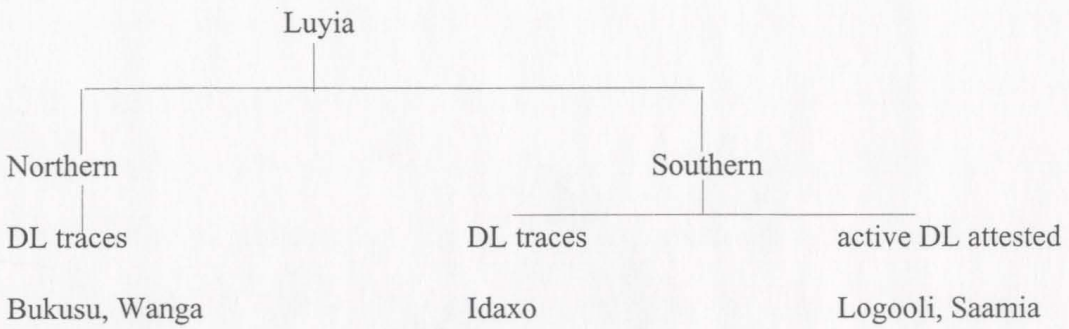
(21) Comparison of Dahl's Law in Swahili, Logooli and Bukusu

	Swahili	Logooli	Bukusu	Gloss
/p/	-pita	-ßita	-ßira	pass
/t/	-tako	-dako	-taxo	buttock
/k/	-kopa	-gopa	-kopa	borrow

Previous findings reveal that some Luyia varieties attested active Dahl's Law, for example Logooli and Saamia, while other varieties such as Bukusu, Wanga and Idaxo show traces of Dahl's Law (Mould 1981). Below is a sketch showing varieties based on geographical subdivision that attest active Dahl's Law and those that exhibit traces in Luyia according to Mould (1981).

[4]Traces are based on the hypothesis that the whole of Luyia underwent DL (Bennett 1976). However, DL results in Luyia have been obscured by the Luyia Law that devoices the voiced stops which result from DL and spirantizes the voiceless stops (Mould 1981).

(22) Dahl's Law in Bukusu, Wanga, Idaxo, Saamia and Logooli.



Bennett (1976) notes that Luyia underwent a general form of Dahl's Law, but because of phonetic shifts, such as the Luyia Law[5], that Luyia has undergone, the working of Dahl's Law has been complicated. The following section examines Dahl's Law in the twelve Luyia varieties in question.

3.1 Linguistic results of Dahl's Law

Based on the available data, it is quite clear that Luyia attests Dahl's Law. From the Appendix, only those words containing consecutive syllables with voiceless stop consonants were used in analysing Dahl's Law. Out of the initial 250 word list, only 135 forms were found useful for the analysis of Bantu Spirantization, Dahl's Law and the Luyia Law, and a total of twenty six words found in lines 2, 5, 3, 7, 9, 10, 14, 15, 23, 29, 31, 43, 59, 64, 66, 77, 78, 92, 94, 95, 96, 97, 120, 124 (a), 126, 127, were useful in identifying Dahl's Law in Luyia.

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[5]In a chronological order, the LL takes place after DL, such that voiced stops that are as a result of DL get devoiced by the first part of the LL. For example, *k > g > k.

In explaining Dahl's Law, we distinguish between active Dahl's Law and Dahl's Law traces (Dahl's Law obscured by the occurrence of the Luyia Law). Active Dahl's Law is seen in varieties such as Logooli, Saamia, Marachi and Xaayo, where *p>ß, *t>d, *k>g, while varieties such as Tiriki, Isuxa, Idaxo, Kisa, Nyala B, Wanga, Kabras and Bukusu, which may seem not to undergo Dahl's Law as evidenced from the data with no change in p, t and k (*t>t, *k>k), have undergone the process, only that it has been obscured by the occurrence of the Luyia Law. The latter set of varieties exhibit what we are referring to as Dahl's Law traces. This explanation is based on the hypothesis that all of Luyia underwent Dahl's Law (Bennett 1976), and that explanations to sound changes have been complicated by the occurrence of the Luyia Law.

For those varieties that attested active Dahl's Law, our data shows that **p**, **t** and **k** are the affected consonants, with **p**, **t**, and **k** conditioning the shift. The data further reveals that in those varieties where active Dahl's Law takes place, there are a set of varieties that show **t** as the only affected consonant and this is seen in Xaayo, Saamia and Marachi, and the other set shows all **p**, **t** and **k** as the affected consonants with examples drawn from Logooli.

I, therefore, group the Luyia varieties into three categories based on Dahl's Law results from the evidenced data and subsequently explain the purpose for the grouping. These categories with representative varieties are as follows:

Category A: Logooli (active DL)

Category B: Xaayo, Marachi and Saamia (both active DL and DL traces)

Category C: Bukusu, Kabras, Wanga, Nyala B, Kisa, Idaxo, Isuxa, and Tiriki (DL traces)

The above-mentioned categories are the result of having examined consonant correspondences involving Dahl's Law between Luyia varieties. Results of Dahl's Law reflexes are seen in Table 2 below, with the control languages Ganda and Gusii on the east and west respectively.

Table 2. Dahl's Law consonant correspondences in Luyia varieties

PB	G	B	K	W	Ny	K	Id	Is	T	X	M	S	L	Gu
p	ß	ß	ß	ß	ß	ß	ß	ß	ß	ß	ß	ß	ß	ß
t	t	t	t	t	t	t	t	t	t	d	d	d	d	d
k	k	k	k	k	k	k	k	k	k	k	k	k	g	g

In Table 2 above, *t/k > t/k appear as such across most Luyia (from Bukusu to Tiriki), with *k>k running all through from Bukusu to Saamia. These varieties do not seem to change as would be expected of Dahl's Law results because the changes in these varieties get obscured by the later application of the Luyia Law[6]. Examples used in deriving Table 2 are shown in Table 3 (page 50).

[6]The *t/k>d/g with the application of Dahl's Law and later on become t/k with the application of Luyia Law devoicing of voiced stops. Thus, *t/k>d/g>t/k.

In Table 3 for instance, lines 2, 95, 107 and 64 show *k>k for varieties from Bukusu to Saamia showing Dahl's Law traces and the *k>g in Logooli for active Dahl's Law. Table 4a (page 53) shows a comparison of Dahl's Law results in Logooli and Gusii (E41), and 4b shows a comparison of Dahl's Law results in Bukusu and Ganda[7] (E15) so as to be able to determine the limits of Dahl's Law. Idaxo, Isuxa, Tiriki, Logooli and Gusii have a seven vowel system, while the rest of the Luyia varieties and Ganda have a five vowel system.

[7]Data for Ganda was collected from the online dictionary, Ganda.Snoxall

Table 3: **Examples illustrating the range of consonants affected by and affecting Dahl's Law in Luyia varieties**

Ptn	No	PB	B	K	W	Ny	K	Id	Is	T	X	M	S	L
p-p	126	-pipa	ßia	ßia	-	ßia	ßiha	ßia	-	ßia	ßia	ßia	ßia	ßiha
p-t	96	-pita	ßira	ßira	ßira	biča	ßira	ßira	ßira	ßira	ßira	ßira	ßita	bita
p-k	14	-pokų	ßofu	ßofu	hofu	mwofu	ßofu	mbexų	ßexų	ßexų	mwofu	mwofu	mwofu	mbokų
t-p	7	-tųųp	fuu	fuu	fußa	fuu	-	tųųha	tųųha	tųųha	fußa	fußa	fuba	dųfu
	43	-tap	taa	taa	taa	taa	taha	taa	taha	taha	daa	daya	daya	daha
t-t	27	-teet	teeta	teeta	-	-	-	teeta	-	-	deeda	-	-	-
	66	-teete	teete	teete	teete	teete	teete	deede	teete	deede	deede	deede	deede	*de*ede
	120	-tatu	taru	taru	taru	taču	taru	-	-	-	daru	daru	datu	-
t-k	10	-yatik	tixa	tixa	tixa	tixa	tixa	tixa	tixa	tixa	dixa	dixa	diha	dika

	21	-tako	taxo	taxo	taxo	taxo	taxo	daxo	taxo	taxo	daxo	taxo	daho	dako
	31	-teek	teex	teex	teex	teex	teex	teex	teex	teex	deex	deex	deeh	deek
k-p	2	-kuap	xwaa	xwaa	kway	xway	kway	kwah	kwah	kwah	kway	kway	kwah	gwah
k-t	95	-kɥta	fura	fura	fura	fuča	fura	kɥra	kɥra	kɥra	fura	fura	futa	gɥta
	107	-kɥt	kura	kura	-	kuča	kura	kɥra	kɥra	kɥra	kura	kura	kuta	gɥta
k-k	64	kuuku	kuux	-	-	kuux	kuux	kuux	kuux	kuux	kuux	kuux	kuux	guuk

Note: The first column shows the p, t, k, in target and trigger positions respectively, and the second column carries the line number of the example from the Appendix. The remaining columns show the Luyia varieties.

Table 4a: Comparison of Dahl's Law in Logooli and Gusii.

Position	Number	Gloss	Proto-Bantu	Logooli	Gusii
p-p	126	wipe excreta	*-pipa	-ßiha	-
p-t	96	pass	*-pita	-ßita	-ita
p-k	14	blind person	*-pokų	(mbokų)	omo-uko
t-p	7	be blunt	*-tųųp	-dųfu	-tųu
	43	draw water	*-tap	-daha	-taa
t-t	27	chop off	*-teet-	-	-
	66	grasshopper	*-teete	-deede	-
	120	three	*-tatu	-	-catu
t-k	10	become split	*-yatik-	-dika	-ata
	21	buttock	*-tako	-dako	-
	31	cook	*-teek	-deek	-
k-p	2	armpit	*-kuap	-gwaha	-kwaa
k-t	95	oil	*-kųta	-gųta	-gųta
	107	satiated	*- kųt	-gųta	-gota
k-k	64	grandparent	*-kuuku	-guuk	-gokoro

Table 4b: Comparison of Dahl's Law in Bukusu and Ganda

Position	Number	Gloss	Proto-Bantu	Bukusu	Ganda
p-p	126	wipe excreta	*-pipa	-ßia	-
p-t	96	pass	*-pita	-ßira	-
p-k	14	blind person	*-pokų	-ßofu	-
t-p	7	be blunt	*-tųųp-	-fuu	
	43	draw water	*-tap-	-taa	
t-t	27	chop off	*-teet-	-teeta	-
	66	grasshopper	*-teete	-teete	-
	120	three	*-tatu	-taru	-ssatu
t-k	10	become split	*-yatik-	-tixa	
	21	buttock	*-tako	-taxo	-ttako
	31	cook	*-teek-	-teek	-
k-p	2	armpit	*-kuapa	-xwaa	-
k-t	95	oil	*-kųta	-fura	-futa
	107	satiated	*-įkųt-	-kura	-kkusa
k-k	64	grandparent	*-kuuku	-kuuxu	

Category A has the variety Logooli, that fully attests active Dahl's Law. The trigger consonants in this category include **p**, **t**, **k** while the affected or conditioned consonants are

p, t, k. Category B, Xaayo, Marachi and Saamia, attest active Dahl's Law, which affects **p** and **t** as the conditioned consonants, with **p, t, k** as the trigger consonants. Gusii has *k > g before * p and k.

From Bukusu all the way to Tiriki (Category C) active Dahl's Law does not seem to be present as evidenced from the available data, *t > t, *k > k. There are a few words namely: (*-tako > -daxo 'buttock' and *-teete > -*deede* 'grasshopper') as seen in Idaxo and in the form 'grasshopper' in Tiriki which seem to show active Dahl's Law. Bukusu, Kabras, Wanga, Nyala B and Kisa varieties do not show active Dahl's Law, as stated earlier on because Dahl's Law in these varieties is obscured by the occurrence of the Luyia Law, which takes place after Dahl's Law has occurred. Derivations for Dahl's Law forms for varieties in category C are dealt with later on in the chapter. The following section is a discussion on how the Luyia Law works in Luyia.

Ganda has no apparent cases of the DL, although Table 2 suggests p > ß.

3.2 The Luyia Law

A number of Luyia dialects show a group of rules involving consonant shift similar to that of Grimm's Law in Germanic languages. This phenomenon is subsequently referred to as the Luyia Law. The Luyia Law involves the devoicing of voiced stops (d>t, g>k), and the spirantization of voiceless stops (p>y/w/h/Ø, t>ɽ>r, k>x), (Mould 1981). Lenition of *p > y/w/h/Ø is not strictly part of the Luyia Law because it is also attested in many other East

African languages (Nurse 1981). The two stages of the Luyia Law will be treated separately as (a) (spirantization) and (b) (devoicing) respectively.

Mould (1981) claims that the genesis and function of sound changes are dependant upon a number of preliminary changes that preceded the Luyia Law chronologically. These preceding changes either set the stage or initiated the beginning of the Luyia Law. Mould argues that a number of events introduced a series of voiced stops. The first of these events is Dahl's Law, which created phonemes such as d and g that later on participated in the operation of Luyia Law devoicing.

Luyia Law spirantization is different from Bantu Spirantization in that the trigger in the former involves the environment before the other vowels found within the language, and not the environment before į and ų, which is for Bantu Spirantization. The resulting fricatives from the Luyia Law spirantization are *p > y/w/h/Ø, *t > ɽ > r and *k > x. The ɽ is a voiceless retroflex fricative. Table 5 (page 57) shows the reflexes of Proto-Bantu stops before non-high vowels i, u, e, o, a. The examples illustrating the results of Table 5 are shown in Table 6 (page 58). These are a few selected examples representing all the Proto-Bantu stops *p, *b, *t, *d, *k, *g becoming fricatives and the voiced stop devoicing. The reader should refer to the Appendix for more examples.

Table 5: **The Luyia Law: Proto-Bantu stops before non-high vowels**

	B	K	W	Ny	K	Id	Is	T	X	M	S	L
*p	Ø,(ß)	Ø,(ß)	Ø,(ß), (y,h)	Ø,(h)	Ø,(h)	Ø,(h), (ß)	Ø,(h), (ß)	Ø,(h),(ß)	Ø,(ß),(y)	Ø,(y), (ß)	Ø,(ß)	h,(ß)
*t	r,(t), (l)	r,(t), (l)	r,(t),(l)	č,(t), (l)	r,(t), (l)	r,(d),(t)	r,(t),(l)	r,(t),(d), (l)	r,(d),(t), (l)	r,(d),(t)	t,(d), (r)	t,(d)
*k	X	x	x,(š)	x	x,(š)	x,(š)	x,(š)	x,(š)	x	x,(š)	x	k,(g)
(*b	β	β	β	β	β	β	β	β	β	β	β	β)
(*d	l,(t,r)	l,(t)	l,(r)	l,(r)	l,(r)	l,(r)	l,(r)	l,(r)	l,(r)	l,(r)	l,(r),(t)	l,(r)
*g	K	k	k	k	k	k	k	k	k	k	k	g

Notes

What Guthrie writes as *b, *d, we retain as *b, *d, but readers should remember that these were probably [ß, l] in Proto-Luyia. The Luyia Law affected voiced stops (or non-continuants). There is a likelihood that *b and *d were continuants by the time of Proto-Luyia, and so were not affected by the Luyia Law, which is why the entire rows for *b and *d are bracketed in Table 5. Each of the reflexes was counted based on the number of times it occurred in each variety. The clear majority is the first reflex in the cell, and the last reflex reflects the minority. So, if there are 3 reflexes in a cell, the sequence from the majority to the fewer moves from left to right with the majority reflex not bracketed and the fewer one bracketed in a descending order.
*p > /y/ in Wanga and Marachi has something do to with adjacent vowels which unfortunately I am not able to explain.

Table 6: **Examples illustrating the Luyia Law.**

No	PB	B	K	W	Ny B	K	Id	Is	T	X	M	S	L
2	*-**kuapa**	-xwaa	-xwaa	-kwaya	-xwaya	-kwaya	-kwaha	-kwaha	-kwaha	-kwaya	-kwaya	-kwaya	-gwaha
109	***-teg-**	-reka	-reka	-reka	-reka	-reka	-reka	-reka	-reka	-reka	-reka	-reka	-tega
110	***-bega**	li-ßeka	li-ßeka	li-ßeka	ma-ßeka	li-ßeka	li-ßeka	li-ßeka	li-ßeka	eli-ßeka	li-ßeka	e-ßeka	li-ßega
72	***-gudu**	-kulu	-kulu	-kulu	-kulu	-kulu	-kulu	-kulu	-kulu	-gulu	-gulu	-gulu	-gulu
87	***-komb-**	-xomba	-xomba	-xomba	-xomba	-xomba	-xomba	-xomba	-xomba	-xomba	-xomba	-xomba	-komba
22	***-gud-**	-kula	-kula	-kula	-kula	-kula	-kula	-kula	-kula	-kula	-kula	-kula	-gula

3.3 Explaining Dahl's Law and the Luyia Law in Luyia

In this section, I describe each stop consonant p, t, k as a conditioning consonant and show the effects that each has on p, t, k as conditioned consonants in each of the subgroups, namely, categories A, B and C.

**p as a conditioning consonant*

The examples that show *p as a conditioning consonant are seen in numbers 2, 7, 43, 124(a), 126 and 127. In Logooli, *p as a conditioning consonant produces *p > ß, *t > d, *k > g.

In Xaayo, Marachi and Saamia, the results are as follows: *p > ß, *t > d and *k > k. It is worth pointing out that the *t > d with *p as a conditioning consonant, occurs only in one example, number 43 and not the other example in number 7 [8]. Therefore, our generalization here is based on only one example. The k is not affected as a conditioned consonant in these varieties. However, examples of *t > d are a clear indication of active Dahl's Law. *How do we explain the *k > k?* Our explanation is based on the hypotheses that all of Luyia underwent Dahl's Law (Bennett 1976), and that explanations to the sound changes have been complicated by the occurrence of the Luyia Law. So *k > k does not mean that Xaayo, Marachi and Saamia did not undergo active Dahl's Law or that the process was not complete. The *k >k means that Dahl's Law occurred first followed by the Luyia Law. Thus, the form *-*kuapa*- 'arm pit' in these varieties is derived as in (23) below.

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[8]Number 7 is treated as exceptional in Xaayo, Marachi and Saamia varieties.

(23) Derivation of the form *-kuapa in varieties in category B: Xaayo, Marachi and Saamia

PB	*kuapa
DL	-guapa
LL-spirantization	-gwaya[9] (p>y)
LL-devoicing	-kwaya
Final form	-kwaya

In category C, that is, from Bukusu all the way to Tiriki (see sequence in Table 2), *p as a conditioning consonant produces the following results: *p > ß, *t > t and *k > k/x. I use examples that illustrate the variable ordering, where Dahl's Law becomes the Luyia Law. The examples are derived in (24). In the forms shown in (24), and where the Bantu Spirantization environment is met, varieties that attest Bantu Spirantization have the conditioned consonant undergoing Bantu Spirantization. For example, *-ʉʉp- (no. 7), see footnote 10 for an explanation on the varieties that attest Bantu Spirantization in the derivation shown in (24). For Bukusu and Kabras, the derivation for *-kuapa is done in (25) because after the k devoices to k, the k spirantizes to x. The conditioned consonant is the result of Dahl's Law devoicing via the Luyia Law.

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[9]The form *-*guap*- becomes *gwaya*. The /w/ is as a result of Glide formation, a process where high vowels /p/ and/u/ becomes glides when they occur before another vowel. The/p/ becomes [y] and /u/ surfaces as [w]. I take *p>Ø/h/y to be all lenition/loss.

(24) Derivation of the forms *-tụụp-, *-tap- and *-kuapa in varieties in category C: Bukusu, Kabras, Wanga, Nyala B, Kisa, Idaxo, Isuxa, Tiriki

PB	*-tụụp- (no. 7)	*-tap- (no. 43)	*-kuapa (no. 2)
DL	-dụụp-	-dap-	-guapa
LL-spirantization	-tụụha-	-taa/taha	-kwaha
LL-devoicing[10]	-tụụha-	taa/taha	–kwaha
Final form	-tuuha-	-taa/taha	-kwaha
Variety	Id, Is, T.[11]	B, K, W, NyB, K, Id, Is, T.	W, NyB, K, Id, Is, T.[12]

[10]In this case /t/ does not spirantize because spirantization precedes devoicing. Compare this with (25), where devoicing precedes spirantization and so/t/ spirantizes.

[11]The rest of the varieties in category C do not appear in this slot because they have *-*tụụp*->-*fuu* because they attest Bantu Spirantization, unlike Idaxo, Isuxa and Tiriki (with a several vowel system) which do not attest Bantu Spirantization.

[12]In this box, Bukusu and Kabras do not appear because the PB form *-*kuapa* changes to *xwaa*. The /k/ which is a result of DL>LL, spirantizes to [x] in this example and the [w] is a result of Glide formation. The fact that Bukusu and Kabras have been omitted from this box, does not mean that they form a category of their own.

(25) Derivation for the form *-kuapa in Bukusu and Kabras

PB	*-kuapa
DL	-guapa
LL-devoicing	-kwapa
LL-spirantization	-xwaa (p > Ø, k>x)
Final form	-xwaa (k>x)
Variety	B, K.

**t as a conditioning consonant*

The results of *t as a conditioning consonant for p, t, k, in Logooli are as follows: *p > ß, *t > d and *k > g. See examples in numbers 27, 66, 96 and 120.

In Xaayo, Marachi and Saamia, *t as a conditioning consonant results in *p > ß, *t > d and *k > k. The k indicates a Dahl's Law trace, while the f results from Bantu Spirantization. The derivations for the *k > k/f in Xaayo, Marachi and Saamia are illustrated in (26a) and (26b) respectively, the former showing k while the latter showing both f and k, f (no 95) resulting from Bantu Spirantization, and k (no 107) which is an exception since the Bantu Spirantization environment is met but the varieties do not undergo any change in this form. The column for Saamia is separated from that Xaayo and Marachi because the Luyia Law is not uniform in Saamia, however, the three varieties are grouped together.

(26a) Derivations for *-kuuku in Xaayo, Marachi and Saamia

PB	*-kuuku
DL	-guuku
LL-spirantization	-kuuxu
LL-devoicing	-guuxu
Final form	-kuuxu
Variety	-X, M, S

(26b) Derivations for *-kụt- in Xaayo, Marachi and Saamia

	*-kụta (no. 95)	*-kụta-
Bantu Spirantization	-fụ̥ta	-fụta
LL-spirantization	-fụra (t>r)	-
Final form	-fụ̥ra[13]	-futa[14]
Variety	-X, M	S

[13]The final form is *-fura* because Xaayo and Marachi attest BS. The conditioned consonant k does not undergo LL-spirantization to /x/, but instead undergoes BS because of the following ụ vowel. In example number 107, *-*kụt*- where the conditioned k is also followed by a high vowel, Xaayo and Marachi do not attest BS even though the condition is met. This is treated as a borrowing. Thus, the resulting consonant is k. However, the conditioning consonant /t/ undergoes the LL-spirantization of t>r.

[14]Saamia does not undergo the LL spirantization at all in this and other examples. However, the devoicing part of the LL is attested. Note that the f in the final form is a result of BS, because of the presence of the high vowel ụ.

For Xaayo, Marachi and Saamia, with k as the conditioned consonant, the example in (26b) above, shows that the conditioned consonant in these varieties does not undergo the Luyia Law spirantization because the condition for Bantu Spirantization is met.

However, the conditioning consonant *t undergoes the Luyia Law spirantization in only Xaayo and Marachi, but this sound change does not occur in Saamia (one of the examples showing how the Luyia Law is not uniform in Saamia). The **f** sound in the form *-kụta-, is a result of Bantu Spirantization which is triggered by the adjacent high vowel **ụ**.

The results for Bukusu, Kabras, Wanga, NyalaB, Kisa, Idaxo, Isuxa and Tiriki, show *p > ß, *t > t and *k > k. The derivations for these examples are shown in (27). Note that some varieties in category C may not be included in their respective slots in (27) during the derivation because of the differences in some sound changes. This does not however, mean that they form another subgroup. It is purely meant for explanatory purposes which are detailed in the footnote, because the entire subgroup is viewed as one.

(27) Derivation for the forms *-teet-, *-teete, *-tatu, *- kụta, *-kut in category C: Bukusu, Kabras, Wanga, NyalaB, Kisa, Idaxo, Isuxa, Tiriki

PB	*-teet-	*-teete	*tatu	*-kụta	*-kụt-
BS	-	-	-	-fụta	-
DL	-deet-	-deete	-datu	-	-gụt-
LL-spirantization	-	-	-daru (t>r)	-fura	-gura (t>r)
LL-devoicing	-teet-	-teete	-taru	-	-kura
Final form	-teeta	-teete	-taru	-fura[15]	-kura
Variety	B, K, Id[16]	B, K, W, NyB, K, Is[17]	B, K, W, K[18]	B, K, W, K[19]	Id, Is, T[20]

[15]No forms were elicited for Wanga, Nyala B, Kisa, Isuxa and Tiriki because there was no word found to be equivalent to the PB form *-*teet*. However, the camples **teet*- and **teete* are treated as exceptions because the second /t/ does not undergo the Luyia Law.

[16]Idaxo and Tiriki are not accounted for in this box, because the resulting form **teete* is -*deede*, one of the few forms that show active DL in these varieties. The other PB form that shows active DL in these varieties is the word 'buttock' where **tako>daxo*.

[17]Idaxo, Isuxa Tiriki lack an equivalent from to **tatu*, while Nyala B has **tatu>taču*. The *t>c in Nyala B is explained through the rule t→č/[-ATR] that take place across Nyala B. (Personal communication with Yvonne Oluoch).

[18]This does not apply to Idaxo, Isuxa and Tiriki because they have a seven vowel system and so they do not attest BS. Nyala B does not appear in this slot even though it behaves like Bukusu, Kabras and Wanga, because it has /č/ instead of the /r/.

[19]No equivalent form for Wanga was elicited and Nyala B has the /č/ instead of the /r/. Although Bukusu, Kabres, al Kisa also have -kura, it must be a borrowing, because they should have undergone BS.

[20]No equivalent form for Wanga was elicited and Nyala B has the /č/ instead of the /r/. Although Bukusu, Kabres, al Kisa also have -kura, it must be borrowing, because they should have undergone BS.

**k as a conditioning consonant*

The examples that show *k as a conditioning consonant are found in numbers 10, 14, 21, 31, and 64. In Logooli, *k as a conditioning consonant results in *p > ß, *t > d and *k >g.

The results for *k as a conditioning consonant in Xaayo, Marachi and Saamia indicate *p >β, *t > d and *k > k. However, the example used in Table 3 shows *p >Ø. This is the only available example that shows a sequence of stop consonants but the majority of the data shows *p >β. There is only one example for *k > k, and so the generalization made is based on this example. The derivation for *k > k in Xaayo, Marachi and Saamia is shown in (28).

(28) Derivation for the form *-kuuku in Xaayo, Marachi and Saamia

PB	*-kuuku
DL	-guuku
LL-spirantization	-guuxu (k > x)
LL-devoicing	-kuuxu
Final form	kuuxu

Varieties in category C namely, Bukusu, Kabras, Wanga, NyalaB, Kisa, Idaxo, Isuxa and Tiriki show the following results with *k as a conditioning consonant: *p > ß, *t > t, and *k > k. The derivation for *k > k in these varieties is shown in (29) and for *t > t, see examples in (27). Kabras and Wanga are omitted in (29) because no equivalent forms for the Proto-Bantu form *kuuku were elicited.

(29) Derivation for the form *-kuuku in category C: Bukusu, NyalaB, Kisa, Idaxo, Isuxa, Tiriki

PB	*-kuuku
DL	-guuku
LL-spirantization	-guuxu
LL-devoicing	-kuuxu
Final form	-kuuxu
Variety	B, NyB, K, Id, Is, T

In this case, category B and C languages behave identically.

3.4 Summary of Dahl's Law and the Luyia Law

A summary chart representing how Dahl's Law operated in Luyia is shown in (30).

(30) Dahl's Law in Luyia

Bukusu		
Kabras		
Wanga		
Nyala B		
Kisa		
Idaxo	Xaayo	
Isuxa	Marachi	
Tiriki	Saamia	Logooli
DL traces	Active DL and DL traces	Active DL

The following chart in (31) shows the Luyia varieties that attested the Luyia Law.

(31) The Luyia Law

Bukusu		
Kabras		
Wanga		
Nyala B		
Kisa		
Idaxo		
Isuxa		
Tiriki		
Xaayo		
Marachi	Saamia	Logooli
Attested the Luyia Law	Luyia Law not uniform	No Luyia Law

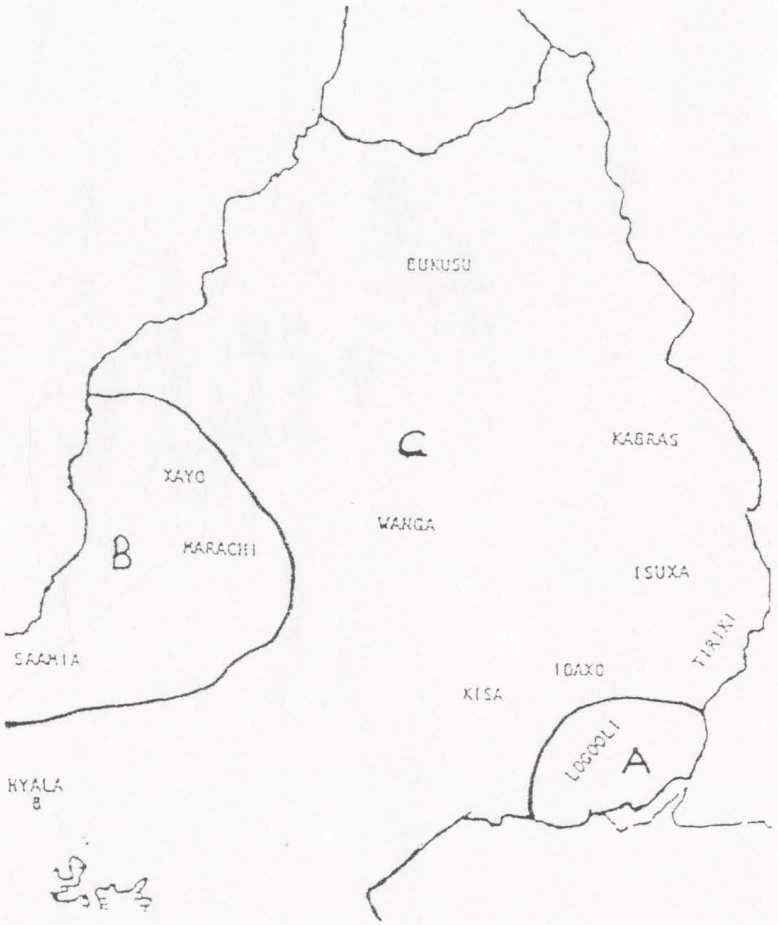
Summary

In Logooli (E41) all Dahl's Law reflexes are complete, which is suggestive of non-interference from other languages because of its possible former geographical physical isolation from non-Luyia languages. See results in Table 4 that compare Dahl's Law in Logooli and Gusii. Xaayo, Marachi and Saamia have both active and Dahl's Law traces. Based on the geographical representation of these varieties, there is a large lump of non-Luyia speaking territory (the Luo) between Logooli and Xaayo, Marachi and Saamia. The active nature of the process in the three varieties can possibly be explained from the fact that Logooli and Xaayo, Marachi and Saamia were once contiguous before the Luo intruded, or maybe Xaayo, Marachi and Saamia speakers at some point in time moved west from Logooli.

The existence of a few active Dahl's Law reflexes in Idaxo and Tiriki indicates that at one time Dahl's Law was active in these varieties. There are two possible explanation for this. Nurse (1999) and Schadeberg (1995) explain how multilingualism due to areal contact played a role in the spread of Bantu Spirantization in many Bantu languages, and a similar analysis can be used to explain the existence of the few forms of Dahl's Law in Idaxo and Tiriki. The movement of people from one place to another and especially those within the neighboring varieties that attested Dahl's Law, such as Xaayo, Marachi and Saamia on the west and Logooli on the east, may have contributed to the spread of a few words with Dahl's Law to appear in Idaxo and Tiriki. Alternatively, it is possible that Dahl's Law operated throughout Luyia because varieties inherited it from Proto-Luyia.

We conclude therefore, that Dahl's Law was active in Logooli, while Xaayo, Marachi and Saamia attest active Dahl's Law and also show traces of the process. The rest of the Luyia varieties have Dahl's Law traces. Because Xaayo, Marachi and Saamia behave the same way (with **p** and **t** as the only affected consonants), they are best represented as a subgroup using a phonological isogloss, as opposed to being classified with Logooli under southern Luyia where Dahl's Law affects all the voiceless stops **p**, **t** and **k**. Thus, Logooli is represented with another isogloss and the remaining varieties namely, Bukusu, Kabras, Wanga, Nyala B, Kisa, Idaxo, Isuxa and Tiriki, are grouped together by a third isogloss. But the general conclusion here holds that all of Luyia attested Dahl's Law. A new subdivision based on the results of Dahl's Law with the phonological isoglosses drawn is shown in Map 9.

Map 9: Dahl's Law in Luyia



Concerning the Luyia Law derivations, we conclude that the devoicing of the voiced stops d>t and g>k occurs in all of Luyia except Logooli. However, the devoicing of d>t alone occurs in all of Luyia, except Logooli and category B varieties namely Xaayo, Marachi and Saamia. Therefore, an isogloss drawn in Map 10 separates Logooli from the rest of Luyia, and a second isogloss (dotted) drawn separates Logooli, Xaayo, Marachi and Saamia from the rest of Luyia.

Map 10: Luyia Law results: devoicing

Results of the other part of the Luyia Law-spirantization show that p-lenition (p>y/w/h/Ø) is not specific to Luyia. P-lenition occurs across Luyia including Logooli, and also other Bantu languages in zones E40, E50, and E60. However, the spirantization of t>ɽ>r occurs across Luyia except of Logooli and Saamia, while k>x occurs across Luyia except Logooli. An isogloss drawn in Map 11 separates Logooli from the rest of Luyia for k>x, and second isogloss (dotted) drawn separates Logooli and Saamia from the rest of Luyia for t>r.

Map 11: The Luyia Law: spirantization

3.5 Variable ordering of Bantu Spirantization, Dahl's Law and the Luyia Law

The distributions of Bantu Spirantization, 7-to-5 vowel merger, Dahl's Law and the Luyia Law across Luyia are summarized in (32), indicating how the Luyia varieties shared the different processes. The (+) sign means *yes* and the (-) means *no*.

(32) Classification in matrix form indicating shared processes

Variety	BS	7-to- 5	DL	LL
Bukusu	+	+	+	+
Kabras	+	+	+	+
Wanga	+	+	+	+
Nyala B	+	+	+	+
Kisa	+	+	+	+
Idaxo	-	-	+	+
Isuxa	-	-	+	+
Tiriki	-	-	+	+
Xaayo	+	+	+	+
Marachi	+	+	+	+
Saamia	+	+	+	+ & -
Logooli	-	-	+	-

There are possible orders for the ordering of Bantu Spirantization, the 7-to-5 vowel merger, Dahl's Law, the Luyia Law devoicing, and the Luyia Law spirantization.

Most data consistently appears as follows:

1. Bantu Spirantization
2. 7-to-5 vowel merger
3. Dahl's Law
4. Luyia Law-spirantization

The examples used in (33, 34a, 34b), following, illustrate this ordering. The examples in (33) are drawn from: Bukusu, Kabras, Wanga, Nyala B, Kisa, Xaayo, and Marachi.

(33) Chronological ordering of Bantu Spirantization, 7-to-5, Dahl's Law and the Luyia Law devoicing and spirantization.

PB	*-kụta	*-kotị	*-tụụp	*-kịpa	*bụnika
BS	-fụta	-kosị	-fụụp	-sịpa	-vụnika
7-to-5	-futa	-kosi	-fuup	-sipa	-vunika
DL	-	-gosi	-	-	-
LL-spir	-fura (t>r)	-	-fuu	-sia	-vunixa
LL-dev	-	-kosi	-	-	-funixa
Final form	-fura	-kosi	-fuu	-sia	-funixa

(34a) Examples showing only DL and LL, excluding devoicing.

The varieties affected by the following ordering are Xaayo, Marachi and Saamia. However, Marachi has taxo and not daxo.

PB	*-teek-	*-tap	*-tatu	*-tako
BS	-	-	-	-
7-to-5	-	-	-	-
DL	-deek	-dap	-datu	-dako
LL-spir.	-deex(k>x)	-daa (p>Ø)	-daru (t>r)	-daxo (k>x)
LL-devoi.	-	-	-	-
Final form	-deexa	-daa	-daru	-daxo

(34b) Examples showing only DL and LL, excluding devoicing.

The varieties affected by the derivation in (34b) are Bukusu, Kabras, Wanga, Nyala B, Kisa, Idaxo, Isuxa and Tiriki. We use the same examples as those in (34a).

PB	*-teek-	*-tap	*-tatu	*-tako
BS	-	-	-	-
7-to-5	-	-	-	-
DL	-deek	-dap	-datu	-dako
LL-spir	-deex (k>x)	-daa (p>(h))	-daru (t>r)	-daxo (k>x)
LL-devoi.	-teex	-taa	-taru	-taxo
Final form	-teexa	-taa	-taru	-taxo

In conclusion, therefore, the ordering only takes place in the two parts of the Luyia Law namely, spirantization and devoicing, with spirantization ordered before devoicing in most of the words. The few examples with the opposite order, devoicing followed by spirantization, can be see in (25).

CHAPTER FOUR

CONCLUSION

4.0 Conclusion

Because of assumed common ancestry, Luyia varieties are expected to be similar in many respects. Nurse (1999) states that the shared occurrence of processes like Dahl's Law, Bantu Spirantization and the 7-to-5 vowel merger strongly suggest shared historical development from an earlier common ancestor. How diverse or similar are Luyia varieties in the way they attest the three processes discussed, or what defines Luyia linguistically based on these processes? A second question addressed in this conclusion is: What do northern and southern Luyia share uniquely?

The absence of Bantu Spirantization process and the 7-to-5 vowel merger in Idaxo, Isuxa, Tiriki and Logooli (southern Luyia) distinguishes these varieties from other Luyia varieties (north and central Luyia) and links southern Luyia varieties to E40 and E50 languages (Gusii and Kikuyu) where Bantu Spirantization is not attested. The Bantu Spirantization process, as Mould (1981) states and as the current study shows, clearly divides Luyia into north and south. The question left to be answered is: Based on Bantu Spirantization, is it justified for Luyia to speak of themselves as one group when the dialect area is split by what we would consider to be a major difference?

The answer to this question is both yes and no. From lexicostatistical (Nurse and Philippson 1980) and cultural (Angogo 1980) points of view, the answer is yes, but from a linguistic point of view based on Bantu Spirantization, the answer is no. This is because

southern Luyia varieties namely, Idaxo, Isuxa, Tiriki and Logooli, have seven vowels and do not attest Bantu Spirantization. The remaining Luyia varieties carry the five vowel system and attest Bantu Spirantization as discussed in chapter two.

What about Dahl's Law and the Luyia Law? Results for Dahl's Law group the dialect area as one since all of Luyia attested Dahl's Law irrespective of the different treatment of Dahl's Law by the different varieties as seen in Chapter 3, where Logooli attests active Dahl's Law, Xaayo, Saamia and Marachi show both active Dahl's Law and Dahl's Law traces, and the remaining varieties show Dahl's Law traces. Therefore, all Luyia underwent Dahl's Law, but Dahl's Law does not define Luyia uniquely, because it also occurred in nearby languages, such as E40, E50, and E60.

The Luyia Law on the other hand, separates Logooli and Saamia from the rest of Luyia. Logooli does not undergo the Luyia Law. Based on the word count, Logooli has more forms for *g > g, while a majority of the varieties that attest the Luyia Law have most words with *g > k. For *k > x, Logooli has a majority of the words with *k > k, *t > t, *d > l, *p > h, and *b > ß. This is a clear indication that Logooli does not undergo the Luyia Law.

The Luyia Law in Saamia is not uniform. Saamia shows the Luyia Law for *p, *k and *g, but not for *t and *d (see Table 5). Saamia has *p > Ø/ß. *p > ß is as a result of Dahl's Law. A majority of the words in Saamia have *t > t which is not the Luyia Law. Fewer words have *t > d, and even fewer have *t > r and finally *t > l. *k > x forms the majority, fewer words have *k > g and k > k. *g > k is the majority , with fewer words

having *g > g, and finally, *d from Dahl's Law remains d. Thus, the Luyia Law defines Luyia in the north but not in the south.

Out of all this, we conclude that Saamia shows the Luyia Law for *p, *k and *g, but not for *t/d. So the Luyia Law is not uniform in Saamia. Based on the statistics of the rest of the varieties, the Luyia Law affecting *k is first because it affects most of the words, as opposed to fewer words that affect *g, and *d. Saamia doesn't have the Luyia Law affecting *d. Therefore, we cannot conclude that the Luyia Law defines Luyia linguistically because if we do so, then Logooli will be left out, while Saamia may or may not be included because the Luyia Law is not uniform. In conclusion therefore, what do northern and southern Luyia share uniquely? None of the three processes discussed defines Luyia uniquely.

The ordering of the processes is mostly; Bantu Spirantization, 7-to-5 vowel merger, Dahl's Law, the Luyia Law-spirantization, Luyia Law-devoicing that occurs in the majority of the words. However, ordering of the two parts of the Luyia Law varies depending on the type of words and the dialect. The order is reversed in devoicing occurring before spirantization in some words as illustrated in(25).

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APPENDIX

	English	Proto-Bantu	Bukusu	Kabras	Wanga	Xaayo	Marachi
1	all	*-yocį	-osi	-osi	-osi	-osi	-osi
2	armpit	*-kuapa	mu-xwaa	mu-xwaa	i-kwaya	mu-kwaya	i-kwaya
3	back, turn ones	*-pųtat-	-futara	-	-futara	-fudara	-fudara
4	backbone	*-gongo-	kumu-kongo	omu-kongo	olu-kongofuma	omu-kongo	omu-kongo
5	bag	*-pųko	kumu-fuko	omu-fuko	-	omu-fuko	omu-fuko
6	barren woman	*-gumba	omu-kumba	omu-kumba	omu-kumba	omu-kumba	omu-kumba
7	be blunt	*-tųųp-	-fuua	-fuua	-fuba	-fuba	-fuba
8	become aged	*-kudu-	omu-xulu(n)	-	-	°omu-xulundu (n)	°mu-xulundu(n)
9	become bent	*-kotom-	-kotoma	-kotoma	-kota	-koda	-koda
10	become split	*-yatik-	-yatixa	-yatixa	-yatixa	-yadixa	-
11	bee	*-juki	en-juxi/čin-juxi	in-juxi	in-zuši	in-juxi	in-zuši
12	beehive	*-dįnga	kumu-singa	omu-singa	omu-liinga	omu-singa	omu-linga
13	begin	*-tang-	-rangira	-	-	-rangira	-rangira
14	blind person	*-pokų	omu-ßofu	omu-ßofu	omu-hofu	(?) o-mwofu	(?) o-mwofu
15	bone	*kųpa	(?) si-kumba	(?) si-kumba	(?) eši-kumba	(?) esi-kumba	(?) esi-kumba
16	boundary	[*-pak-]	(L) kumu-	(L) mu-paka/	' olw-axo	(L) omu-paka	olw-axo

			paka	lw-axa			
17	broken	*-bụnik-	-funixa	-funixa	-funixa	-funixa	-funixa
18	brother in law	-kwači (PL)	mu-xwasi	-	mu-xwasi	mu-xwasi	mu-xwasi
19	build	*-bak-	(?) -mbaxa	(?) -mbaxa	(?) -mbaxa	(?) -mbaxa	(?) -mbaxa
20	bury	*-dįį k-	-siixa	-	-	-siixa	-siixa
21	buttock	*-tako-	li-taxo	-	li-taxo	li-daxo	li-taxo
22	buy	*gud-	-kula	-kula	-kula	-kula	-kula
23	cheerful	*caŋgad-	-saŋgala	-saŋgala	-saaŋgafu (n)	-saŋgafu (n)	-saŋgala
24	chest	*-kụba	si-fuba	-	-	-	-
25	chin	*-dedụ	si-lefu	si-lefu	-	si-refu	-
26	choose	*-caagud-	(L) -čakua	(L) -čakua	-yaula	-	-
27	chop off	*-teet-	-teeta	-teeta	-	-deeda	-
28	clothes, take off	*dụụd-	-fuula	-fuula	° -fwalula	° -fwalula	° -fwalula
29	cold	*-pepo	(?) em-beo	(?) em-boo	-	(?) im-boo	(?) im-boo
30	contradict	*-kaan-	-kaana	-kaana	-	-kaana	-kaana
31	cook	*-teek-	-teexa	-teexa	-teexa	-deexa	-deexa
32	cooking stone	*-pįga	li-ika	li-yika	li-ika	eli-ika	li-yika
33	cough	*-kodud	-xolola	-xolola	-xolola	-xolola	i-xololo (n)
34	crocodile	*-guena	e-kwena	i-kwena	i-kwena	eli-gwena	i-gwena
35	cross a river	*-yabuk-	(?) -yambuxa	(?) -yambuxa	(?) -yambuxa	(?) -yambuxa	(?) -yambuxa
36	cured	*-pon-	-ona	-ona	-hona	-ona	-ona
37	dance	*-kina	-xina	-xina	-šina	-xina	-šina
38	darkness	*-yįdįma	si-lima	si-lima	eši-lima	esi-rima	esi-rima

39	die	*-kụa	-fua	-fua	olu-fu (n)	-fua	-fua
40	deep water	*-dịba	lu-siβa	olu-siβa	olu-suβa	olu-siβa	-
41	divide	*-gab-	-kaβana	-	-kaβula	-	-kaβula
42	*-yigi	lu-lwiki	-	-	-	-	omu-liango
43	draw water	*-tap-	-taa	-taa	-taha	-daa	-daya
44	dream, v	*-doot-	-roora	-roora	-loora	-loora	-loora
45	drip	*-ton-	-ronya	-ronya	-ronya	-donya	-ronya
46	ear	*-tu	li-ru	oxu-ru	eši-rwi	oxu-rwi	oxu-rwi
47	egg	*-gi	li-ki	-	-	-	-
48	elephant	*-jogụ	en-jofu	in-jofu	in-zofu	ein-jofu	in-zofu
49	evening	*-godoba	e-koloba	an-goloβa	in-goloβe	ein-goloβe	in-goloβe
50	excreta	*-bị	kama-fwi	ama-fwi	-	ama-fwi	ama-fwi
51	extinguish	*-dịm-	-simia	-simia	-simia	-simia	-simia
52	eyebrow	*-kịge	si-sike	ßi-sike	eši-siče	-	esi-kwoki
53	eyelash	*-kope	-	-	-	-	-
54	fall	*-gu-	-kwa	-kwa	-kwa	-kwa	-kwa
55	fame	*-kụmo	e-fumo/e-fuma	e-fumo	e-fuma	e-fuma	i-fuma
56	father	[*-baaba], *taata	(L) papa	(L) papa	(L) papa	(L) baba	(L) baaba
57	female	*-kadị	omu-xasi	omu-xasi	eši-xasi	i-xasi	omu-xasi
58	fear	*-tiy-	-rya	-rya	oβu-ri (n)	-rya	-rya
59	forest	*-tịtu	kumu-siru	omu-čiru	omu-tsuru	-	esi-tsuru
60	frog	*-kede	e-xele	li-xele	li-šele	eli-xere	li-xere
61	from, come	-tuul-	-	-ruula	-ruula	-luura	-ruula

62	fry	*-kadang-	-xalanga	-xalanga	-sihiira	-sira/ -karanga	-siira/-karanga, -xalanga
63	give	*-paan-	-aana	-aana	-haana	-	-aana
64	grandparent	*-kuuku	kuuxu/ ° kuka	° kuka	° kuka	kuuxu/ ° kuka	kuuxu/ ° kuka
65	grass	*-yatį	ßun-yasi	ßun-yasi	oßun-yasi	oßun-yasi	oßun-yasi
66	grasshopper	*-teete	li-teete	li-teete	li-teete	eli-deede	li-deede
67	groundnut	*-jugu	(L) en-juku	(L) čin-juku	(L) in-juku	(L) ein-jugu	(L) tsin-jugu
68	guineafowl	*-kanga	li-xanga	li-xanga	li-xanga	eli-kanga	li-xanga
69	harvest	*-bụn-, *-kec-	-funa/-kesa	-funa	-česa	-kesa	-kesa
70	heavy	*-dịto	ßu-siro	si-siro	eši-siro	si-siro	esi-siro
71	hen, chicken	*-koko	en-goxo	in-goxo	in-goxo	ein-goxo	in-goxo
72	hill	*-gudu	si-kulu	esi-kulu	eši-kulu	esi-kulu	olu-gulu
73	hoe	*-bago	(?) em-bako	-	(?) im-bako	(?) eim-bako	(?) im-bako
74	hold	*-kụmbat-	-fumbala	-fumbara	-	-fumbara	-xamara
75	honey	*-yuki	ßuß-uxi	oß-uxi	oß-uši	oß-uxi	oß-uši
76	horn, tusk	*-yiga	lulw-ika	lw-ika	olw-ika	olw-ika	olw-ika
77	hump (of cow)	-tumb-	li-rumba	li-rumba	li-rumba	eli-rumba	li-rumba
78	inside	*-kati	mu-kari	mu-kari	mu-kari	mu-kari	mu-kari
79	in, come	*-yiŋgid-	-iŋgila	-iŋgira	-injira	-iŋgira	-injira
80	join by tying	*-tung-	-tunga	-tunga	-	-runga	° -ungania
81	journey	*-gendo	lu-kendo	lu-kendo	olu-čendo	olu-kendo	olu-čendo

82	kidney	*-pįgo	(?) e-mbiko	(?) i-mbiko	i-fuko	ei-fuko	i-fuko
83	kill	*-yįt-	-yira	-ira	-ira	-ira	-ira
84	knock	*-kon-	-xongonda	-xononda	-	-xongonda	-xongonda
85	laugh	*-cek-	-čexa	-čexa	-tsexa	-čexa	-tsexa
86	law	*-dago	kama-laka	ama-lako	li-lako	li-lako	ama-lako
87	lick food	*-komb-	-xomba	-xomba	-xomba	-xomba	-xomba
88	lie down	*-gon-	-kona	-	-kona	-kona	-kona
89	locust	*-gįge	e-sike	či-sike	i-siče	eli-ßuko	i-sike
90	medicine man	*-kųmų	omu-fumu	-	omu-fumu	-	-
91	moon	*-edį	kumw-esi	omw-esi	omw-esi	omw-osi	omw-osi
92	mole	*-pųko	e-fuxo	i-fuxo	i-fuxo	ei-fuxo	i-fuxo
93	navel	*-kobų	e-xofu	i-xofu	li-kofi	-	li-xofi
94	neck	*-kotį	li-kosi	li-kosi	li-kosi	eli-kosi	li-kosi
95	oil	*-kųta	kama-fura	ama-fura	ama-fura	ama-fura	ma-fura
96	pass	*-pit-	-ßira	-ßira	-ßira	-ßira	-ßira
97	pass the night	*-keekį-	-kesia	-	-	-xyesia	-xyesia
98	pipe (tobacco)	-gada- (PL)	si-naka	esi-naka	olu-kata	olu-kada	olu-kada
99	plant, sow	-taaga- (PL)	-ßiala/-raaka	-ßiala	-raaka	-raaka	-raaka
100	put away	*-biik-	-ßiixa	-ßiixa	-ßiixa	-ßiiixa	-ßiiixa
101	push	*-tįnd-	-sindixa	-	-sindixa	-sindixa	-sindixa
102	rain	*-bųda	e-fula	i-fula	i-fula	i-fula	i-fula
103	remain	*-tįgad-	-sikala	-sikala	-	-	-
104	resemble	*-pųan-	-fuanana	-fuanana	-fuanana	-fuanana	-fuanana
105	rib	*-badų	lu-ßafu	lu-ßafu	olu-ßafu	olu-ßafu	olu-ßafu

106	run away	*-yituk-	-yiluxa	-yiluxa	-iruxa	-yiruxa	-yiruxa
107	satiated	*-yįgut-	-yikura	-yikura	-	-yikura	-yikura
108	send	*-tum-	-ruma	-ruma	-ruma	-ruma	-ruma
109	set a trap	*-teg-	-reka	-reka	-reka	-reka	-reka
110	shoulder	*-bega	li-ßeka	li-ßeka	li-ßeka	eli-ßeka	li-ßeka
111	sit	*-kad-	-xala	-xala	-xala	-xala	-xala
112	skin of a person	*-koba	si-xoßa	esi-xoßa	li-xoßa	esi-xoßa	esi-xoßa
113	sore	*-guma	li-kuma	lu-kuma	-	olu-kuma	olu-kuma
114	tail	*-kida	-	mu-xila	omu-šira	-	omu-šira
115	tale	*-gano	lu-kano	lu-kano	olu-kano	olu-kano	olu-kano
116	tear, v	*-tand	- tandula/randul a	taßula	-randula	-randura	-randura
117	tell lies	*-beep-	-ßea	-ßea	-ßeeya	-	-
118	thief	*-yibį	o-mwifwi	o-mwifwi	o-mwifi	o-mwifwi	o-mwifi
119	think	*-gan-	-kanakana	-kanakana	-	-	-
120	three	*-tatu	či-taru	či-taru	xa-taru	-daru	tsi-daru
121	times, olden	*-kade	-xale	-xale	-xale	-xare	-xale
122	uncover	*-kụnud-	-funula	-funula	-funula	-	-funula
123	untie	*-kakud	kangulula	kangulula	-	-	-
124(a)	vein	*-kįpa	lu-sia	olu-sia	omu-si	omu-si	-
124(b)	root	*-dį	lu-sia	olu-sia	omu-si	omu-si	-

125	wear, dress	*-dụat-	-fuara	-fuala	-fuala	-fuala	-fuala
126	wipe excreta	*-pip-	-ßia	-ßia	-	-ßia	-ßia
127	wing	*-pap-	lu-paa	olu-paa	olu-ßaha	olu-ßaya	olu-ßaa
128	wisdom	*-gedị	ßu-kesi	oßu-kesi	-	ama-kesi	ama-kesi
129	witchcraft	*-dogị	ßo-losi	oßo-losi	oßo-losi	mu-losi	oßo-losi
130	wring	*-kam-	-xamulula	-xamulula	-	-	-

	Saamia	Nyala B	Kisa	**Idaxo**	Isuxa	Tiriki	**Logooli**
1	-osi	-osi	-osi	-osị	-osị	-osị	-osị
2	e-kwaya	mu-xwaya	i-kwaya	mu-kwaha	mu-kwaha	mu-kwaha	i-gwaha
3	-fudata	-	-futara	-	-	-	-
4	omu-kongo	omu-kongo	mu-kongo/olu-kongo	mu-gongo	mu-gongo	mu-kongo	mu-gongo
5	omu-fuko	omu-fuko	mu-fuko	-	-	-	-
6	omu-kumba	omu-kumba	mu-kumba	mu-gumba	mu-kumba	mu-kumba	mu-gumba
7	-fußa	-fuu	-	-tụụha	-tụụha	-tụụhi	-dụfu
8	°omu-xulundu /	-	-	-	-	-	-
9	-koda	-	-kota	-toma	-kotoma	-	-
10	-yadiha	-yatixa	-yatixa	-yatixa	-yatixa	-yatixa	-yadika
11	en-juhi	en-juxi	in-zuši	in-zuši	in-zuši	in-zuši	en-zoki
12	omu-singa	omu-linga	omu-linga	mu-lị nga	mu-lịnga	mu-lịnga	mu-lịnga

13	-tangira	-čangira	-rangira	-ranga	-ranga	-	-tanga
14	(?) o-mwofu	(?) o-mwofu	mu-ßofu	(?) mbexų	mu-ßexų	mu-ßexų	(?) mbokų
15	(?) esi-kumba	(?) esi-kumba	(?) si-kumba	(?) ši-kųmba	(?) ši-kųmba	(?) ši-kųmba	(?) ki-gųmba
16	°olwa-xo	(L) omu-paka	(L) mu-paka	(L) mu-paka	(L) mu-paka/ lw-axo	Lw-axo	lw-ako
17	-funiha	-funixa	-	-	-	-	-ßųnika
18	-	-	-	mu-xwasi	mu-xwasi	mu-xwasi	mu-kwasi
19	(?) -mbaxa	(?) -mbaxa	(?) -mbaxa	(?) -mbaxa	(?) -mbaxa	(?) -mbaxa	(?) -mbaka
20	-siiha	-siixa	-	-	-	-	-
21	e-daxo	ama-taxo	li-taxo	li-daxo	li-taxo	li-taxo	li-dako
22	kula	kula	kula	kula	kula	kula	gula
23	saŋgala	saŋgala	-	-	-	-	-
24	-	-	-	-	-	-	-
25	esi-refu	-	-	ši-tefų	ši-terų	ši-terų	-
26	-	(L) -čakula	(?) -yaula	(L) -čakula	(?) -yaula (L) -čakula	(L) -čakula	(L) -čegula
27	-	-	-	-teeta	-	-	-
28	° -fwalula	° -fwalula	° -fwalula	-ßųųla	-ßųla	-rųlitsa	-tųliza
29	(?) em-boo	(?) em-boo	ßušindu	ßušindu	ßušindu	ßušindu	ßukindu
30	-kaana	-kaana	-kaana	-xaana	-xaana	-xaana	-
31	o-deeha	-teexa	-teexa	-teexa	-teexa	-teexa	-deeka
32	ama-ika	ama-ika	li-yika	li-hįka	li-yįka	li-hįka	ma-hįga
33	-kolola	-xolola	-xolola	-xolola	-xolola	-xolola	-kolola

34	e-gwena	e-kwena	i-kwena	i-kweno	i-kwena	i-kwena	in-gwena
35	(?) -yambuxa	(?) -yambuxa	(?) -yambuxa	(?) -yambuxa	(?) -yambuxa	(?) -yambuxa	-
36	-ona	-ona	-ona	-hona	-hona	-hona	-hona
37	-xina	-xina	-šina	-	-šina	-šina	-
38	esi-rima	esi-rima	ši-lima	š-lįma	šį-rįma/ ši-sundu	-	-
39	-fua	-fua	olu-fuu (n)	-xųtsa	-xųtsa	-xųtsi	-kųza
40	-	olu-sißa	-	liįßa	lu-lįßa	lu-lįßa	li-lįßa
41	-kaßana	-kaßana	-kaßula	-kaßula	-kaßa	-	-gaßula
42	o-lwiki	-	-	-	-lwiči	-lwiči	-
43	-daya	-taa	-taha	-taa	-taha	-taha	-daha
44	-loota	-looča	-loora	-loora	-loora	-loora	-lota
45	-donya	-čonya	-roonya	-ronya	-ronya	-	-tonya
46	e-twi	oxu-čwi	ši-rwi	li-royi	ši-roi	ši-rui	gu-tu
47	-	e-ki	-	-	-	-	-
48	en-jofu	en-jofu	-	in-zofų	in-zikų	in-zekų	e-nzogų
49	an-goloße	an-goloße	mu-koloßa	a-mu-koloßa	a-lu-koloßa	a-mu-koloße	a-mu-goloßa
50	ama-fwi	ama-si	ma-fwi	ma-fį	ma-ßį	-	ma-ßį
51	-simia	-simia	-simia	-dzįminya	-tsįminya	-tsįminya	-sįmina
52	e-si-kwoki	e-sikie	ši-siče	si-sįči	ši-šįči	ši-sįči	ßi-sįji
53	-	-	-	-	ßu-kohe	ßu-kohe	ßi-gohe
54	-kwa	-kwa	-kwa	-kwa	-kwa	-kwa	-gwa
55	e-fuma	e-fumo	-	-	lu-xųmu	-	-

56	laata/ (L) baaba	(L) papa	(L) papa	(L) papa	taata	(L) papa	(L) baba
57	omu-xasi	omu-xasi	mu-xasi	omu-xalį	mu-xalį	mu-xalį	mu-kalį
58	-tya	-rya	oßu-ri (n)	ßu-ri (n)	mu-ri (n)	-rya	ßu-ti (n)
59	-	omu-siču	mu-čiru	mu-lįru	mu-lįru	mu-lįru	mu-lįtu
60	e-xere	e-xele	li-šere	li-šere	li-šere	li-šere	li-kere
61	-tuula	-čuula	-ruula	-nduula	-ruula	-nduula	nduula
62	- karanga	-langa	-karanga	-karanga	-kalanga	-kalanga	-karanga
63	-haana	-aana	-haana	-haana	-haana	-hee	-haana
64	kuuxu/ ° kuka	kuuxu/ ° kuka	kuuxu/ ° kuka	kuuxu/ °kuka	kuuxu/ ° kuka	kuuxu/ ° kuka	guuku/ ° guka
65	oßun-yasi	oun-yasi	ßun-yasi	ßun-yasį	ßun-yasį	ßun-yasį	-
66	e-deede	e-teete	li-teete	li-deede	li-teete	ma-deede	-
67	(L) en-jugu	(L) en-juku	(L) in-jugu	(L) tsin-juku	(L) tsin-jugu	(L) tsin-jugu	(L) tsin-jugu
68	e-hanga	e-xanga	li-xanga	li-xanga	li-xanga	li-xanga	li-kanga
69	-kesa	-kesa	-funa	-česa	-ßųna/-česa	-	-ßųna
70	esi-sito	si-sičo	eši-siro	ši-lįto	ši-lįtoxo	ši-lįto	ki-lįto
71	en-goxo	en-goxo	in-goxo	in-goxo	in-goxo	in-goxo	en-goko
72	lu-gulu	esi-kulu	ši-kulu	eši-kulu	ši-kulu	ši-kulu	ki-gulu
73	em-bako	em-bako	em-bako	ši-siri	im-bako	im-bako	-
74	-fumba	-	-	-ųmbara	-kųmira	-ųmbara	-gųmira
75	o-ßuxi	o-uuxi	ßuši	ßuši	ßuši	ßuši	ßuki

76	olw-ika	olw-iika	olw-ika	lw-ika	lw-ika	inj-ika/tsinj-ika	lw-iga
77	e-tumba	e-čumba	li-rumba	-	-	-	-
78	mu-kati	mu-kachi	mu-kari	mu-kari	mu-kari	mu-kari	-
79	-ingira	-ingira	-injira	-injira	-injira	-injira	-ingera
80	-tunga	-	-runga	-runga	-	-runga	-unganya
81	o-lu-kendo	o-lu-kendo	lu-čendo	lu-dzendo	lu-čendo	lu-čendo	lu-gendo
82	e-fuko	e-mbiko	i-fiko	tsi-mbįko	i-mbįku	a-mbįko	i-mbįgu
83	-ita	-iča	-ira	-ira	-ira	yira	-ita
84	- xongonda	-xongonda	-xongonda	-xongonda	-	-xongonda	-kongonda
85	-čexa	-čexa	-tsexa	-sexa	-saxa	-saxa	-seka
86	e-lako	ama-lako	li-lako	li-lako	li-lako	li-lako	ma-lago
87	-xomba	-xomba	-xomba	-xomba	-xomba	-xomba	-komba
88	-kona	-kona	-kona	-kona	-kona	-kona	-gona
89	e-sike	e-sike	i-siče	i-šįči	i-sįči	či-sįči	i-sįge
90	-	omu-fumu	mu-fumu	mu-xųmų	ßa-xųmų	ßa-xųmų	mu-kųmų
91	omw-osi	omw-esi	mw-esi	mw-elį	mw-erį	mw-elį	mw-elį
92	e-fuko	e-fuxo	i-fixo	i-mbųxu	i-mbųxu	i-mbųxu	i-mbųku
93	-	-	li-xofu	e-xoßų	i-xußų	i-xußų	i-ngoßų
94	e-kosi	e-kosi	li-kosi	li-ngorį	li-ngorį	li-ngorį	li-ngotį
95	ama-futa	ma-fuča	ma-fura	ma-kųra	ma-kųra	ma-kųra	ma-gųta
96	-ßita	-ßiča	-ßira	-ßira	-ßira	-ßira	-ßita
97	-xyesia	-	-	-keeša	-	-	-

98	olu-kada	esi-naka	lu-kata	lu-kata	lu-kata	lu-kata	lu-gada
99	-taka	-čaka	-raka	-raka	-raka	-raka	-taga
100	-ßiixa	-ßiixa	-ßiixa	-ßiixa	-ßiixa	-ßiixa	-ßika
101	-sindiha	-sindixa	-	-	-sịndixa	-	-
102	e-fula	e-fula	i-fula	i-mbụla	i-mbụla	i-mbụla	i-mbụla
103	-	-sikala	-sikala	-rịkala	-rịkala	-rịkala	-tịgala
104	- fuanana	-fuanana	-fuanana	-	-fụana	-	-fụanana
105	o-lu-ßafu	o-lu-ßafu	lu-ßafu	lu-ßalụ	lu-ßalụ	tsi-mbalụ	lu-balụ
106	-yiruha	-yiluxa	-yiluxa	-yiluxa	-yiluxa	-yiluxa	-yiluka
107	-kuta	-kuča	-kura	-kụra	-kụra	-kụra	-gụta
108	-tuma	-čuma	-ruma	-ruma	-ruma	-ruma	-tuma
109	-teka	-čexa	-reka	-reka	-reka	-reka	-tega
110	e-ßeka	ma-ßeka	li-ßeka	li-ßeka	li-ßeka	li-ßeka	li-ßega
111	-ihala	-yixala	-yixala	-yixala	-yixala	-yixala	-yikala
112	esi-xoßa	esi-xoßa	li-xoba	-	-	-	-
113	olu-kuma	olu-kuma	olu-kuma	li-kuma	lu-kuma	lu-kuma	ki-donda
114	omu-xira	omu-xira	mu-šira	mu-šila	mu-šila	mu-šila	mu-kira
115	olu-kano	olu-kano	lu-kano	lu-kano	lu-kano	lu-kano	lu-gano
116	-tandula	-	-randura	-randura	-randura	-randura	
117	-ßacha	-ßeea	-ßeeha	-ßeehi	- ßeeha	-ßeeha	-ßeeha
118	o-mwißi	o-mwifwi	mwifi	mwißị	mwißị/šihußị	šihußị	mwißị

119	-	-	-	-kanakana	-kanakana	-kanakana	-ganagana
120	či-datu	či-taču	či-taru	-	-	-	-tandura
121	xaare	xale	xale	xale	xale	xale	kale
122	-funula	-funula	-	-kụla	-xụnula	-xụnula	-kụnula
123	-	-kangulula	-	-	-	-	-
124(a)	mu-si	omu-si	mu-si	mu-šį	mu-šį	mi-šį	mu-čį
124(b)	mu-si	omu-si	mu-si	mu-šį	mu-šį	mi-šį	mu-čį
125	-fwala	-fuala	-fuala	fụara	-fụala	-fụala	-ßiika
126	-ßia	-ßia	-ßiha	-ßia	-yeha	-ßia	-ßiha
127	e-ßaya/olu-ßaa	lu-ßaa	lu-ßaa	lu-ßaa	lu-ßaha	lu-ßaha	lu-ßaha
128	oßu-kesi	ama-kesi	ßu-česi	ma-čelį	ßu-čelį	ßu-čelį	ßu-gelį
129	oßu-losi	ßu-losi	ßu-losi	-	-	ßu-ločį	ßu-lojį
130	-	-	-kamula	-kamula	-kamula	-	-kamulula

Abbreviations used in the Appendix

1. [-] Blank – different word.
2. [?] - intrusive nasal - In some cases it is a prefix such as /o-mu-bofu/ 'blind', but in other varieties where the PB *p gets deleted, glide formation takes place afterwards resulting to [o-mwofu]. For example the derivation of the form 'blind' in varieties where the *p is deleted would be as follows:- *poku :- /o-mu-ofu/ → [o-mwofu]
3. [*] asterisk – Proto-Bantu reconstructed form.
4. [L] loan word. Most of the words are borrowed from Swahili but not all.
5. Proto- Bantu forms in brackets [ ] are Swahili words.
6. [n] or [v]: noun or verb – item not in the same grammatical category as the PB form, but is regular in some way.
7. Proto- Bantu forms without the asterisk (*) are reconstructed forms from the data.
8. [°] – raised circle: the forms look similar but irregular in some ways.

9. For verbs and adjectives, only the stem is shown. The verb form is equivalent to the imperative form. All the nouns retain the prefixes.