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DEPARTEMENT DE LANGUES AFRICAINES ET LINGUISTIQUE

THE LEXICAL PHONOLOGY OF BÀLOŊ

A Dissertation Submitted in Partial Fulfillment of the requirements for the Award of the postgraduate diploma "Maîtrise" in Linguistics

By

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DEDICATION

To

The Glory of God

My parents, Shey Kong Lawrence and Kong Theresia Beri who took all their care and patience to educate me right up to the university level.

My husband and children, Nsawir Julius, Nsawir Lawrence Junior and Nsawir Lorna Odile for their love and concern.

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A work of this nature could never have been done single-handed. As such, I owe profound gratitude to many.

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LIST OF ABBREVIATIONS AND SYMBOLS

a) Rules

Imp.	Implosion
V del.	Vowel deletion
Def L	Default Low
Assib.	Assibilation
l del.	lateral deletion
palat.	palatalisation
g del.	g deletion
k insert.	k insertion
meth.	metathesis
Devoc.	Devocalization
Nasal assim.	Nasal assimilation
Tone lk.	Tone linking.
Tone dissim.	Tone dissimilation
HTA	High tone anticipation
HTS	High tone spreading
M.R.	Meeussen's rule
Dlk	Delinking

b) Tones

/ or H = High tone

\ or L = Low tone

ˇ or LH = Rising tone

ˆ or HL = Falling tone.

c) Others

C	consonant
V	vowel
e.o.	each other
s.o.	someone
i.e.	that is
#	word boundary
+	morpheme boundary
~	alternates with
[...]	phonetic data
/ ... /	phonemic data
Ed(s)	Editor(s)
Ext(s)	Extension(s).
FV	Final vowel
No	Number
OCP	Obligatory Contour Principle
Pfx	Prefix
Redup	Reduplication
Rt	Root
SM(s)	Subject marker(s)
TBU	Tone Bearing Unit
TM(s)	Tense marker(s)
UAC	Universal Association Conventions
UR	Underlying representation
PR	Phonetic representation
α place	place of articulation α
→	becomes or is realized as
cl	class

caus	causative
spont	spontaneous
bk	back
hi	high
ant	anterior
son	sonorant
cont	continuant
cor	coronal
nas	nasal
del rel	delayed release

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CHAPTER I

INTRODUCTION

The term "Balong" is a generic term which designates at the same time the name of the language and the name of the ethnic group. To avoid confusion, we will adopt the phonetic form, Bàlòŋ, for the name of the language and the orthographic form Balong when referring to the ethnic group. This chapter which serves as an introduction to this work is divided into four sections. Section one presents the Balong people and their language; section two, previous studies done on the language; section three gives the aims of this study and section four, the approach and methodology used in the work.

I.1. THE BALONG PEOPLE AND THEIR LANGUAGE

1.1.1. Geographical Location.

It is very difficult to locate the Bàlòŋ language geographically. This is because the Balong people are scattered in two provinces, namely, the Littoral and South west provinces. This task is further rendered more difficult by the fact that the different clans which make up the ethnic group are in certain areas separated from each other by at least one completely different ethnic group (cf. Map No 1.). To overcome this difficulty, we have decided to situate the Bàlòŋ language following the present day administrative localisation of its speakers. Thus we can say that Bàlòŋ is spoken in the following areas in Cameroon:

-In Mbanga Sub-division, Mungo Division, Littoral province.

-In Muyuka Sub-division, Fako Division, South West province.

-In Kumba Sub-division, Meme division, South West province.

-In Mbonge - (Marumba) Sub-division, Meme division, South West province.

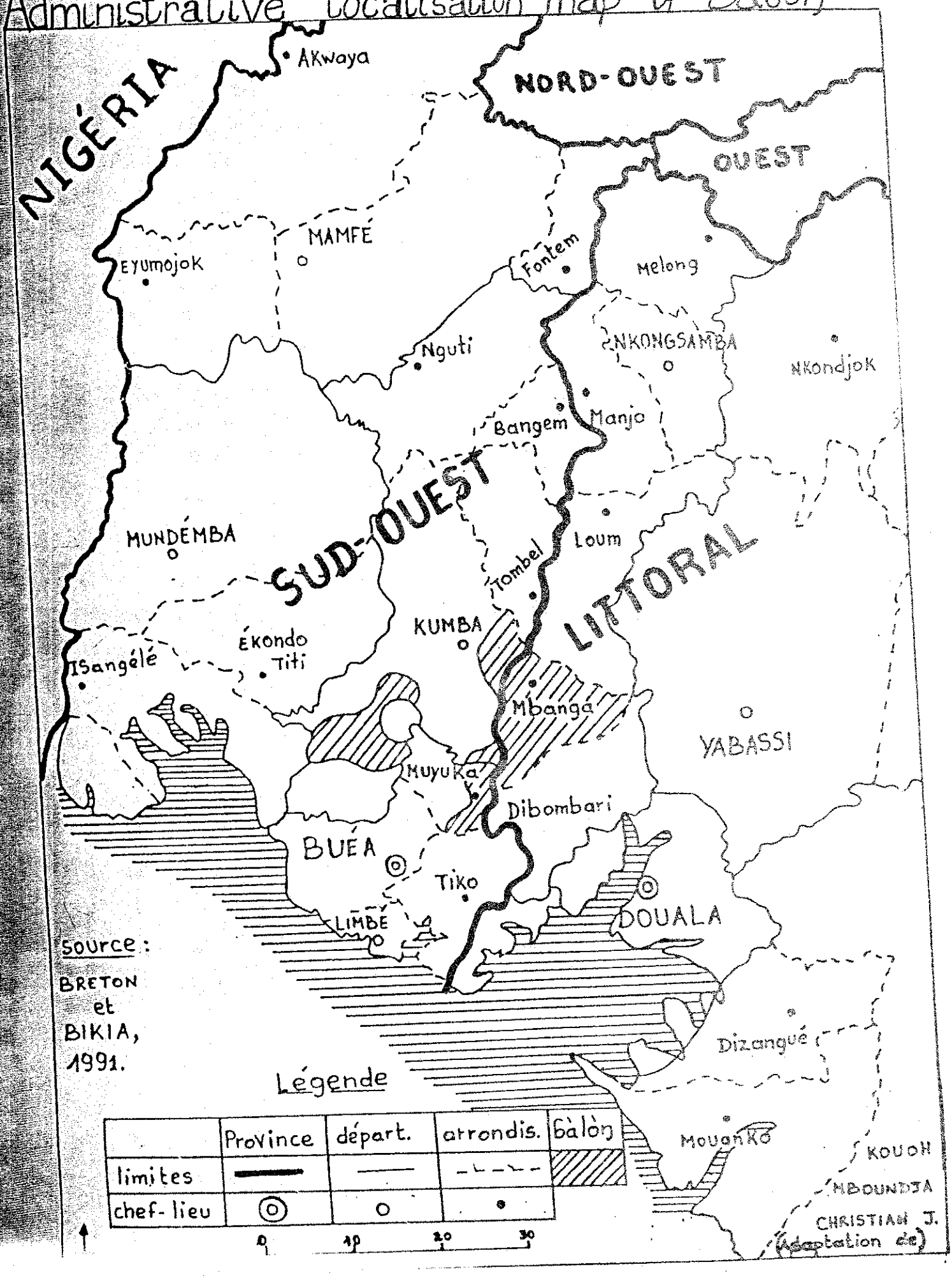
The dispersed settlement of Bàlòŋ speakers has brought about many linguistic interferences due to contacts with other ethnic groups speaking neighbouring languages. This partly explains the modifications in its phonological system and its varieties from one clan to another. (cf. Map No.2)

1.1.2. Historical Background.

According to Dieu et Renaud (1983:111), the native speakers of Bàlòŋ, Mbo, Nsɔsɛ, Akɔɔsɛ and Nhɔ have one ancestor called Ngoé. Dugast (1949:33) holds that Elong, (Nlong to the natives), the ancestor of the Balong left the mountainous region of Western Mungo to settle in the valley situated in this area. Following the information we got on the field, the Balong people all came from Mengue, a locality called "Upper Balong" of which the district capital today is Manyemen. They settled along the river Mungo. Some stayed at Mukondʒe, Kumba Sub-division while others, step by step, came into the Mungo valley (more precisely, the present day Muyuka Sub-division). Due to overpopulation and its related problems, part of this group crossed the river Mungo to settle in Mbanga, a locality formally called Mwi(r). Some others, the Bai first settled around the present day Bamusso Sub-division then they left for Bamoko-Lume village because their children were devoured by crocodiles. Later on, they abandoned Bamoko to settle definitively in Bai. Oral sources affirm that the Mbonge ethnic group, found in Marumba, is made up partly of Balong people. These Balong have totally lost their identity.

Map No. 1

Administrative localisation map of Bàlòn



At the end of their migrations, the Balong found themselves distributed in five different clans:

-*The Bakoni clan* (the Balong of the North) which occupies the Talangaye district, Nguti Sub-division, Koupé and Manenguba division, South West province.

-*The Bai clan* (the Balong of the West) situated in Mbonge Sub-division. It is made up of seven villages; Bai Kuke, Bai Mokemwafem, Bai Sombe, Bai foé, Bai Longue, Bai Mwasa and Bai Manya. These villages are not easily accessible in the rainy season due to the bad state of the untarred road linking them to the Sub-divisional capital (Mbonge) and to the Meme divisional capital (Kumba).

-*The Mbok Ekoko clan* (the Balong of the Center) which occupies the Kumba Sub-division. This clan is made up of four villages: Badumat, Malende, Mukondʒe and Mundame.

-*The Difandʒe clan* (the Balong of the South) found in Muyuka Sub-division. It is made up of four villages: Muyuka, Yoke, Malende and Mpondo.

-*The Mwi clan* (the Balong of the East) situated in Mbanga Sub-division. This clan is made up of seven villages: Muyuka, Yoke, Fiko, Ndom, Ndoh, Dikouma and Nkwangsi.

Dieu et Renaud (1983:158 and 162) have numbered the natives of Nhɔ (the Bafaws) at more than 10.000 and estimated the native speakers of Bàlòŋ between 5.000 and 10.000. However, in his closing speech at the first annual congress of the "Balong Cultural and Development Organisation" (BACULDO), Chief Ebandʒa of Mukondʒe evaluated the descendants of Nlong at 60.000.

Despite the fact that they are scattered in two provinces, all the Balong seem to live in the same way, their main occupation being farming. Food crops like cocoyams, plantains, beans, potatoes, maize, pineapple and cassava are cultivated while cash crops include coffee, palm oil, cocoa,

citrus fruit and hevea. Fishing and animal rearing are extensively practiced. The system of government is traditional with a paramount first class chief at the head of the clans found in the Sub-divisional headquarters. He is assisted by second class chiefs. Third class chiefs assume the functions of village heads and notables to the paramount chief. They are followed in hierarchy by quarter heads and finally family heads who serve as councilors to the third class chiefs.

1.1.3. Linguistic Location.

Bàlòŋ - code 642[1]- is a Bantu language belonging to the Benue-Congo family. Under the Bantu Equatorial Sub-branch languages, it belongs to the coastal Bantu Sub-group. Guthrie (1967:31) classifies it under group 10, Lundu- Bàlòŋ, zone A, where it is identified as A13 next to Londo A11, Barue A12, Bɔnkeŋ A14 and Mbɔ A15. Bàlòŋ as a language, is made up of two dialects: the Ròyí dialect and the Bàlòŋ dialect proper.

The Ròyí dialect (to the natives) is called Bai by the Bakpwes or Bakweris (Mokpwe speakers) and Bàyí by Dieu et Renaud (1983). The Ròyí dialect is bounded:

-to the North by the Bakundu dialect of the East Oroko language (code 632)

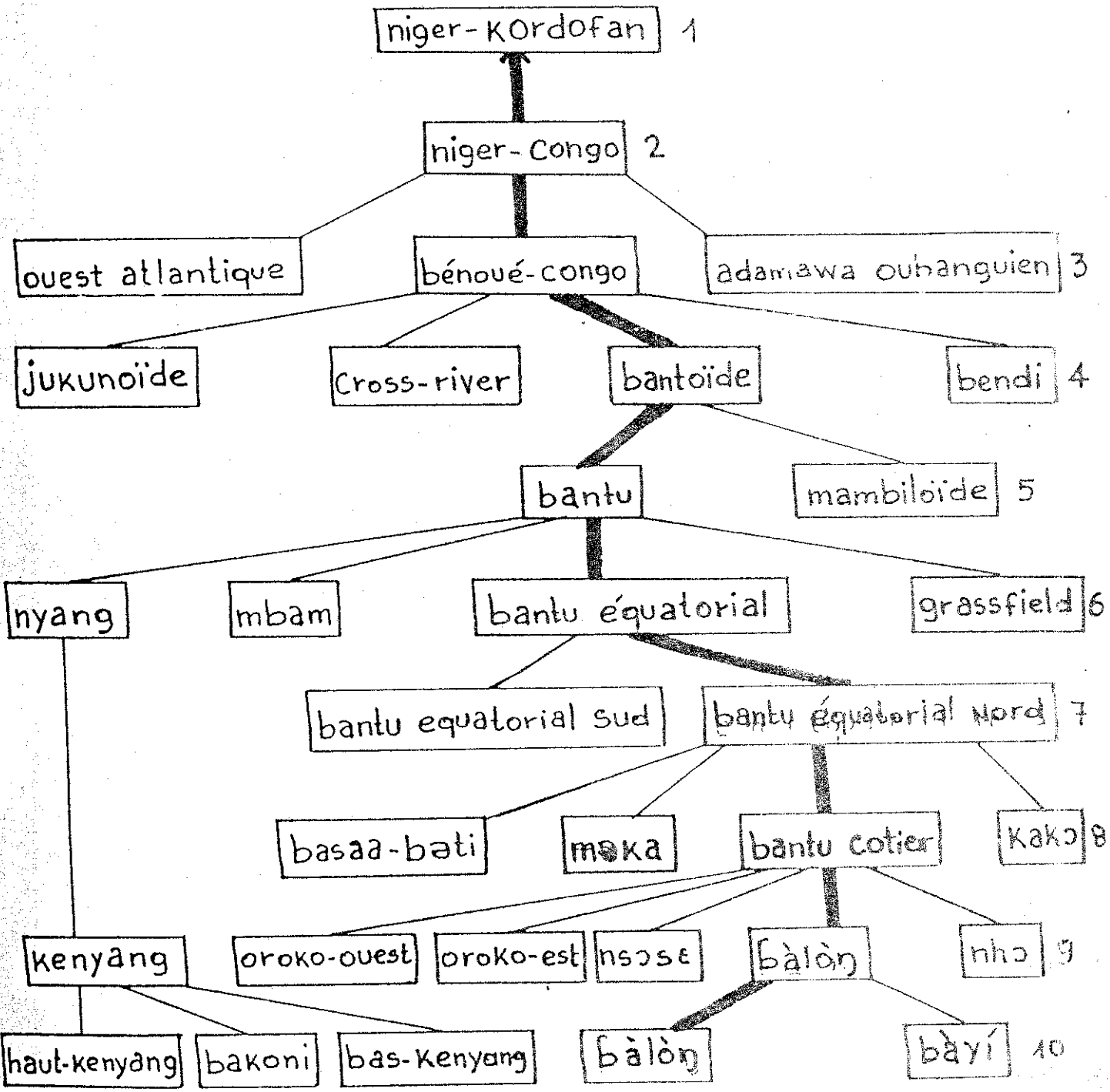
-to the South by the Wumbuko language (code 622)

-to the East by the Bakundu dialect of the Mokpwe language (code 621)

-to the West by the Bakɔlɛ language (code 625) and the Barondo dialect of the West Oroko language (code 631)

[1] 642 is the number used by Dieu et Renaud to designate the Bàlòŋ language. The number 6 stands for the geographical zone in which the language is situated, 4 indicates the number of genetically neighbouring languages and 2 the language itself within this group.

ARBRE GÉNÉTIQUE DU Bàlòn
(Bàlòn Genetic Tree)



Légende

1- phylum
2- sous-phylum
3- Famille
4- sous-famille
6- sous-branche
7- Groupe
8- sous-groupe
9- Langue
10- Dialecte.

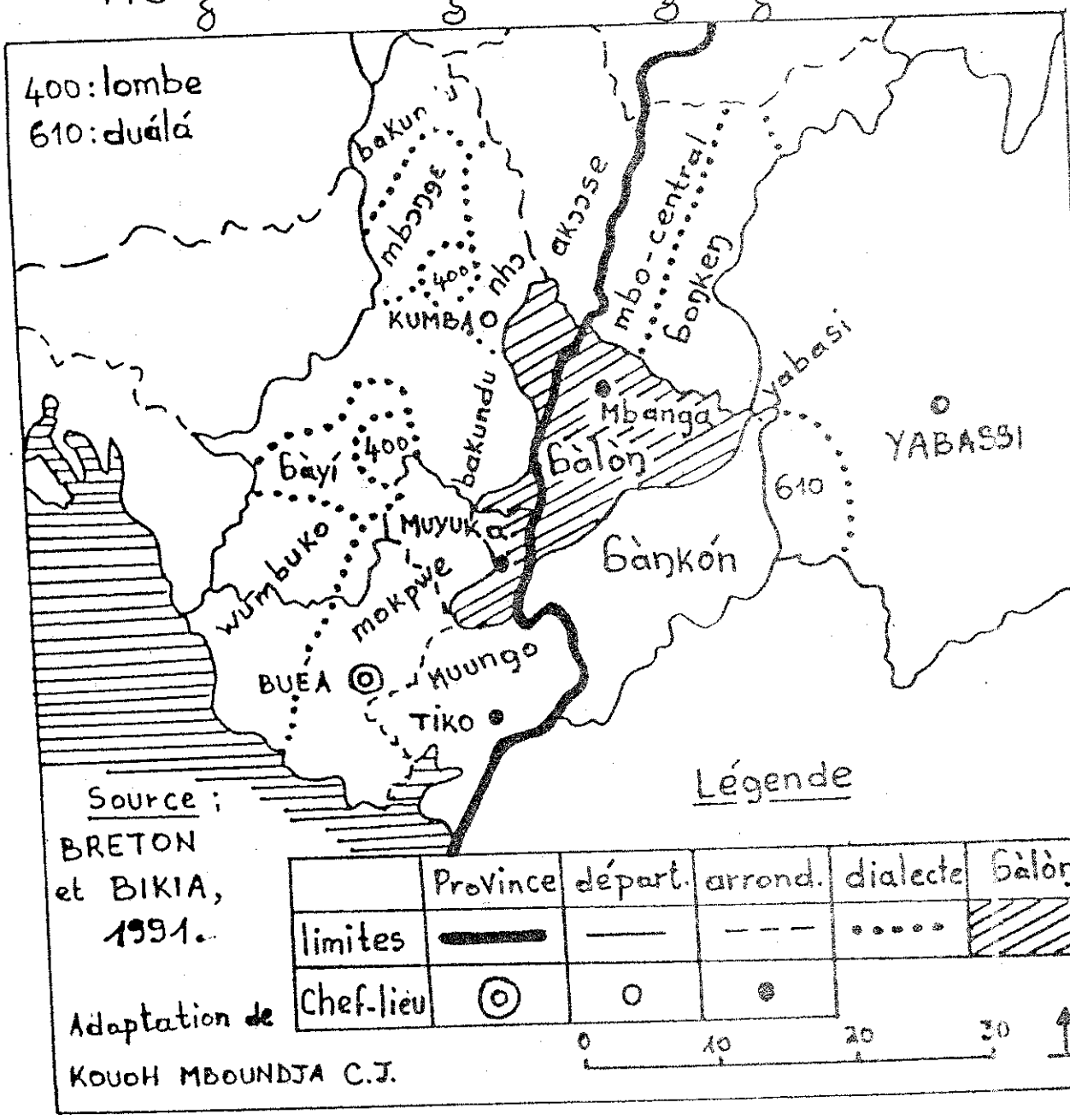
Source :

DIEU, M. et RENAUD, P., 1983.

Adaptation de
KOUOH MBOUNDJA C.J

Map No. 2

The Bàlòŋ dialect and neighbouring Languages



The Bàlòŋ dialect on its part is called Nloŋ or Valoŋgi by the Bankon (the Barombis) and the Bakweris respectively and it is considered to be the reference dialect by the natives. This is the dialect on which our study is based. This dialect is bounded:

-to the South-East by Bàŋkón, a dialect of Lòmbé (code 400)

-to the South by Mùúngò, a dialect of Duala (code 610).

-to the East by Yàbássí, a dialect of Bàsàá (code 401)

-to the West by Bàkùndú, an East Oroko dialect, and by the Nhɔ̀ (code 641) and Mokpwe (code 621) languages.

Despite the phonetic alternations within the Ròyí and Bàlòŋ dialects, the two remain the dialects of one and the same language. As such, in spite of these variations all Bàlòŋ dialects are mutually intelligible except for the dialect spoken in the Bakoni clan. In fact as Dieu et Renaud (1983:111) have pointed out, the other Balong affirm that an interpreter is needed between them and the Bakonis for communication to be effective. As such, though they claim to belong to the Balong ethnic group, the Bakoni are linguistically attached to the Kenyang language (code 881).

1.2. PREVIOUS STUDIES ON THE LANGUAGE

Bàlòŋ is a language that is not yet very much explored. In 1997, KOUOH MBOUNDJA worked on this language in his "maîtrise" dissertation: *Esquisse Phonologique du* Bàlòŋ. Using the structural approach, he was able to establish a sound system for the language as well as propose a writing system, the basis from which further scientific work could be done on the language. In 1999, KOUOH again worked on the morphology of Bàlòŋ in his "Projet de Thèse", *Morphologie du Bàlòŋ*. Though this work has not yet been developed, it lays the groundwork for the Bàlòŋ nominal and verbal forms. So far, we have not laid hands on any other work on Bàlòŋ, though it is possible that it may exist.

1.3. AIM of STUDY

This study is principally aimed at describing the phonological processes in Bàlòŋ nominal and verbal forms in such a way as to explain suitably all surface phonological melodies. It is also aimed at testing the Lexical Phonology model in Bàlòŋ and lastly to contribute to the description and analysis of our African languages.

1.4. THEORETICAL FRAMEWORK AND METHODOLOGY.

1.4.1. Theoretical framework.

The approach used in this work is the Lexical Phonology model. Unlike Standard Generative Phonology where all the morphological processes are assumed to apply before the phonological rules, Lexical Phonology assumes an interaction between the phonological rules and the different stages of word formation (Kiparsky 1982, Mohanan 1986, Pulleyblank 1986, Mutaka 1994). This belief stems from the assumption that a word is formed at different stages called strata or levels and at each level, phonological rules are present and thus apply. More information on the Lexical Phonology model is given at the end of this work in the General Conclusion.

1.4.2. Methodology.

This project started with data collection. Part of the data came from KOUOH MBOUNDJA who had earlier worked on the language and the rest from informants whom the researcher met here in Yaounde. All the informants, Ewanje Emilienne, Epane Musambe Suzanne and Penda Ernestine, are speakers of the Bàlòŋ dialect and they had grown up in the village. As such, their mastery of the language was unquestionable.

The main medium of communication on the field was French since it was the code shared by the researcher and the informants. The informants gave direct translations in Bàlòŋ for the words which the researcher asked them. These were then noted down. Afterwards, the researcher classified them into nouns and verbs, analysed them and drew conclusions.

In analysing the verbal data, close attention was paid to the behaviour of the various verb roots when the FV and the extensions are added. The researcher also checked which extensions are present in the language and then went on to conjugate the verbs in certain tenses so as to determine the behaviour of the tense markers. As for the nominal forms, nouns were looked at in isolation, in subject position and before an adjective. This enabled the researcher to determine the underlying forms of nouns and to fully explain the surface phonological alternations.

1.5. OUTLINE OF WORK

This work is divided into five chapters. Chapter One deals with the introduction which gives the geo-historical situation as well as the linguistic classification of Bàlòŋ. It also presents the previous works done on the language, the approach and methodology used and an outline of the entire work.

Chapters Two, Three and Four treat the phonology of the verb. Chapter Two treats the constituents of the verb complex form (i.e. SM, TM, Rt, Ext(s), FV) giving their underlying forms. Chapters Three and Four dwell on some tenses in Bàlòŋ. While Chapter Three treats the infinitive, the present tense and the future tense, Chapter Four focuses on the past tense.

Chapter Five is reserved for the nominal forms. It treats the noun class system (mainly the phonological alternations witnessed here), the underlying tones in nouns and some cases of reduplication.

The work closes with a general conclusion which gives more information on the Lexical Phonology model and presents a summary of the results of this project.

CHAPTER II

THE PHONOLOGY OF THE VERB: THE VERBAL MORPHEMES.

II.0. INTRODUCTION

This chapter as well as chapters three and four focus on the verb in Bàlòŋ. This is because a lot of phonological processes in Bàlòŋ revolve around the verb and as such, it needs to be given keen attention. In this chapter, we will discuss the structure of the verb in Bàlòŋ and then move ahead to examine the underlying forms of the various morphemes that make up the verb complex form.

II.1. THE VERBAL STRUCTURE

In general the Bantu verb has the following structure:

SM -TM - OM - Rt - Ext (s) - FV

where SM is the subject marker, TM, the tense marker(s) and /or the aspectual marker(s), OM, the object marker, Rt, the root, Ext(s), one or more extensions and FV, the final vowel (Mutaka 1994).

Bàlòŋ verbs have a similar structure except that the different morphemes do not constitute a single ~~noun~~ word. Nevertheless, these isolated morphemes need to be considered as one phonological word in which lexical rules apply. The object marker which always comes at the end of the verb does not have much influence on the other constituents of the

verbal form and has therefore been left out in our presentation of the verbal structure.

The Bàlòŋ verb thus has the following structure:

(1) SM - TM - Rt - (FV) - (Ext.(s))[1]

This structure can be illustrated with the following examples:

(2) a. SM+TM - Rt -FV

sâ - jɔ̀l - ɔ̀	'we laugh'
sâ - kól - ô	'we shave'

b. SM +TM - Rt -Ext.

sâ - jɔ̀l - ìl	'we make s. o. laugh'
sâ - kól -ên	'we shave e. o.'

The root and the extension(s) constitute a morphological unit called the base while the base and FV form what is called the stem. Following our subsequent analyses, the stem is formed at stratum one while the rest of the word comes in at stratum two. In certain tenses like the past perfect and imperfect tenses where the TM is a discontinuous morpheme, we will argue that the first part of this morpheme comes before the verb root (a prefix) while the second part comes after it (a suffix). Following the assumption in Lexical Phonology that in word building, the material to the right of the verb root is affixed before that to the left, we will argue that the second part of the discontinuous morpheme marking tense is affixed at stratum one so that it becomes part of the verb stem. The first part then comes in at stratum two as well as all the other TMs that are prefixes. These arguments are substantiated in section II.6.1. of this chapter.

---

1 The FV and the Ext(s) are bracketed because they are mutually exclusive. When the verb ends with the FV, the Ext(s) are absent and vice versa.

The SM and the TM are sometimes referred to as INFL, (Mutaka, 1994), when they constitute a prosodic word[2], and in Bàlòŋ, the INFL word has been found to exist only in verbs conjugated in the present tense. We have therefore termed the present TM and the SM, INFL because they seem to function as a unit.

After presenting the verbal structure, we will move on to discuss in detail each of the verbal morphemes.

II.2. THE ROOT

Bàlòŋ distinguishes three different verb roots, namely:
-CV-, -CVC- and -CV. CV. CV.

II.2.1. The - CV - Verb root.

This root is found only in verbs that have a monosyllabic stem consisting of a root and a ø FV. Below are some examples:

(3)	a.	ì-tú	'to bust'
		ì-lá	'beat'
		ì-bjá	'to talk'[3]
	b.	ì-ʒì	'to cry,
		ì-mɛ̀	'to swallow'

[2] According to Mutaka (1994), a prosodic word is not necessarily a morphological word, but in Bàlòŋ, it is worth pointing out that the SM and the present TM constitute a morphological word. As such, they are considered as the INFL prosodic word. Secondly, rules apply in the INFL in a non cyclic way, and this is what we witness with the INFL prosodic word which is formed at stratum two.

[3] One argument could also be that the verb 'ìbjá' is underlying /i -bi-a/, i.e. Pfx + Rt + FV. We have however argued this out because we have noticed that in Bàlòŋ, the -CV- verb root provokes the deletion of the FV. Below are more examples to substantiate this argument: ìkɔ̀ 'to hate', ijè 'to sharpen', ìfû 'to arrive', ìkì 'to deny', ìkà' to share'.

c. ì-6â 'to be'
ì-lô 'to insult'

II.2.1.1. Its tone groups.

As can be seen from the data above, the -CV- verb root exhibits three different tonal melodies, namely: the H tone, the L tone and the HL tone. Despite these surface tones, Bàlòŋ verbs essentially have two underlying tones, the H and the L tones as will be discussed below.

In the forms in (3a), which consist of H tone verbs, the H tone is presumably floating and links to the first root vowel following the UAC (Pulleyblank, 1986a) which state:

(4) Association conventions.
Map a sequence of tones onto a sequence of tone bearing units
a) From Left to right.
b) In a one-to-one relation.
Well-formedness condition.
Association lines do not cross.

One pertinent argument for this analysis is that the H tone in the infinitive is never found on a vowel other than the root vowel. The verb root is therefore underlyingly H.

For the last form in (3a), 'ìbjá', we will argue that it is underlyingly /i -bia - ø / and that the H tone links to the first root vowel 'i'. When devocalisation[4] occurs, the H tone is left floating and it links onto 'a' giving it a H tone. The derivations in (5) better illustrate these arguments:

---

[4]. Devocalisation.
In Bàlòŋ, the high vowels [i] and [u] devocalise into the glides [j] and [w] respectively before non high vowels. This gives us the following rule:

+hi → -cons /--- -hi
V -syl V.

It should be noted that in verbal forms, devocalisation occurs only at stratum one. In [illegible] in both strata one and two.

(5)

	ìlá	ìbjá
UR /	i -la-ø	i-bia-ø/
	H	H
Stratum 1.	la	bia
UAC	¦	¦
	H	H
Devoc.	—	j
Tone lk.	—	ibja
		Ĥ
Stratum 2.	i -la	i - bja
	|	|
	H	H
Postlexically	i -la	i - bja
	¦ |	¦ |
	¦ H	¦ H
Def L.	L	L
PR	[ìlá	ìbjá]

As for the L tone verbs in (3b), an easier analysis would be to say that they are toneless underlyingly and that they get their L tone by default. A look however at these verbs when they are conjugated in the past perfect tense shows that this assumption cannot be true. Consider the data below:

6) a. ì-mɛ̀ 'to swallow'
ì-kɔ̀ 'to hate'
ì-jɛ̀ 'to sharpen'

b. sí mɛ̌ 'we had swallowed'
sí kɔ̌ 'we had hated'
sí jɛ̌ 'we had sharpened'

The alternations on the root vowel can be said to come from the past perfect TM which as will be argued later, is the discontinuous morpheme, ɑ ...î. This TM has two tones underlyingly, a H tone which is linked and a L tone which is floating. When the verbs above are conjugated in this tense, the second part of the TM 'î' is deleted since Bàlòŋ does not permit adjacent non identical vowels within one word. Its tones, however, remain floating. While its H tone is linked onto the verb root which already bears a L tone, its L tone is stray erased[5]. This gives rise to a LH contour tone on the verb root, a result which will not be obtained if the verb root was considered to be toneless. The L tone verbs are therefore underlyingly L. This is better explained in the derivation in (7)

(7)

	ìmɛ̀	sí mɛ̌
UR/	i-mɛ	si - ɑ - mɛ - i /
		|
	L	H L HL
Stratum 1.	mɛ	mɛ
Rt	¦	¦
	L	L
Stem	—	mɛ - i
		| |
		L H L
V del.	—	
		ø

[5]. Stray erasure.
V
L
⤳ø
This rule states: a floating tone which does not link is wiped off or becomes zero (ø).

```
Tone lk.        —                  mɛ
                                   ┌ \
                                   L  H  L

Stratum 2.      i-mɛ               si - ø - mɛ
                  |                ¦        /\
                  L                H       L H L

Stray           —                  si - ø - mɛ
erasure                            ¦        /\
                                   H       L H L
                                              ↘ø

Postlexically   i-mɛ               si - ø - mɛ
                ¦  |               |        /\
Def L.          ¦  L               H        LH
                L

PR              [ìmɛ̀               sí mɛ̌]
```

Finally, the forms in (3c), appear with a surface HL contour tone. To explain this tonal melody, we will assume that the verb root is underlyingly H and that the L tone comes from the FV which got deleted but whose tone remained in place. One strong argument for this assumption is that Bàlòŋ does not permit adjacent non identical vowels within the same word. As such the FV has to delete before a -CV- verb root. Secondly, only verb roots with this -CV- pattern appear with a HL contour tone which is always at word final position. This is adequate proof that this tone results from the linking of a floating L tone which could only come from the deleted FV. The derivation in (8) better clarifies these arguments:

```
(8)               ìɓâ
  UR /            i - ba - ø /
                      H   L
```

Stratum 1.

Rt.	ba
	¦
	H
Stem	ba - ø
	|
	H L
Tone lk.	ba - ø
	⌜ ⌝
	H L
Stratum 2.	i - ba
	∧
	HL
Imp[6].	i -b a
	¦ ∧
	¦HL
	ɓ
Postlexically	i - ɓ a
	¦ ∧
Def L .	¦ HL
	L
PR	[ìɓâ]

II. 2.2. The -CVC- verb root.

This is the most attested verb root in Bàlòŋ. It appears in both monosyllabic and disyllabic verb stems. Below are some examples:

---

[6]. Implosion: b -> ɓ / - [- hi]
[v]

In Bàlòŋ , the plosive sound, [b], becomes the implosive, [ɓ], before non high vowels.

(9) a. ì - jén 'to see'
ì - dìŋ 'to love'

b. ì - kól -ô 'to shave'
ì - jɔ̀l - ɔ 'to laugh'

c. ì - lɔ́nd -ɔ̂n 'to flatter'
ì - tùm - ìl 'to curse'

The forms in (9a) have a monosyllabic stem made up of a root and a ø FV while those in (9b) and (9c) have a disyllabic stem with the structures root + FV and root + formal extension respectively.

II. 2.2.1. Tone groups.

Like the - CV- verb root, the -CVC- root has two underlying tones, the H tone and the L tone. In H tone verbs, the H tone is presumably floating and links to the first root vowel following the UAC, (Pulleyblank, 1986a). The FV and the extensions as will be argued later are L underlyingly. However, we find them surfacing with a HL contour tone in H tone verbs like ìkólô and ìlɔ́ndɔ̂n. This alternation can be argued to result from HTS which occurs at stratum one and which we have called HTS1 so as to distinguish it from the HTS which occurs at stratum two. This rule is defined thus:

(10) HTS1: V V[7]
H

[7] .Note should be taken of the fact that HTS does not occur if the TBU to which the H tone is spreading bears a H tone. The numbers 1 and 2 attributed to the rule of HTS are meant to distinguish between the two rules.

It states: A H tone spreads rightwards to the next TBU. It should be noted that the rule of HTS occurring at stratum two provokes the delinking of the tone of the affected TBU if it is followed by another TBU. This gives us the following rule of HTS.

HTS2: V VV

H L

Thus, the H tone of the root vowel spreads rightwards onto the next TBU which already bears a L tone to give ìkólô and ìlóndôn. One strong argument for this analysis is that in L tone verbs like ìjòlò, the tone on the FV remains L.

As for L tone verbs, the L tone is, equally, presumably floating and links to the first root vowel at stratum one. One reason for giving this a L tone is that a HL contour tone results in the imperative form of the verbs as illustrated below:

11)	a.	ì-dìŋ	'to love'
		ì-sàk	'to look for'
	b.	sí dîŋ	'let's love'
		sí sâk	'let's look for'

These forms show that when the SM, 'sí', is added to the stem at stratum two, its H tone spreads onto the root vowel. This spreading H tone comes into contact with an underlying L tone, thus provoking a HL contour tone.

II.2.3. The -CV.CV.CV verb root

This polysyllabic verb root is not very common in Bàlòŋ. KOUOH in his Projet de thèse, *Morphologie du ßàlòŋ,* classifies it under the -CVC-

verb root type with the argument that the remaining -V.CV-is an extension. We have however disagreed with him because extensions in Bàlòŋ are of the form -VC- and studies on Bantu languages have so far proven that extensions usually have the shape -VC. (Meeussen, 1967).

Below are some examples of this verb root type.

(12)	a.	ì-ɓàɣèlè	'to accuse falsely'
		ì-fètìnì	'to imitate'
	b.	ì-kájìsè	'to judge'
		ì-páŋgìnì	'to scatter'

II.2.3.1. Tone groups.

Unlike the -CV- and -CVC- verb roots, this root contrasts H and ø tones underlyingly. In the forms in (12a) above, the root vowels are underlyingly toneless and they get their L tones by default. This assumption is made more certain when we look at the imperative form of these verbs. Consider the data below:

(13)	a.	ì-ɓàɣèlè	'to accuse falsely'
		ì-fètìnì	'to imitate'
	b.	sí-ɓáɣèlè	'let's accuse falsely'
		sí-fétìnì	'let's imitate'

The H tone on the first root vowel in (13b), shows that there has been HTS. This H tone spreading from the SM, 'sí', links onto the first root vowel which is toneless, thus giving it a H tone. This will not be the case if this vowel was underlyingly L as we would expect a HL contour tone when HTS occurs. The remaining root vowels then get their L tones by default.

As for the forms in (12b), the H tone, presumably, starts by being floating and links to the first root vowel following the UAC

(Pulleyblank, 1986a). The remaining root vowels then get their L tones by default. The following derivations better explain this.

(14) ìfètìnì ìkájìsè

UR /	i-fetini	i-kajisɛ /
		H
Stratum 1	fetini	kajisɛ
		¦
		H
Stratum 2	i -fetini	i-kajisɛ
		|
		H
Postlexically:	i -fetini	i-kajisɛ
	¦ ¦¦ ¦	¦ |¦ ¦
Def L.	¦ ¦¦ ¦	¦ H¦ ¦
	L LL L	L L L
PR	[ìfètìnì	ìkájìsè]

From the discussions above, we can conclude that Bàlòŋ is a language which contrasts H vs L tones in the -CV- and -CVC- syllable root types and H vs σ in the -CV.CV.CV root type.

After the verb root, we will proceed to discuss the FV and the extensions after which we will examine the subject markers and the tense markers.

II.3. THE FINAL VOWEL

The FV in Bàlòŋ comes immediately after the verb root. Underlyingly, it bears a L tone. Out of the seven vowels in Bàlòŋ, only five can occupy this position. They are: ɛ, a, u, o and ɔ. Generally, the FV has no effect on the root, both segmentally and tonally. The root on the contrary, has a great tonal impact on the FV; the L tone of the FV remains L if the root vowel bears a L tone but changes into a HL contour tone if the root vowel bears a H tone. Below are some examples:

(15) a. ì-núŋg - û 'to uproot'
i-kól - ô 'to shave'

b. ì-jɔ̀l -ɔ̀ 'to laugh'
ì-sàŋg - ò 'to contribute'

In (15a), the H tone of the root vowel spreads onto the FV at stratum one giving rise to a HL contour tone. In (15b), there is no change given that the root vowel bears a L tone, and a L tone can have no impact on another L tone.

One phonological process that takes place with the FV is that of vowel deletion when an extension is added. This is because the extensions have a -VC structure and Bàlòŋ does not permit two non identical adjacent vowels within the same word. Below are some examples:

(16) a. ì-ɲàw-ò 'to run'
ì-jɔ̀l - ɔ̀ 'to laugh'
ì-kól - ô 'to shave'

b. ì-ɲàw -ìl 'to make s.o. run'
ì-jɔ̀l - ìl 'to make s.o. laugh '
ì-kól - ìl 'to make s.o. shave'

II.4. THE EXTENSIONS

Bantu extensions are usually of the shape -VC, so are Bàlòŋ extensions. In Bàlòŋ, extensions come at the end of the verb complex form, immediately after the verb root. In some tenses, however, where part of the TM comes at the end of the verb, the extensions are forced to occupy the prefinal position. Examples are the past perfect and imperfect tenses.

In Bàlòŋ, two types of extensions have been distinguished, namely: formal extensions and productive verbal extensions.

II.4.1. Formal extensions

A formal extension is an extension that has been fossilized, in other words, an extension that has become out of date or obsolete. The formal extensions in Bàlòŋ add no semantic information to the verb. They have a-CV shape and the vowel position can be occupied by only five out of the seven vowels in Bàlòŋ. They are: i, ɛ, a, ɔ, and o. The consonant on its part can only be a nasal ([m] and [n]) or a lateral, [l]. We have the following formal extensions:

-il, -an, -am, -ɛn, -ɛm, -om and -ɔn.

The extension bears a L tone which remains L if the root vowel has a L tone but which changes into a HL contour tone if the root vowel is underlyingly H. This is as a result of HTS. Below are some examples:

(17) a. ì-kàmb -ìl 'to congratulate'
ì-fèmd - èn 'to exchange'

b. ì-lɔ́nd -ɔ̂n 'to flatter'
ì-fɛ́ɣ - îl 'to dry'

One particularity about the formal extension is that in H tone verbs, it does not accept the addition of other extensions. Thus, the form of the verb remains the same even if there is an addition in semantic information. This additional information is conveyed by other words in a sentence. We have the following examples:

(18) a. ì-lɔ́nd-ɔ̂n 'to flatter'
ì-fɛ́ɣ -îl 'to dry'

b. ì-lɔ́ndɔ́n sémèn 'to flatter each other.'
To flatter ourselves.
ìɓɔ̀l ná ɓá fɛ́ɣîl 'to make s. o. dry.
to make (connector) they dry.

In L tone verbs, however, other extensions can be added as the data below illustrates:

(19) a. ì-tùm-ìl 'to curse'
b. ì-tùm-ìl-ìl 'to be cursed'

The form in (19b), shows that the formal extension '-il' is maintained when the passive morpheme '-il' is added. No phonological changes are witnessed here but this is not the case when the reciprocal morpheme '-en' is added. Consider the data in (20).

(20) a. ì-kàmb-ìl 'to congratulate'
ì-jɔ̀m-ìl 'to bless'
ì-tùm-ìl 'to curse'

b. ì-kàmb-ìnì 'to congratulate e. o.'
ì-jɔ̀m-ìnì 'to bless e. o.'
ì-tùm-ìnì 'to curse e. o'

These alternations can be explained as follows:

In the forms in (20b), when the reciprocal morpheme, '-en', is added the consonant of the formal extension, [l], is deleted. This 'l' deletion is followed by vowel raising as the vowel of the reciprocal morpheme, [e], becomes [i]. To simplify the syllable structure, a rule of metathesis[8] is applied within the final -VC syllable of the word giving it a -CV shape.

The process of vowel raising can be argued to result from two phonological processes: [+hi] spreading and [+ATR] association[9]. These processes can be captured by two rules which are as follows;

(21) [+hi] Spreading.

V V

|_ - ¬|

[+hi] [+ATR] condition: an extension must be added to the verb root. This rule states: The feature [+hi] spreads rightwards from a high vowel to an adjacent vowel provided it is associated to a [+ATR] feature.

(22) [+ATR] association.

V

¦

[+ATR]

It states: A floating [+ATR] feature links onto a neighbouring vowel.

Consider the data below:

(23)

a. ìbjá /i-bia / 'to talk' ìbjélîl / i-bia -il / 'to make s.o. talk.

b. ìkàmbìl 'to congratulate' ikàmbìnì /i-kamb-il-en / to congratulate e.o.

Looking at the forms in (23a,b) above, we realise that the low front vowel [a] becomes the mid vowel [e] while the mid vowel [e] becomes the high vowel [i] when an extension is added to the verb.

---

[8]. Metathesis: VC -> CV /V - #

This rule states: A VC pattern at word final position becomes CV after a vowel.

[9]. Mutaka and Bitjaa (1999) have a similar explanation to account for vowel raising in Bàsáá

To better explain this process of vowel raising, we will consider the featural make-up of the Bàlòŋ vowels affected by vowel raising. We have the following features for the full specification of these vowels:

	i	e	a
high	+	-	-
back	-	-	-
ATR	+	+	-
Low	-	-	+

If we assume the theory of underspecification (Archangeli 1984, Archangeli and Pulleyblank 1986) whose main principle is that redundant features are removed from the underlying representation of the segments and that they are assigned by default rules, we will have the following underspecified features for these vowels:

	i	e	a
high	+		
ATR		+	
Low			+

To have the full specification of these vowels, we assume some redundant rules which are as follows:

ø -> [-hi]

ø -> [-bk]

ø -> [-low]

To account for the forms in (23a), we will consider that [a] has a [+low] feature following the underspecified features. This is accompanied by a floating [+ATR] feature which links onto this root vowel. Since [+ATR] and [+low] are incompatible, as seen in the full specification of vowels, [+low] is delinked and is subsequently deleted. This leaves the vowel with

a [+ATR] feature. After redundant rules have been applied, the resulting vowel is [e]. Like Mutaka and Bitjaa (1990), we will argue that [+hi] spreading does not take place here presumably because the root vowel is not associated to the [+ATR] feature in the underlying representation.

As for the forms in (23b) we will assume that the underspecified feature for [e], [+ATR] is linked to this vowel. When [+hi] spreading takes place, the vowel acquires the features [+ATR] and [+hi]. After the application of redundant rules, the resulting vowel is [i].

These arguments are better illustrated in the derivations below.

N.B.: We have decided to ignore the tones so as to better highlight the process of vowel raising. For a discussion of the tonal data, look at section. II.4.2.

(24) ibjélîl ìkàmbìnì

UR / [+hi] [+low] [+hi]
| / |
i-bia-il i-kamb-il -en /
|
[+ATR] [+ATR]

Stratum 1.

[+hi] [+low] [+hi]
|/ |
bia-il kamb-il -en /
¦ |
[+ATR] ¦ [+ATR]
¦
l del — ø

[+hi]	[+hi][+low]	[+ hi]
Spreading	bia-il	kamb-i -en
	[+ATR]	[+ATR]
	[+hi]	
[+ATR] ass.	bia - il	———
& [+low] Dlk.	[+ATR]	
assignment of	[+hi]	[+hi]
redundant	bia - il	kamb -i- en
features.	+ATR	+hi
	-hi	+ATR
	-bk	-low
	-low	-bk
Devoc.	bie -il	kamb - i- in
	j	———
Cons insert[10]	bje - C-il	———
Cons spreading	bje -C-il	———
	[alveolar]	
	[lateral]	
	bje- l-il	kamb- i - in

[10]. The rules of consonant insertion and consonant spreading are discussed in section II.4.2. of this chapter.

Meth.		———	kamb-i-ni
Stratum 2.		i -bje - l- il	i - kamb - i - ni
	PR	[ìbjélîl	ìkàmbìnì]

II.4.2. Productive verbal extensions.

Four productive verbal extensions taken from Meeussen, (1967), have been found to exist in Bàlòŋ. They are: The causative [11], the spontaneous[12], the passive, and the reciprocal.

The causative, the spontaneous, and the passive have one form '-il' which bears a L tone underlyingly. Below are some examples:

(25)	a.	ì-sàl -îl	'to make s.o. tear'	[caus.]
		ì-sàl -îl	'to get torn'	[spont]
		ì-jànd-îl	'to be bought'	[passive]
	b.	ì-kúnd -îl	'to make s. o. fall'	
		ì-lén -îl	'to get cut'	
		ì-kól -îl	'to be shaved'	

As can be seen from the data in (25a), the L tone of the extensions remains L if the root vowel bears a L tone. It however changes into a HL contour tone in (25b) where the root vowel bears a H tone. This is due to HTS which occurs at stratum one.

The reciprocal morpheme has a different form '-en' but it also bears a L tone underlyingly. This L tone remains L if the root vowel bears a L tone but changes into a HL contour tone if the root vowel bears a H tone as is the case with the other extensions. Below are some examples:

---

[11] .The causative is obtained when a form can be translated as 'to cause s.o. to, or to make s.o. do something.' (Mutaka, 1995).

(26) a. ì-jèmb-èn 'to recognize e. o'
b. ì-jén - ên 'to see e. o.'

Certain phonological processes are noticed when these extensions are added to verb roots of the -CV- type. Consider the data below:

(27) a. ì-lô 'to insult'
ì-lá 'to beat'
ì-bjá 'to talk'

b. ì-lólîl 'to make s. o. insult'
ì-lálîl 'to make s. o. beat'
ì-bjélîl 'to make s. o. talk'

c. ì-lónên 'to insult e. o.'
ì-lánên 'to beat e. o.

The data in (27a) presents monosyllabic verb roots with the structure -CV-. When the -VC extensions are added to this verb root in (27b,c), two non identical vowels come into contact with each other. Since Bàlòŋ does not accept adjacent non identical vowels within one word, we would expect a rule of vowel deletion as is the case with verbs which end with a FV. (cf. the forms, in (16a,b)). On the contrary, both vowels are maintained and a rule of insertion is applied. This can be explained by the fact that these verbs have monosyllabic stems and deletion will result in a monosyllabic base (i.e. root +extension). Since Bàlòŋ verbs do not have monosyllabic bases, the two vowels have to be maintained and a rule of consonant insertion is used to simplify the syllable structure. We notice a sort of

[12] . Also known as the stative or derived intransitive, the spontaneous indicates that the action suggested by the verb is capable of taking place without the intervention of any discernible agentive force. (Mutaka, 1995)

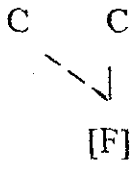
consonant harmony as the inserted consonant, (l or n), harmonizes with the consonant of the verbal extension. We can say this comes as a result of consonant spreading with the features of the consonant of the extension spreading leftwards to the inserted consonant. These rules can be formulated as follows:

(28) Consonant insertion.

ø -> C / +CV + --CV #

This rule reads: A consonant is inserted in between a -CV- at morpheme boundary and a following -VC at word final position.

Consonant Spreading.



It reads: A consonant spreads its features leftwards to an adjacent consonant.

At the tonal level, the H tone of the root spreads rightwards to dock on the extension which already bears a L tone thereby giving it a HL contour tone. A form like 'ìlô' needs further phonological explanation given that when an extension is added, the HL contour tone on the root vowel changes into a H tone. (It should be noted that following our earlier analysis , the verb root is underlyingly H and its surface HL contour tone is provoked by the floating L tone of the deleted FV which docks onto it). In his work, *Esquisse phonologique du ɓàlòŋ*,Kouoh proposed a rule of tone dissimilation to explain the alternation from HL to H which we have considered to be stratum one rule. This rule is as follows:

(29) Tone dissimilation.

$$HL \rightarrow H \,/\, -\#\begin{Bmatrix} L \\ H \end{Bmatrix}$$

It states: A HL contour tone appearing at word final position becomes H when it is followed by a L or a H tone.

This rule explains why we have a HL contour tone for "ìlô" but a H tone for "ìlólîl". The derivations in (30) best illustrate these arguments:

(30)	ìlô	ìlólîl	ìlónên
UR /	i-lo-ø	i-lo-ø-il	i -lo-ø-en
	H L	H L L	H L L
Stratum 1.			
Rt.	lo	lo	lo
	H	H	H
Stem	lo-ø	lo-ø-il	lo-ø- en
Tone lk.	H L	H L L	H L L
Tone dissim.	——	lo-ø-il	lo-ø-en
		H L	H L
HTS1	——	lo-ø-il	lo-ø-en
		H L	H L
Cons. insert	——	lo - il	lo - en
		H ¦ L	H ¦ L
		C	C
Cons. Spread.		lo- c-il	lo-c-en
		lat	nas
		alveo	alveo
Stratum 2.	i-lo	i-lo-l-il	i-lo-n-en
	H L	H L	H L

Postlexically:	i - lo	i-lo-l-il	i-lo-n-en
	¦ ∧	¦ ◺	¦ ◺
	¦ H L	¦ H L	¦ H L
Def L.	L	L	L
PR	[ìlô	ìlólîl	ìlónên]

II.5. THE SUBJECT MARKERS

Subject markers in Bàlòŋ occupy the initial position in the verb complex form. In this section, it will be demonstrated that Bàlòŋ possesses six SMs. Out of these six, the first three persons, that is, the first, second and third persons singular are L underlyingly while the last three persons,that is, the first, second and third persons plural bear H tones underlyingly. This underlying H tone will be argued to spread once to the root vowel at stratum two, thereby provoking the delinking of the L tone in L tone verb roots.

II.5.1. The first person singular

This subject marker appears in the following different forms:

(31) a. ŋgá dìŋ 'I love'
ŋgá tóŋ 'I whistle'
ŋgá kàmbìl 'I congratulate'
ŋgá bjábjá 'I rave'

b. ǹ - dìŋgî 'I had loved'
ǹ - tóŋgî 'I had whistled'
ŋ̀ - kàmbílî 'I had congratulated'
m̀ - bjábjájî 'I had raved'

c.	ŋ̀g - ídìŋ	'I will love'
	ŋ̀g - ítɔ́ŋ	'I will whistle'
	ŋ̀g - íkàmbìl	'I will congratulate'
	ŋ̀g - íbjábjá	'I will rave'

With the alternations above, it is necessary to tell which of the forms is underlying. As will be discussed later, the TM for the present tense forms one word with the SM. It is therefore necessary to distinguish between these two so as to come out with the exact form for the SM.

In the forms in (31a), the verbs are conjugated in the present tense, and as will be argued, the present TM in Bàlòŋ is 'á'. This means that the 'á' of 'ǹgá' is not part of the SM. This leaves us with 'ŋ̀g' which is similar to the SM in the future tense in (31c). With such a form, we have to determine whether 'g' is an underlying segment or not since the forms in (31b) have only a nasal sound as the SM.

Let us consider that 'g' is not an underlying segment as it is not found in the forms in (31b). This will mean that it is inserted by rule. It should be noted that the voiced velar plosive 'g' does not exist in Bàlòŋ. We will thus assume that the inserted sound is 'k' which undergoes postnasal hardening to become 'g'. If 'g' is not at the underlying representation, then we are left with a nasal sound which alternates between ŋ̀ ~ ǹ ~ m̀ as the underlying form for the fist person singular SM. We will argue that this nasal is the morphophoneme, Ǹ, (with no place features) which undergoes nasal assimilation and the rule of nasal assimilation can be formulated as follows:

(32) nasal assimilation.

N -> [α place] /-[α place]

It states; a nasal assimilates the place of articulation of the following consonant.

Given that the underlying form for the first person singular is the morphophoneme 'Ǹ' we can formulate the rules of 'k' insertion and postnasal hardening thus:

(23) 'K' insertion.

ø -> k / Ǹ -V

This rule says: the voiceless velar plosive [K], is inserted in between a syllabic nasal[13] and a following vowel.

34) Postnasal hardening.

k -> g / Ǹ -V+

It says: the voiceless velar plosive, [K], becomes its voiced counterpart, [g], in between a syllabic nasal and a vowel at morpheme boundary[14].

It should be noted that the future tense in Bàlòŋ is marked by a floating H tone and that the verb prefix, ' i' is conserved in this tense. When conjugation is done, the floating H tone docks onto the verb prefix 'i' which is underlyingly toneless. The past perfect tense on its part is marked by the discontinuous morpheme 'ø'...î' as will be discussed later.

As for the alternants dìŋ ~ dìŋgî and tóŋ ~ tóŋgî, witnessed in the first two verb forms in (331a, b & c), we can argue that they result from a deletion of 'g' at word final position. This is because the sound 'ŋg' is a phoneme in Bàlòŋ and it features word initially and medially but never finally. Consider the following examples:

---

[13] . This condition is meant to exclude words like mìlèm 'hearts', mìkòmbì 'crocodiles', ìmímâ 'to sit down' and ìdímîl 'to put out a fire' where we have a nasal and a following vowel, yet, '[k] is not inserted in between them.

[14].The vowel must be at morpheme boundary. If not, the rule does not apply as seen in the following additional forms:

ŋ - kàmbílî	'I had congratulated'
ŋ-kàŋgá	'a root'
ŋ-kɛ̀n	'stranger'
ŋ -kòmbì	'crocodile'

(35) a. ŋgólì 'belt'
ŋgànd 'crocodile' (word initially).

b. ì-núŋgû 'to uproot' (word medially)
ŋ̀-kàŋgá 'a root'

c. ì-dìŋ 'to love'
ì-tóŋ 'to whistle' (word finally)
ǹ-lòŋ 'brain'

As can be seen from the forms above, at word final position, we have 'ŋ' and we can thus conclude that 'ŋ' is actually 'ŋg' that undergoes 'g' deletion. The rule of 'g' deletion can be formulated as follows:

(36) 'g' deletion.

g -> ø /ŋ - #

It states: the velar plosive [g], at word final position, is deleted before the velar nasal [ŋ].

Another solution could be to consider that 'ŋ' is the basic alternant and that [g] is inserted in between [ŋ] and a following vowel. Given that [g] is not a phoneme in Bàlòŋ, we will have to posit a rule of 'K' insertion after which postnasal hardening occurs to transform it into [g]. If this were the case, it will contradict our rule of 'k' insertion which stipulates that for 'K' to be inserted, the preceding nasal must be syllabic.

The rule considering 'ŋg' as the basic form which undergoes 'g' deletion at word final position is therefore the best.

Consider the derivations below:

(37) ŋ̀gá dìŋ ǹdìŋgî ŋgídìŋ

UR / N -a-diŋg N-ø-diŋg-i N-ø-i-diŋg /

|

L H L L L HL L H L

Stratum 1.

Rt.	diŋg	diŋg	diŋg
	¦	¦	¦
	L	L	L
Stem	——	diŋg-i	——
		| |	
		L HL	
Stratum 2.	N - a -diŋg	N - ø -diŋg-i	N - ø-i-diŋg /
	¦ ¦ | | ¦	¦ | |	¦ ¦ | ¦
	L ¦ H L¦	L L HL	L ¦H L ¦
g del	¦ ø	——	¦ ø
K insert.	K		K
Postnasal	N -k- a -diŋ	N - ø -diŋg-i	N-k - ø-i-diŋ
hard.	¦¦ ¦ | |	¦ ¦ | |	¦¦ ¦ |
	L¦ ¦ H L	L¦ L HL	L¦ ¦ H L
	¦ g	¦ ——	¦ g
Nasal assim.	ŋ	n	ŋ
Tone lk.	ŋ -g- a -diŋ	ŋ - ø -diŋg-i	ŋ-g - ø-i-diŋ
	| | |	| | ⌈\	| ¦ |
	L H L	L L HL	L H L
PR	[ŋgá dìŋ	ǹdì ŋgî	ŋgídìŋ]

II. 5.1.1. Alternative solutions for the first person singular subject marker that could not work.

We could assume that the SM is Ǹ and that 'gá' in the present tense is an aspectual marker having as underlying form 'ká'. This assumption

will, however, be false when we consider SMs like the third person singular and the first person plural. Consider the data below:

(38) a. ŋgá dìŋ 'I love'
ŋgá kàmbìl 'I congratulate'

b. ă dìŋ 'he loves'
ă kàmbìl 'he congratulates'

c. sâ dìŋ 'we love'
sâ kàmbìl 'we congratulate'

Given the data in (37 a), we will expect that the aspectual marker 'ká' be present in the forms in (38b & c), thus we would have 'àká' and 'síká' respectively. This is, however, not the case. We could argue that 'K' gets deleted in between the two vowels, 'a' and 'a' in (38b) and 'i' and 'a' in (38c) after which one of the vowels deletes. This argument is not quite convincing because in subsequent analyses, we will realise that in Bàlòŋ, 'k' is not deleted in between two vowels but undergoes a process of assibilation to become [ɣ]. Another possibility could be that the whole morpheme, -ká- is deleted leaving its H tone floating but this is not quite likely because in phonology, it is difficult for whole morphemes to get deleted.

Another solution could be that the velar nasal 'ŋ' at the underlying level is actually 'ŋg' and that the underlying form for the first person singular is 'Ǹg'. Given these forms, 'g' is deleted before consonants (cf. the forms in 31b) and at word final position (cf dìŋ ~ diŋgî and tóŋ ~ tóŋgî). This gives us the rule of 'g' deletion which is as follows:

$$(39) \quad g \rightarrow \emptyset \; / \; - \begin{Bmatrix} C \\ \# \end{Bmatrix}$$

It should be noted that 'g' deletion occurs after nasal assimilation has taken place as shown in the derivations in (40)

(40)

	ŋgá	dìŋ	ǹdìŋgî	ŋgídìŋ
UR /	Ng - a- diŋg		Ng - ø - diŋg -i	Ng - ø -i - diŋg /
	L H L	L	L HL	L H L
Stratum 1.				
Rt.	diŋg		diŋg	diŋg
	L		L	L
Stem	——		diŋg-i	——
			L HL	
Stratum 2.	Ng - a- diŋg		Ng - ø - diŋg -i	Ng - ø -i - diŋg
	L H L		L L HL	L H L
Nasal assim.	ŋ		ŋ	ŋ
g deletion.	ø		ø	ø
Tone lk.	ŋg - a- diŋ		ŋ - ø - diŋg -i	ŋg - ø -i - diŋ
	L H L		L L HL	L H L
PR	[ŋgá dìŋ		*ŋdìŋgî	ŋgídìŋ]

Looking at the results above, we realize that the answer for the second form is wrong. Instead of the alveolar nasal [n] we have the velar nasal, [ŋ]. At this point, a second rule of nasal assimilation is necessary to transform [ŋ] into [n].

On the other hand, if we consider that 'g' deletion applies before nasal assimilation the faulty result, 'ǹdìŋgî' will be avoided but we will have no velar sound to condition nasal assimilation in the forms / Nga diŋg and Ǹgiding /.

II.5.2. The Second person singular.

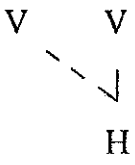
This SM unlike the first person singular does not present segmental alternations. All alternations are tonal as exemplified in the data (41)

(41)	a.	ɔ̌	dìŋ	'you love'
		ɔ̌	jànd	'you buy'
		ɔ̌	kàmbìl	'you congratulate'
	b.	ɔ̀	dìŋgî	'you had loved'
		ɔ̀	jàndî	'you had bought'
		ɔ̀	kàmbílî	'you had congratulated'
	c.	ɔ́	ídìŋ	'you will love'
		ɔ́	íjànd	'you will buy'
		ɔ́	íkàmbìl	'you will congratulate'

The SM, 'ɔ', appears with three different tones: LH, L and H, and we have to determine which tone is underlying. The forms in (41a) are conjugated in the present tense and as earlier mentioned the present TM and the SM form one word. If the TM is 'á', then the TM must be 'ɔ̀'. The

contour tone on ' ɔ̌' can therefore be argued to result from the linking of the H tone of the deleted TM[15] , ' á', since Bàlòŋ does not allow adjacent non identical vowels within the same word. This analysis leads us to the conclusion that the SM 'ɔ' is underlyingly L. A look, however, at the forms in (40c), shows that 'ɔ' bears a H tone. A possible explanation for this H tone can be that there has been High Tone Anticipation (HTA) from the H tone on the verb prefix towards the SM[16]. This process which takes place at stratum two can be captured with the following rule:

(42) HTA



This rule states: a H tone spreads leftwards to the next TBU.

We will call this rule HTA2 so as to distinguish it from the HTA which takes place at stratum one and which we will name HTA1. (cf. section II.6). The derivations in (43) best illustrate these arguments:

(43)	ɔ̌ jànd	ɔ̀ jàndî	ɔ́ íjànd
UR/	ɔ - a - jand	ɔ -ø -jand - i	ɔ- ø- i - jand /
	L H L	L L HL	L H L

[15] .As will be noted with all the other SMs, the vowel of the SM is always the one which gets deleted. This gives us the rule: V ->ø /-V. The case of the second person singular where the vowel of the TM is deleted is therefore an exception having as rule: V-> ø /V-. This exception is probably meant to distinguish between the second person singular, 'ɔ', and the third person singular, 'a' since the deletion of the SM , 'ɔ', will leave us with the TM, 'a', a form which is identical to the third person singular.

[16] . As will be argued out later, the H tone on the verb prefix (which has been considered to be underlyingly toneless) results from the linking of the floating H tone marking the future tense. After linking to the verb prefix, it spreads leftwards to the SM provoking the delinking and stray erasure of its L tone.

Another argument could be that the floating H tone marking the future tense docks first onto the SM, then undergoes HTS to the verb prefix. We have however rejected this argument because, looking at verb forms in the recent past tense (where the verb prefix is also maintained), we realise that the floating H tone marking tense links only to the verb prefix. (cf. section IV.1.)

Stratum 1. Rt.	jand L	jand L	jand L
Stem	——	jand -i L HL	——
Stratum 2.	ɔ - a - jand L H L	ɔ -ø -jand - i L L HL	ɔ- ø- i - jand L H L
V del.	ɔ -a -jand ø	——	——
Tone lk.	ɔ - jand LH L	ɔ -ø - jand -i L L HL	ɔ- ø -i - jand L H L
HTA2 + D1k	——	——	ɔ- ø- i-jand L H L
Stray erasure.	——	——	ɔ -ø - i - jand L H L ↘ø
PR	[ɔ̌ jànd	ɔ̀ jàndî	ɔ́ íjànd]

II.5.3. The third person singular

The third person singular has the same alternations as the second person singular. We have ă ~ à ~ á as seen in the data below

44) a. ă dìŋ 'he loves'
ă jànd 'he buys'

b. à dìŋgî 'he had loved'
ă jàndî 'he had bought'

c. á ídìŋ 'he will love'
á íjànd 'he will buy'

Following the arguments for the second person singular, the SM for the third person singular also bears a L tone underlyingly. In the present tense, the SM 'a' is deleted but its L tone remains floating and links to the TM thereby provoking a LH contour tone. In the past perfect tense, the SM maintains its L tone since there is no influence from the TM and in the future tense, the floating H tone which links to the verb prefix anticipates to the SM giving it a H tone. This is followed by the delinking and stray erasure of the underlying L tone of the SM.

II.5.4. The first person plural.

This SM presents both segmental and tonal alternations as exemplified in the data in 45

(45) a. sâ jànd 'we buy'
sâ dìŋ 'we love'

b. sí jándî 'we had bought'
sí díŋgî 'we had loved'

c. sí íjànd 'we will buy'
sí ídìŋ 'we will love'

In the (a) forms conjugated in the present tense, the TM is associated with the SM. Separating the present TM, 'á' leaves us with 's' plus a floating L tone as the SM. Looking at the (b) and (c) forms, we notice that the SM is 'sí'. This proves that there has been vowel deletion in the forms in (a) with the 'í' of 'sí' deleting before the TM, 'á'. We can therefore conclude that the SM is 'si'. If the SM is 'si' then we still have to determine its underlying tone given that, we have a floating L tone in the (a) forms but a H tone in the (b) and (c) forms. A solution can be got if we assume that the SM and the TM in (45a) both bear underlying H tones. When these H tones meet, one of them, (the H tone of the TM), becomes a L tone following Meeussen's rule formulated as follows:

(46) Meeussen's rule (M.R.)[16]

V	V	->	V	V
|	|		|	|
H	H		H	L

This rule says: Two adjacent H tones are not allowed within one word. When they occur, the second H tone becomes a L tone.

After the application of Meeussen's rule, vowel deletion takes place and the floating H tone of the deleted SM vowel docks onto the TM, creating a HL contour tone. Consider the derivations below:

[16] Meeussen' s rule applies only within the INFL formatives. This makes the rule look ad hoc for we would expect a more general application.

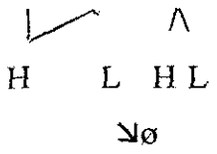
(47)

	sâ jànd	sí jándî	sí íjànd
UR /	si - a -jand	si -ø -jand -i	si -ø - i-jand /
	H H L	H L HL	H H L

Stratum1.

Rt.	jand	jand	jand
	L	L	L
Stem	———	jand - i	———
		L HL	
Stratum 2.	si - a -jand	si -ø -jand -i	si - ø -i-jand /
	H H L	H L HL	H H L
M.R (restricted to INFL).	L	———	———
V del.	si - a -jand		
	H L L	———	———
	ø		
Tone lk.	s - a -jand	si -ø -jand -i	si - ø -i-jand /
	H L L	H L HL	H H L
HTS2	———	si -ø -jand- i	———
Dlk.		H L H L	

Stray erasure _____ si -ø -jand- i _____



PR [sâ jànd sí j ándî sí íjànd]

II.5.5. The second person plural.

Like the first person plural, this SM appears with both segmental and tonal alternations. Consider the data in (48)

(48) a. ɲâ jànd 'you buy'
ɲâ dìŋ 'you love'
b. ɲí díŋg î 'you had loved'
ɲí jándî 'you had bought'

c. ɲí ídìŋ 'you will love'
ɲí íjànd 'you will buy'

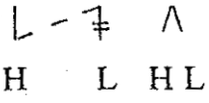
These alternations can be explained in exactly the same way as those for the first person plural. Separating the present TM 'á' from the SM in the forms in (48a) leaves us with 'ɲ' plus a floating L tone. The forms in (48b) indicate that 'i' is part of the SM. We therefore have 'ɲi' as the underlying form for the second person plural.

At the tonal level, we would assume that 'ɲi' bears a H tone underlyingly. When this H tone comes into contact with the H tone of the TM in (48a), Meeussen's rule applies and changes the tone of the TM into a L tone. This is followed by the deletion of the SM vowel whose H tone

remains floating. This floating H tone links onto the TM thereby creating a contour tone. The derivations below best clarify these arguments:

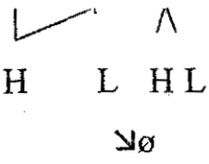
(49)	ɲâ jànd	ɲí jándî	ɲí íjànd
UR /	*ɲi - a -jand*	*ɲi -ø -jand -i*	*ɲi -ø - i-jand /*
	H H L	H L HL	H H L
Stratum1.			
Rt.	jand	jand	jand
	L	L	L
Stem	_____	jand - i	_____
		L HL	
Stratum 2.	ɲi - a -jand	ɲi -ø -jand -i	ɲi - ø -i-jand /
	H H L	H L HL	H H L
M.R (restricted to INFL).	L	_____	_____
V del.	ɲi - a -jand		
	H L L	_____	_____
	ø		
Tone lk.	ɲ - a -jand	ɲi -ø -jand -i	ɲi - ø -i-jand /
	H L L	H L HL	H H L

HTS2 _____ ɲi -ø -jand- i _____

Dlk. 

H L H L

Stray erasure _____ ɲi -ø -jand- i _____



H L H L

ø

PR [ɲâ jànd ɲí jándî ɲí íjànd]

II.5.6. The third person plural.

The third person plural '6a' presents only tonal alternations as can be seen from the data below:

(50) a. 6â dìŋ 'they love'
6â jànd 'they buy'

b. 6á díŋgî 'they had loved'
6á jándî 'they had bought'

c. 6á ídìŋ 'they will love'
6á íjànd 'they will buy'

Looking at the (b) and (c) forms, one comes to the conclusion that underlyingly, the third person plural SM bears a H tone. The form in (a), however, contradicts this assumption as it bears a HL contour tone. The solution to this problem can be got if we separate the SM from the present TM for the form in (50 a). This leaves us with '6' plus a floating L tone.

Comparing this form with those in (50b,c) shows that there has been vowel deletion in (50a). This leads us to conclude that 'ba' is the underlying form for the third person plural SM. The surface implosive sound '6' is not underlying as it comes about as a result of implosion.

The tonal alternation in (50a) can be explained by arguing that both the SM and the present TM are underlyingly H. When Meeussen's rule applies, it transforms the H tone of the TM into a L tone. Vowel deletion then occurs leaving the H tone of the SM vowel floating. This H tone docks onto the TM, provoking a contour tone. Consider the derivations in (51)

(51)	6â jànd	6á jándî	6á ǐjànd
UR /	6a - a -jand	6a -ø -jand -i	6a -ø - i-jand /
		|	
	H H L	H L HL	H H L
Stratum1.			
Rt.	jand	jand	jand
	¦	¦	¦
	L	L	L
Stem	———	jand - i	———
		| |	
		L HL	
Stratum 2.	ba - a -jand	ba -ø -jand -i	ba - ø -i-jand
	¦ ¦ |	¦ | |	| ¦
	H H L	H L HL	H H L
M.R (restricted			
to INFL).	L	———	———
V del.	ba - a-jand		
	| | |		
	H¦L L	———	———
	ø		

Tone lk.	b - a -jand	ba -ø -jand -i	ba - ø -i-jand
	H L L	H L HL	H H L
HTS2	———	ba -ø -jand- i	———
Dlk.		H L H L	
Imp.	ɓ	ɓ	ɓ
Stray erasure	———	ɓa -ø -jand- i	———
		H L H L	
	PR [ɓâ jànd	ɓá jándî	ɓá ǰjànd]

II.6. THE TENSE MARKERS.

Tense markers in Baloŋ appear immediately after the SM. In the present tense, the TM is associated to the SM so that they form one morphological word which we have called the INFL prosodic word. Morphologically, two types of TMs have been distinguished: TMs that constitute a single morpheme and TMs in a discontinuous morpheme. The TMs that constitute a single morpheme occur before the verb root and they are affixed at stratum two.

These TMs are:

- 'á' for the present tense and
- Floating H tones [´] for the future and recent past tenses.

When conjugation is done, these floating H tones dock onto the verb prefix which is maintained in these tenses.

As for those in a discontinuous morpheme, the first part occurs before the root and like the single morpheme TMs, is affixed at stratum two. The

second part as will be argued out comes after the verb stem and is thus considered as part of the stem.

The discontinuous morpheme TMs are:

-'ø...ì' for the past perfect tense and

-'ø ...á ɣì' for the imperfect tense.

Underlyingly, the past perfect TM will be argued to bear two tones, a H tone which is linked and a L tone which is floating. The imperfect TM on its part is made up of two formatives, 'ak'[17] and 'i' underlyingly. While the first formative is toneless underlyingly, the second formative has two tones, H and L with the H tone linked while the L tone is floating. When the two formatives come together, the H tone of 'i' anticipates onto 'ak' giving it a H tone.

While the tones of all the other TMs are fixed and do not undergo spreading, the H tones of the future, the past perfect and the imperfect TMs undergo HTA. The H tone of the future TM anticipates to the SM at stratum two, provoking the delinking and stray erasure of the L tone borne by the SM. It however does not spread to SMs with an underlying H tone. As for the H tones of the past perfect and imperfect TMs, they anticipate at stratum one to the next TBU, provided it is not the first stem vowel. This is because the rule of HTA occurring at stratum one is morphologically conditioned unlike that occurring at stratum two which is free. This gives us the following rules of HTA:

(52) HTA1: VCV V (stratum one)

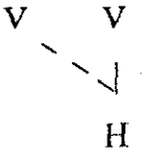
H

[17]. The change from the underlying [k] to the surface [ɣ] can be explained by the rule of assibilation according to which [k] becomes [ɣ] in between two vowels. This rule which is a stratum one rule in Bàlòŋ can be presented thus:

Assibilation: K -> ɣ / V-- V.

The argument that -ak- and 'i'are two different morphemes is confirmed by Sebasoni, S. (1967) who terms -ak- the prefinal and '-i' the final morpheme

It states : a H tone spreads leftwards to the second TBU in a VCV sequence.

(53) HTA2:  (stratum two).

It states: a H tone spreads leftwards to the next TBU. These arguments are exemplified in the data below:

(54)	a.	á	ísàk	'he will look for'
		á	ídìŋ	'he will love'
	b.	à	sàɣî	'he had looked for'
		à	dìŋgî	'he had loved'
	c.	à	sàɣáɣî	'he was looking for'
		à	dìŋgáɣî	'he was loving'

In (54a), the verbs are conjugated in the future tense. As can be seen from the data, the verb prefix which will be argued to be underlyingly toneless bears a H tone and we will argue that this H tone results from the linking of the floating H tone marking the future tense. From here, it anticipates to the SM which is L underlyingly, causing the delinking and stray erasure of its L tone.

As for the verbs in (54b,c), they are conjugated in the past perfect and imperfect tenses respectively. In (54b), HTA does not occur because the next TBU to the TM is the first stem vowel. In (54c), on the contrary, HTA occurs once to the next stem vowel, leaving the first stem vowel unaffected. These arguments are illustrated in the derivations in (55) below.

(55) á ísak à sàɣî à sàɣáɣî

UR / a- ø -i- sak a- ø-sak-i a-ø-sak -ak-i /

L H L L L HL L L HL

Stratum 1.

Rt. sak sak sak

L L L

Stem. ____ sak-i sak - ak -i

L HL L HL

Assib. ɣ ɣ ɣ

HTA1 saɣ-i saɣ -aɣ -i

L HL L HL

Stratum 2. a- ø -i -sak a- ø-saɣ-i a-ø-saɣ -aɣ-i

L H L L L HL L L HL

Tone lk. a- ø -i - sak a- ø-saɣ-i a-ø-saɣ-aɣ-i

L H L L L HL L L HL

HTA2 + Dlk. a- i -sak ____ ____

L H L

Stray erasure. a- i -sak ____ ____

L H L

ɔø

PR [á ísàk à sàɣ î à sà ɣá ɣî]

II.6.1. Motivating data for considering the second part of the discontinuous morpheme TMs as part of the stem.

Consider the data in (56)

(56) a. ì-dìŋ 'to love'
ì-sàk 'to look for'
ì-kɔ̀k 'to grind'

b. ǎ dìŋgìl 'he makes s.o. love'
ǎ sà ɣìl 'he makes s.o. look for'
ǎ kɔ̀ɣìl 'he makes s.o. grind'

c. à dìŋgî 'he had loved'
à sàɣî 'he had looked for'
à kɔ̀ɣî 'he had ground'

d. à dìŋgáɣî 'he was loving'
à sàɣáɣî 'he was looking for'
à kɔ̀ɣáɣî 'he was grinding.

Following our earlier analysis, we have argued that [k] becomes [ɣ] in between two vowels through a rule of assibilation. A look at some forms in the data above however contradicts this rule. We have for example, the verb 'ìkɔ̀k' where the first 'k' does not undergo assibilation, though it is in between two vowels. The answer to this problem can be got if we assume that the verb prefix 'i' is affixed at stratum two and that assibilation is a stratum one rule. As such, when the verb prefix is added at stratum two, the rule is no longer available to apply.

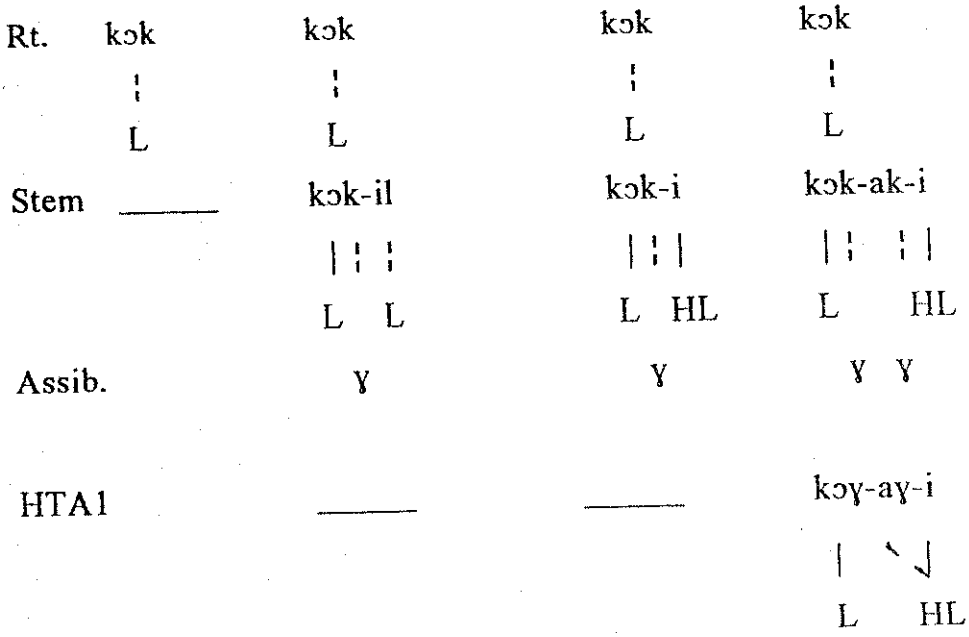
This assumption seems to solve the problem but looking at the last form in (56b), we realize that assibilation does not take place when the INFL word (SM+ present TM) is added.

On the contrary, assibilation occurs when the past perfect and the imperfect TMs are added to the verb root in (56c,d) respectively. The question we ask ourselves at this point is why the present TM 'á' in (56) does not provoke assibilation like the past perfect and imperfect TMs in (56c,d). The answer to this question can be got if we consider the morphological structure of the SMs. As earlier said, the present TM is made up of a single morpheme which comes before the verb root while the past perfect and imperfect TMs are made up of discontinuous morphemes with the first part occurring before the root and the second part after it. We will consider that the TMs that occur before the root are prefixes and those that occur after it are suffixes.

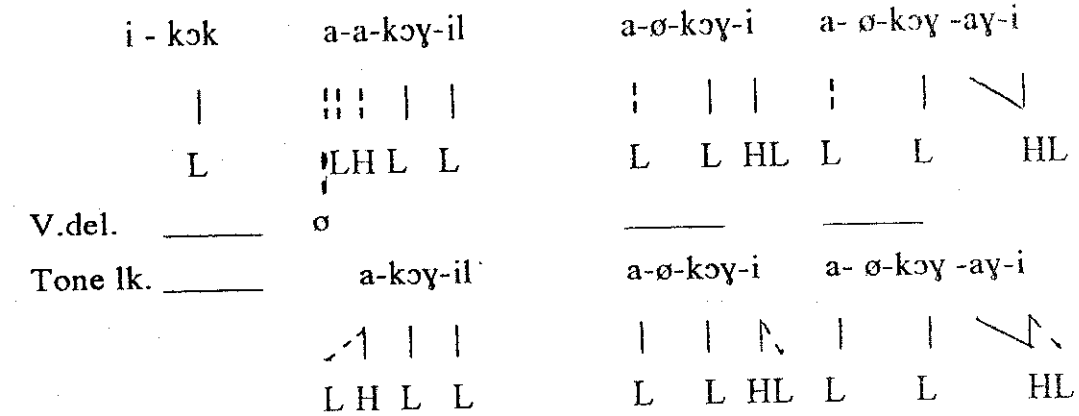
Following a key argument in Lexical Phonology, the material to the right of the verb root (i.e. suffixes) is affixed first before that to the left of the verb root. As such, we will argue that the TMs that are suffixes are added first to the verb root at stratum one while those that are prefixes are added at stratum two. This addition of the TM at stratum one gives rise to an expanded stem. With this addition, it is possible for the forms conjugated in the past perfect and imperfect tenses to undergo assibilation while those conjugated in the present, the future and the recent past tenses which are prefixes remain unaffected. These arguments are better illustrated in the derivations below:

(57)	ìkɔ̀k	ǎ kɔ̀ɣìl	à kɔ̀ɣî	à kɔ̀ɣáɣî
UR	/ i - kɔk	a-a-kɔk-il	a-ø-kɔk-i	a- ø-kɔk -ak-i /
			|	|
	L	L H L L	L L HL	L L HL

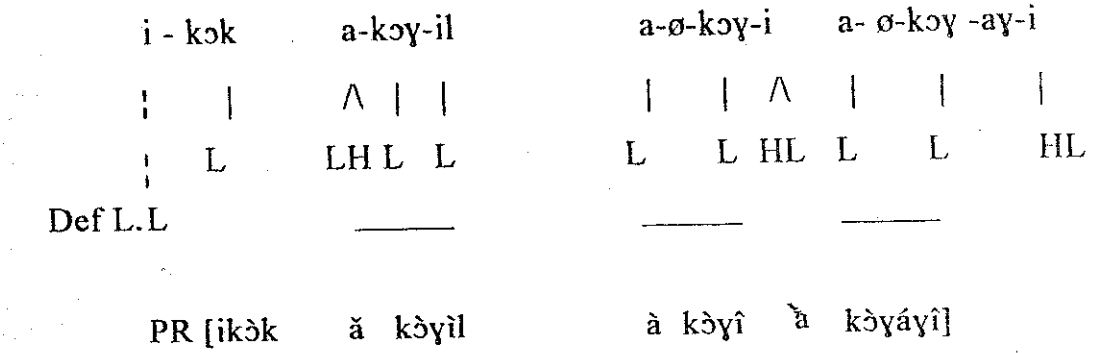
Stratum 1.



Stratum2.



Postlexically.



PR [ikɔ̀k ă kɔ̀ɣìl à kɔ̀ɣî ȁ kɔ̀ɣáɣî]

In summary to this chapter, it has been argued that Bàlòŋ is a language which distinguishes H vs L tones in the -CV- and -CVC-verb roots and H vs ø in the -CV.CV.CV. verb root. The FV and the extensions have been argued to be underlyingly L. As for the SMs, the first, second and third persons singular have been argued to bear L tones underlyingly while the first, second and third persons plural bear underlying H tones. The TMs on their part, vary from single morphemes to discontinuous morphemes with the second part of the discontinuous morpheme TMs constituting part of the stem at stratum one. After this examination of the verbal morphemes, we will proceed to chapter III which will tackle the infinitive, the present tense and the future tense in Bàlòŋ.

CHAPTER III

THE PHONOLOGY OF THE VERB: THE INFINITIVE, THE PRESENT TENSE AND THE FUTURE TENSE

III.0. INTRODUCTION

In this chapter, we will examine the infinitive form of the verb in Bàlòŋ as well as some conjugated forms, namely: the present tense and the future tense. This chapter will therefore be divided into sections following the tenses under study.

III.1. THE INFINITIVE

The infinitive in Bàlòŋ is marked by the verb prefix 'i', which, as will be argued, is toneless underlyingly and gets its L tone by default. Generally, it comes before the verb root and has no effect on the rest of the verbal morphemes. When verbs are conjugated, the verb prefix is replaced by the SM except in the future and recent past tenses where it is maintained. This is exemplified in the data below:

1) a. ì - jɛ́n- ên 'to see e.o.'
Pfx -Rt -Ext.

b. sâ - jɛ́n - ên 'we see e.o.'
SM +TM -Rt -Ext

c. sí- í - jɛ́n -ên 'we will see e.o.'
SM -Pfx -Rt- Ext.

At the tonal level, the tonal pattern of the infinitive forms can be successfully explained by assuming a cyclic approach. Stratum one will be made up of the stem cycle while stratum two will be made up of the word level. As earlier said, the H tone of H tone verbs presumably starts by being floating and links to the first root vowel following the UAC at stratum one. The infinitive marker is added at stratum two and a rule of default Low assigns it a L tone at the postlexical level. Consider the derivation of the verb 'ìjénên' to see each other' in (2) below:

(2) ìjénên

UR / i -jɛn -en /
H L

Stratum 1.

Rt. jɛn
H

Stem jɛn -en
H L

HTS1 jɛn -en
H L

Stratum 2. i-jɛn -en
H L

Postlexically. i-jɛn -en
H L

Def L. L

PR. [ìjénên].

III.1.1. Reduplicates.

Reduplication is not very productive in Bàlòŋ verbs. We however came out with the following cases of reduplication:

(3) a. ì-bjá 'to talk'
ì-bjélîl 'to make s. o. talk'

b. ì-bjá.bjá 'to rave'
ì-bjélîl.bjélîl 'to make s. o. rave'

The data in (3a) presents the simple form of the verbs while that in (3b) presents the reduplicated forms. As will be argued, reduplication occurs at the stem cycle after which phonological rules apply. A dot has been used to separate the base from the reduplicates.

The tones in the reduplicates can be accounted for if we assume that the tone is copied in the reduplicate. In the forms in (3b) when devocalisation occurs, the floating H tone of the devocalised root vowel docks onto 'a' which is raised to the mid vowel, [e], in the second form in (3b). For a form like 'ìbjélílbjélîl' which has an extension, a further tonological process of HTS takes place as the H tone of the root spreads once to the causative morpheme which is underlyingly L. This gives rise to a HL contour tone which, following our rule of tone dissimilation, changes into a H tone for the base but is maintained for the reduplicate since it occurs at word final position and is followed by no other tone. Consider the derivations in (4).

(4) ìbjábjá

UR/ i - bia /

H

Stratum 1.

Rt. bia

H

Stem ——

Redup. bia.bia

H H

Devoc. j j

Tone lk. bja.bja

H H

Stratum 2. i -bja.bja

H H

Postlexically. i-bja.bja

H H

Def.L. L

PR [ìbjábjá]

Let's now consider how a non cyclic approach would account for the tonal data of the infinitive forms.

III.1.2. A non cyclic treatment of the infinitive data.

A non cyclic approach that does not take into account different strata assumes that all the morphological processes take place before any phonological rules can apply as represented in (5).

(5) Morphology

Phonological rules

Under this assumption, we would have to consider that the H tone verbs have their H prelinked to the root vowel. This is already a key weakness of this approach because it does not explain why only the root vowel can have this H. If we were to assume that the H is floating, we would obtain the wrong results by assuming the Association Conventions in Pulleyblank (1986a) as shown in (6)

6. ìbjá 'to talk'

/i - bia /

H

output. * íbjà [1]

In summary, therefore, the infinitive forms can be successfully accounted for by assuming a cyclic approach with stratum one made up of the stem cycle and stratum two, the word level. The tone is copied in the reduplicates while HTS occurs once from the root to the extensions. The infinitive marker which is added at stratum two gets its L tone by default at the postlexical level.

After the infinitive form of the verb we will go on to examine the present tense in Bàlòŋ.

[1].The asterisk (*) used here indicates that the result is wrong.

III.2. THE PRESENT TENSE

The present tense is the only tense in Bàlòŋ where the TM is associated with the SM so that they form one morphological word. We have called this morphological word which is affixed at stratum two, INFL. This is because the SM and the TM seem to function as a unit. In this section of the work, we will argue that the present TM is 'a' and that it bears a H tone underlyingly. Consider the data below:

(7)	a.	ŋgá	jànd	b.	ǹ jàndî
		'I	buy'		"I had bought'
		ǒ	jànd		ò jàndî
		'You	buy'		"You had bought'
		ă	jànd		à jàndî
		'He	buys'		"He had bought'
		sâ	jànd		sí jándî
		We	buy		'We had bought'
		ɲâ	jànd		'ɲí jándî
		'You	buy'		'You had bought'
		ɓâ	jànd		'ɓá jándî
		'They	buy'		'They had bought'

In the data in (7), the verb ìjànd 'to buy' has been conjugated in the present tense, (7a), and in the past perfect tense, (7b), using all the six SMs in the language. Looking at the data, we realise that the first and second persons plural present some segmental alternations as we have sâ ~ sí and ɲâ ~ ɲí respectively. Given that the SM and the TM for the present tense constitute one morphological word, it is necessary to separate them so as to come out with the exact underlying form for the TM. As earlier argued out,

the SMs for the first and second persons plural are 'sí' and 'ɲí.' respectively. This means that in the forms in (7a) where we have 'sâ' and 'ɲâ, 'a' is an additional segment, and we will argue that this 'a' is the present TM and that it provokes the deletion of the SM vowel 'i' when it comes into contact with it.

As for its underlying tone, we will argue that 'a' is underlyingly H. Given that in the first person singular in (7a), 'ŋgá', it bears a H tone, this H tone must be underlying as the verb root is L and there is no neighbouring H tone from which spreading could have occurred. To explain the contour tones on the INFL words in (7a), we will argue that they result from the linking of floating tones. In the second person singular, the H tone of the deleted TM links onto the SM, 'ɔ̀' which bears a L tone giving rise to a LH tone. In the third person singular, the L tone of the deleted SM, 'à' links onto the TM, 'á' provoking a LH contour tone. As for the first, second and third persons plural, the SM and TM are both underlyingly H. Meeussen' s rule transforms the H tone of the TM into a L tone after which the SM vowel deletes leaving its H tone floating. This floating H tone then docks onto the TM giving rise to a HL contour tone.

These arguments are better explained in the derivations in 8.

8)	ă jànd	sâ jànd	6â jànd
UR /	a-a-jand	si -a - jand	ba -a -jand /
	L H L	H H L	H H L
Stratum 1.	jand	jand	jand
	¦	¦	¦
	L	L	L
Stratum 2.	a -a- jand	si - a- jand	ba - a -jand
	¦ ¦ |	¦ ¦ |	¦ ¦ |
	L H L	H H L	H H L
M.R.	——	L	L

V del.	a -a- jand	si - a- jand	ba - a -jand
	| | |	| | |	| | |
	L H L	H L L	H L L
	ø	ø	ø
Tone lk.	a- jand	s- a- jand	b - a -jand
	ˊ1 |	ˊ1 |	¦ˊ1 |
	L H L	H L L	¦H L L
			¦
Imp.	——	——	ɓ
	PR [ă jànd	sâ jànd	ɓâ jànd]

After the present tense, let us now look at the future tense.

III.3. THE FUTURE TENSE

The future tense in Bàlòŋ is marked by a floating H tone. This H tone usually docks onto the verb prefix 'i' which is maintained in this tense. In the verb complex form the future TM comes immediately after the SM. When used with L tone SMS like the second and third persons singular, 'ɔ' and 'à' respectively, this TM undergoes HTA after linking onto the verb prefix. Consider the data below:

(9)	a.	ì-sàk	'to look for'
	b.	ɔ́ ísàk	'You will look for'
		á ísàk	'He will look for'

In (9a), the verb is in the infinitive. In (9b), it has been conjugated in the future tense using the L tone SMS, 'ɔ' and 'a'. As can be seen from the data above, the SMs and the verb prefix no longer bear their original L tones. On the contrary we find them appearing with H tones. These H tones

can be argued to result from the floating H tone marking tense which links to the verb prefix, then anticipates to the SM whose underlying L tone is delinked and is stray erased. The derivations below best illustrate this:

(10)	ɔ́ ísàk	á ísàk
UR /	ɔ- σ- i- sak	a - σ - i- sak /
	L H L	L H L
Stratum 1.	sak	sak
	¦	¦
	L	L
Stratum 2.	ɔ - ø-i-sak	a - ø -i-sak
	¦ |	¦ |
	L H L	L H L
Tone lk.	ɔ - ø-i-sak	a - ø -i-sak
	| / |	| / |
	L H L	L H L
HTA2 + DLK.	ɔ -ø -i -sak	a-ø- i -sak
	‡ ⌐ ┘ |	‡ ⌐ ┘ |
	L H L	L H L
Stray erasure	ɔ - i -sak	a- i-sak
	╲┘ |	╲┘ |
	L H L	L H L
	↘ø	↘ø
PR	[ɔ́ ísàk	á ísàk]

Apart from undergoing HTA, this TM also hinders certain phonological processes like HTS as will be discussed below. All along, the H tone of the first person plural, 'sí,' has been known to spread rightwards to the first root vowel. This is not, however, the case when verbs are

conjugated in the future tense because the H tone marking tense prevents HTS from the SM to the verb root. This is exemplified in the data in (11).

(11) a. ì-sàk 'to look for'
ì- dìŋ 'to love'

b. sí sáɣî 'we had looked for (cf. à sàɣî 'he had looked for')
sí díŋgî 'we had loved (cf. à dìŋgî 'he had loved')

c. sí ísàk 'we will look for'
sí ídìŋ 'we will love'

In (11a), the verbs are in the infinitive form. In (11b) they have been conjugated in the past perfect tense and we notice that the H tone of the SM ' sí' spreads onto the root vowel. In (11c), on the contrary, we realize that HTS does not occur since the verb prefix 'i' bears a H tone which blocks HTS. It should be noted that the floating H tone marking the future tense undergoes HTA but not HTS. In the forms in (11c), HTA does not occur because the SM, 'sí' bears a H tone.

CHAPTER IV

THE PHONOLOGY OF THE VERB: THE PAST TENSE

IV.O. INTRODUCTION

This chapter dwells on the past tense in Bàloŋ. As far as this tense is concerned, we have come out with three different forms, namely: the recent past, the past perfect and the imperfect tenses. In the sections below, we will discuss each form paying particular attention to phonological alternations witnessed within them.

IV.1. THE RECENT PAST TENSE

The recent past tense in Bàlòŋ is marked by a floating H tone which, as will be argued, docks onto the verb prefix 'i' which is maintained in this tense. This TM is preceded by the present tense of the verb 'ìfû'- 'to arrive / come' which is 'ă fû'(i.e. present TM + verb root). This gives the sense of 'have just come from' to the verb. Consider the data below:

(1) a. ì-dìŋ 'to love'
ì-fètìnì 'to imitate'.
b. ă fú ídìŋ 'he has just come from loving'
ă fú ífètìnì 'he has just come from imitating'

(2) a. ì-sák 'to dance'
ì-kólô 'to shave'

b. ă fú ísák 'He has just come from dancing'
ă fú íkólô 'He has just come from shaving'

The data in (1) presents L tone verbs while that in (2) presents H tone verbs. As can be seen from the forms in (1b,2b), the verb prefix which has been argued to be underlyingly toneless bears a H tone when the verbs are conjugated in the recent past tense. We can argue that this H tone results from the linking of a floating H tone which we have considered to be the TM[1]. This H tone does not undergo HTS as the root vowel remains L in the forms in (1b) where the verb roots are L underlyingly.

The tonal alternation on 'ìfû' can be justified by the rule of tone dissimilation whereby a HL contour tone at word final position becomes H when it is followed by another tone. Thus we have a H tone instead of the original HL tone on the verb root, 'fú' in the forms in (1b,2b). As for the contour tone on 'ă' it can be justified by the fact that when the third person singular SM, 'à', is added to the present TM, 'á', the SM deletes leaving its L tone floating. This floating L tone docks onto the TM giving it a contour tone.

These arguments are better illustrated in the derivations in (3).

(3)	ă fú ífètìnì	ă fú ísák
	UR / a- a -fu- ø-i-fetini	a- a- fu- ø- i- sak /
	L H H H	L H H H H
Stratum1.	fetini	sak
		¦
		H

[1] .Another possibility could be that the H tone on the verb prefix comes from HTS with the H tone of ' fú' spreading rightwards to 'f'. This argument is however nullified if we add the morpheme '6è' 'now' to the rest of the verb. This gives us: ă fú 6è ɗìŋ 'he has just come from loving now.' With this addition, we realise that the H tone of 'fú' does not spread rightwards. As such, the H tone on the verb prefix can only come from the linking of a floating H tone. The fact that '6è' maintains its L tone and that the verb root remains L in L tone verbs, (1b), proves that the floating H tone links only to the verb prefix and no other TBU within the verb.

Stratum 2.	a- a- fu - ø-i- fetini	a - a -fu -ø-i-sak
	L H H H	L H H H H
V Del.	ø	ø
Tone lk.	a- fu - ø-i- fetini	a -fu -ø-i-sak
	LH H H	LH H H H
Postlexically.	a- fu -i- fetini	a -fu -i-sak
	LH H H	LH H H H
Def L.	L LL	
	PR [ă fú ífètìnì	ă fú ísák]

The recent past tense does not present any phonological alternations. As such, we will move ahead to examine the past perfect tense.

IV.2. THE PAST PERFECT TENSE

In this section, we will argue that the past perfect tense in Baloŋ is marked by the discontinuous morpheme, 'ø...î.'. Given this discontinuous morpheme, the first part occurs before the stem and as such will be affixed at stratum two, while the second part, occurring after the stem will be considered as part of the stem which is formed at stratum 1. This TM will be argued to have two underlying tones, a H tone which is prelinked and a L tone which is floating. Consider the data below:

(4)	a.	ì -	sàk	'to look for'
		ì -	jànd	'to buy'

b.	sí	sáɣî	'we had looked for'
	sí	jándî	'we had bought'
c.	à	sà ɣ î	'he had looked for'
	à	jàndî	'he had bought'

The forms in (4a) present the verbs in the infinitive while those in (4b,c) present them in the past perfect tense. In (4b), the SM, is H underlyingly while in (4c), it is underlyingly L. As can be seen from the data in (4b), we notice a process of HTS with the H tone of 'sí' spreading to the root vowel. When spreading occurs, the L tone of the root vowel delinks and is stray erased. This process of HTS is confirmed by the fact that when the SM is L underlyingly, the root vowel remains L as in (4c). As for the TM, its floating L tone links onto ' í' giving it a HL contour tone.

The past perfect tense is quite a complex tense exhibiting a lot of phonological alternations depending on the verb to which the TM is added. Let us consider what happens when it is added to verbs with the following structures:

-> -CV- root
-> -CVC- root + FV
-> -CVC- root + extension
-> -CV.CV.CV. root

IV.2.1. -CV- verb root + TM

Consider the data below:

(5)	a.	ì - kɔ̀	'to hate'
		ì - mɛ̀	'to swallow'
		ì - jɛ̀	'to sharpen'

	b.	ì- lô	'to insult'
	c.	ì - lá	'to beat'
		ì - dʒá	'to eat'
(6)	a.	sí kɔ̌	'we had hated'
		sí mɛ̌	'we had swallowed'
		sí jɛ̌	'we had sharpened'
	b.	sí kɔ́nénî	'we had hated e. o.'
		sí mɛ́nénî	'we had swallowed e. o.'
		sí jɛ́nénî	'we had sharpened e. o.'
	c.	sí lɔ́	'we had insulted'
	d.	sí lá	'we had beaten'
		sí dʒá	'we had eaten'

In (5), the verbs are in the infinitive. (5a), presents L tone verbs, (5b), verbs with a HL tone and (5c), verbs with a H tone. In (6), they have been conjugated in the past perfect tense. In the forms in (6a), the verb root appears with a LH contour tone instead of its original L tone. This contour tone can be argued to result from the tone of the second part of the TM, 'î', which gets deleted before the root vowel. When the TM is deleted, its tones remain floating. While its H tone links to the root vowel which already bears a L tone, its L tone is stray erased. It should be noted that high linking does not take place if the root vowel bears a H tone. It should also be noted that in (6a) HTS does not occur from the SM, 'sí' to the root vowel as is always the case. This can be explained by the fact that the root vowel already bears two tones, L and H, and the addition of a third tone on a single TBU is not quite likely. This argument is made more certain by the fact that when an extension is added to the verb as seen in the forms in (6b), HTS occurs from the SM to the verb root.

As for the form in (6c), we notice a tonal alternation from the original HL contour tone to a simple H tone. This alternation is due to the presence of the tone of the deleted TM and following our rule of tone dissimilation, a HL contour tone at word final position becomes H before another tone. After tone dissimilation, the tones of the TM are stray erased since H linking cannot take place. This is because the root vowel bears a H tone.

Finally, the forms in (6d), maintain their H tones since they are affected by neither HTS nor H linking after the deletion of the TM vowel[2]. These explanations are illustrated in the derivations in (7).

(7)

	sí kɔ̌	sí ló	sí lá
UR/	si - ɵ-kɔ -i	si-ø - lo -i	si- ø -la -i /
	H L HL	H HL HL	H HL

Stratum 1.

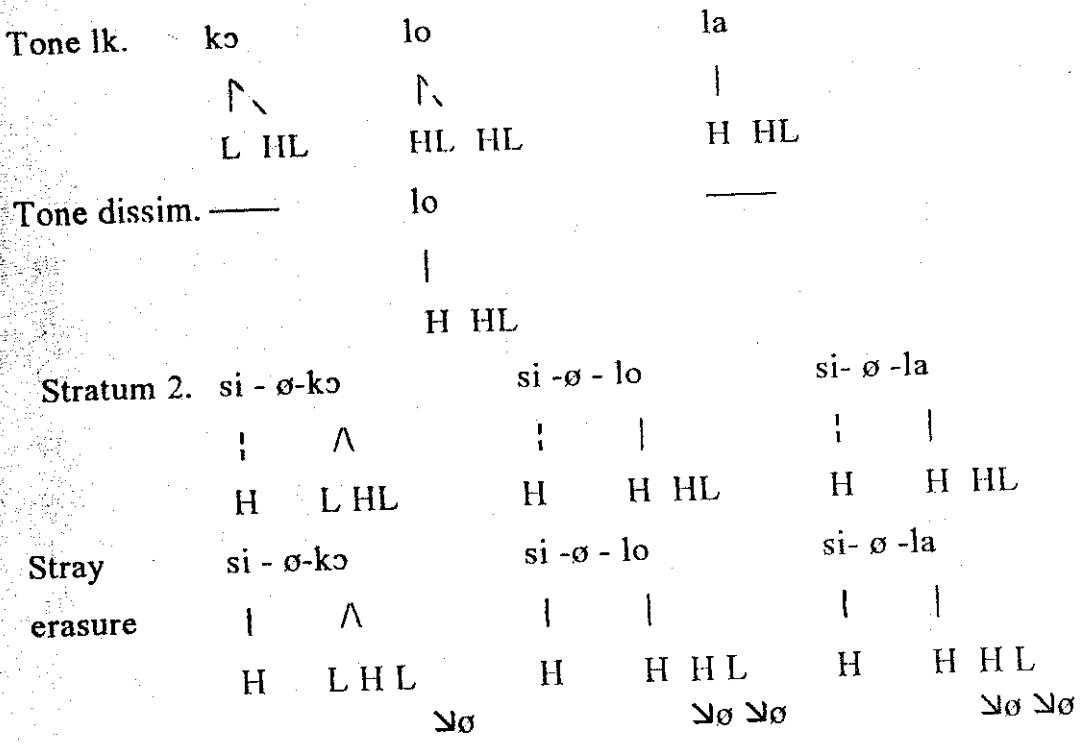
Rt.	kɔ	lo	la
	L	HL	H
Stem	kɔ -i	lo - i	la - i
	L HL	HL HL	H HL
V.del.	ø	ø	ø

[2] .There is an exceptional verb in this group where the TM does not delete. Consider the data below:

(1) a. ìbjá 'to talk' b. sí bjájî 'we had talked'.

Given these forms, we will expect the TM vowel to delete before the root vowel 'a' as it does for the forms in (6d). On the contrary, we have a glide insertion and both vowels are maintained.

Following information gathered on the field, the TM vowel is probably maintained so as to distinguish the noun mbjá 'speech' from the verb form 'm̀bjájî' I had talked'(conjugated in the first person singular). Since the TM is maintained in the first person singular, it is preserved in all the other persons and a glide is inserted in between the two adjacent vowels.



IV.2.2. -CVC- verb root + FV + TM

Consider the following data:

8) a. ì -jɔ̀l -ɔ̀ 'to laugh'
ì-kɔ̀l -ɔ̀ 'to grow'

b. ì-kól -ô 'to shave'
ì-ɓós-ô 'to gather'

9) a. sí jɔ́lɔ́ 'we had laughed'
sí kɔ́lɔ́ 'we had grown'

b. sí kóló 'we had shaved'
sí ɓósɔ́ 'we had gathered'

The forms in (8) present the infinitive form of the verbs. In (9), the verbs have been conjugated in the past perfect tense. When the second part of the TM, 'î' comes into contact with the FV at stratum one in (9a,b), it is deleted. Its H tone then links to the FV whose L tone is delinked and is stray erased. The floating L tone accompanying the H tone of the TM is also stray erased. This is followed by HTS which occurs at stratum two from the SM 'sí' to the verb root in the forms in (9a) which are underlyingly L . This provokes the delinking of the L tone of the root vowel which is stray erased. The derivations in (10) best clarify this:

(10)	sí jɔ́lɔ́	sí ɓɔ́sɔ́
UR /	si - ø -jɔl-ɔ -i	si -ø -bɔs -ɔ -i /
	H L L HL	H H L HL
Stratum 1.		
Rt.	jɔl	bɔs
	L	H
Stem	jɔl -ɔ -i	bɔs -ɔ - i
	L L HL	H L HL
V del.	ø	ø
Tone lk + DLK.	jɔl -ɔ	bɔs -ɔ
	L L HL	H L HL
	jɔl -ɔ	bɔs -ɔ
	L LHL	H LHL
Stratum 2.	si - ø -jɔl -ɔ	si -ø -bɔs -ɔ
	H L LHL	H H LHL

HTS2 +Dlk. si - ø -jɔl -ɔ

H L LHL

Stray erasure si - ø -jɔl -ɔ

H L L H L

ꓤøꓤø ꓤø

Imp. _____

PR [sí jólɔ́

si -ø -bɔs - ɔ

H H L H L

ꓤø ꓤø

ɓ

sí ɓɔ́sɔ́]

IV.2.3. -CVC- verb root +extension +TM.

Consider the data below:

(11) a. ì-kàmb -ìl 'to congratulate'

ì-jɔ̀m - ìl 'to bless'

b. ì-féɣ -îl 'to dry'

ì-lɔ́nd-ɔ̂n 'to flatter'

(12) a. sí kámbílî 'we had congratulated'

sí jɔ́mílî 'we had blessed'

b. à kàmbílî 'he had congratulated'

à jɔ̀mílî 'he had blessed'

c. sí féɣílî 'we had dried

sí lɔ́ndɔ́nî 'we had flattered'

d. à féɣílî 'he had dried'

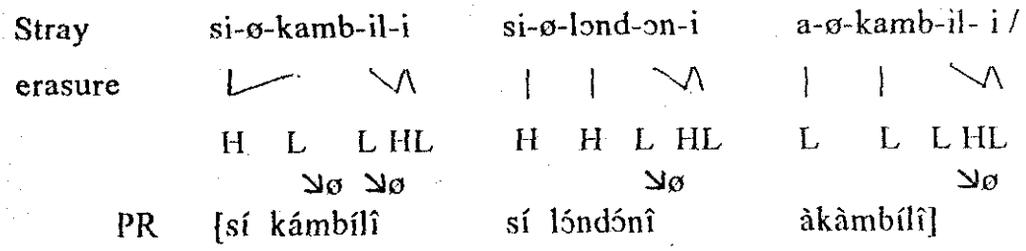
à lɔ́ndɔ́nî 'he had flattered'

The forms in (11) are in the infinitive. While the verb roots in (11a) are L underlyingly, those in (11b) are H tone verbs. In (12), they have been conjugated in the past perfect tense. As can be seen from the data in (12a),

the L tone of the root vowel changes into a H tone possibly due to HTS from the SM, "sí". This assumption is confirmed by the fact that when the SM is L underlyingly as in (12b), the root vowel maintains its L tone. As for the H tone on the formal extension, it can be argued to result from HTA coming from the H tone of the TM. This HTA provokes the delinking of the L tone of the extension. These arguments are illustrated in the derivations in (13)

(13)

	sí kámbílî	sí lɔ́ndɔ́nî	à kàmbílî
UR:	/ si-ø-kamb-il-i	si-ø-lɔnd-ɔn-i	a-ø-kamb-il- i /
	H L L HL	H H L HL	L L L HL
Stratum 1			
Rt.	kamb	lɔnd	kamb
	L	H	L
Stem	kamb-il-i	lɔnd-ɔn-i	kamb-il-i
	L L HL	H L HL	L L HL
Tone lk.	kamb-il-i	lɔnd-ɔn-i	kamb-il-i
	L L HL	H L HL	L L HL
HTA1 + Dlk.	kamb-il-i	lɔnd-ɔn-i	kamb-il-i
	L LHL	H L HL	L L HL
Stratum 2.	si-ø-kamb-il-i	si-ø-lɔnd-ɔn-i	a-ø-kamb-il- i /
	H L L HL H	H L HL	L L L HL
HTS2 + Dlk.	si-ø-kamb-il-i		
	H L L HL		



IV.2.4. CV.CV.CV. verb root + TM

Consider the data in (14) and (15) below:

(14) a. ì-fètìnì 'to imitate'
ì-sèɣ èlè 'to sift'

b. ì-kájìsè 'to judge'

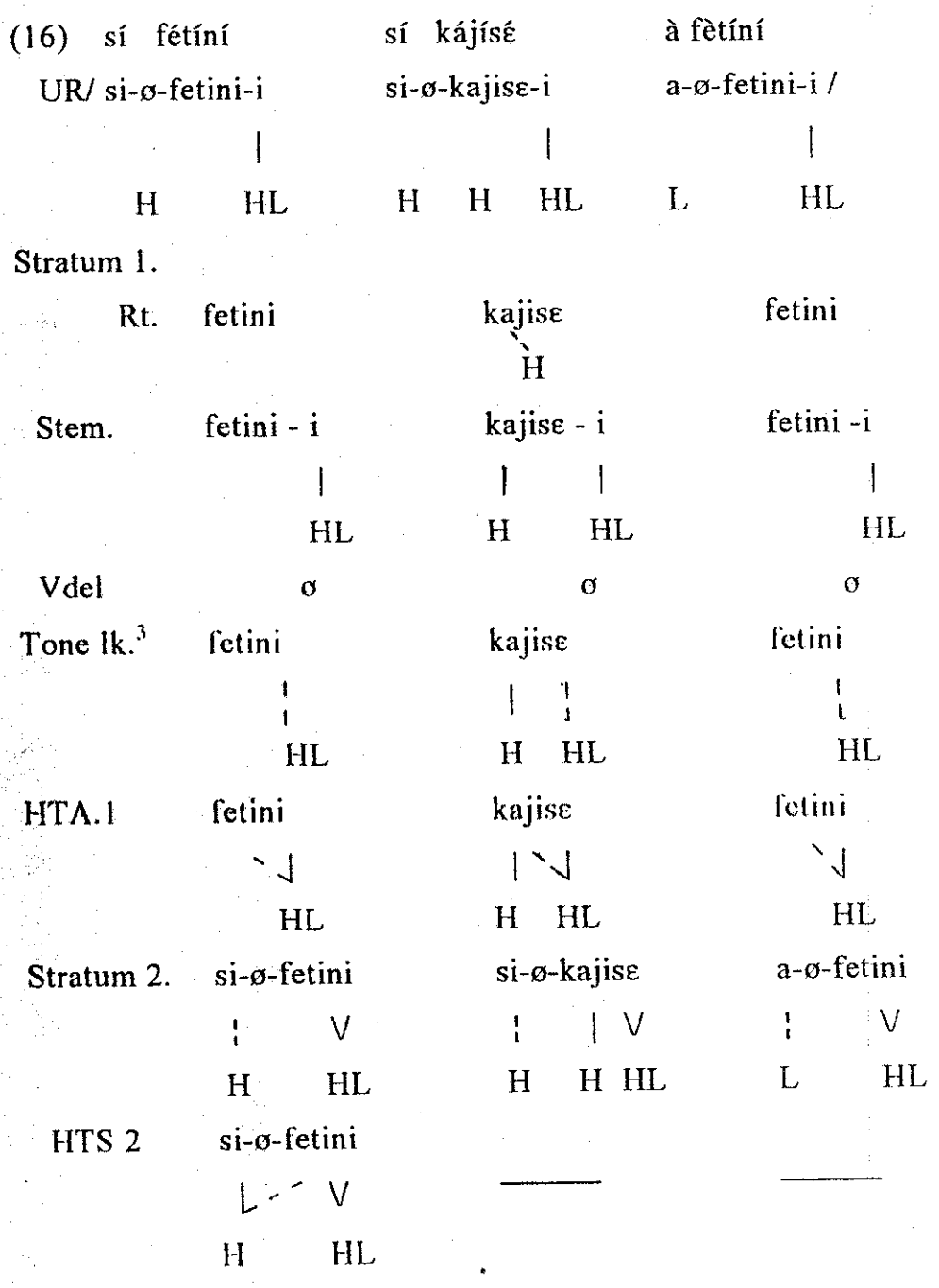
(15) a. sí fétíní 'we had imitated'
sí séɣ élé 'we had sifted'

b. à fètíní 'he had imitated'
à sèɣ élé 'he had sifted'

c. sí kájísé 'we had judged'

As can be seen from the data above, the forms in (14) are in the infinitive while those in (15) have been conjugated in the past perfect tense. (15a) presents L tone verbs conjugated with the H tone SM, 'sí' while (15b), presents them conjugated with a L tone SM, 'à'. Looking closely at the data we notice some tonal alternations. When the verbs are conjugated with 'sí', HTS occurs, with the H tone of 'sí' spreading once to the first root vowel. This argument is confirmed by the fact that when the SM is the L tone 'à', the first root vowel remains L (cf. 15b). The H tones on the remaining root vowels can be accounted for by the fact that the floating H tone of the deleted TM docks onto the last TBU of the verb root. From here, it spreads leftwards to the next TBU through HTA at stratum one.

As for the form in (15c), HTS from the SM does not occur since the first root vowel bears a H tone underlyingly. The only phonological processes that take place are H linking and HTA when the TM is deleted. The following derivations best explain these arguments:



[3].It is worth noting that with the rule of tone linking, only the first tone in a series of floating tones links (cf. the derivations in (7) and (10) of this chapter)

Stray	si-ø-fetini	si-ø-kajisɛ	a-ø-fetini
erasure	| ⟋ V	| | V	| V
	H H L	H H H L	L H L
	↘ø	↘ø	↘ø
Postlexically	si-ø-fetini	si-ø-kajisɛ	a-ø-fetini
	| ⟋ V	| | V	| ¦ V
	H H	H H H	L ¦ H
Def.L.	_____	_____	L
PR	[sí fétíní	sí kájísɛ́	à fètíní]

After the past perfect tense, we are left with the imperfect tense which will be tackled in this last section.

IV.3. THE IMPERFECT TENSE

The imperfect tense in Bàlòŋ is marked by the discontinuous morpheme 'ø---áɣî'. We will argue that underlyingly, the second part of TM, 'áɣî' is made up of two formatives 'ak' and 'i'. The change from the underlying [k] to the surface [ɣ] can be explained by the rule of assibilation. At the tonal level, the first formative '-ak-' will be argued to be toneless underlyingly while the second formative, 'i' has two underlying tones[4]; a H tone which is prelinked and a L tone which is floating. When the two formatives come together, the H tone of 'i' anticipates onto the first formative, '-ak-'giving it a H tone. Apart from these processes, we also notice a process of vowel harmony as the data below illustrates:

(16) a. b.

[i]	->	ìdìŋ	'to love'	sí	díŋg - áɣî	'we were loving'
[a]	->	ìjànd	'to buy'	sí	jánd - áɣî	'we were buying'

[4] .The reason for this argument is that the 'i' here seems to be the same 'i' that we find in the past perfect tense. As such, their tones have to be the same.

[u]	->	itùm	'to pound'	sí	túm - áɣî	'we were pounding'
[e]	->	ìjél	'to go'	sí	jél - áɣî	'we were going'
[o]	->	ìsòmb	'to sell'	sí	sómb- áɣî	'we were selling'

(17) a. b.

[ɛ]	->	ìjén	'to see'	sí	jén - éɣî	'we were seeing'
		ìkwèl	'to fall (a tree)	sí	kwél -éɣî	'we were felling (a tree)

(18) a. b.

[ɔ]	->	ìtɔ́ŋ	'to whistle'	sí	tɔ́ŋg - ɔ́ɣî	'we were whistling'
		ìsɔ́k	'to get drunk'	sí	sɔ́ɣ- ɔ́ɣî	'we were getting drunk'
		ìjɔ́k	'to have a bath	sí	jɔ́ɣ- ɔ́ɣî	'we were having a bath'

In the forms in (16), we notice that the TM is 'ø...áɣî' no matter the vowel of the verb root. In (17) and (18) however, the first vowel of the TM changes into [ɛ] and [ɔ] respectively, giving [éɣî] and [ɔ́ɣî]. A look at the root vowels shows that there has been vowel harmony as the vowel of the TM harmonizes with that of the verb root. This pushes us to the conclusion that vowel harmony affects only the second grade mid vowels, [ɛ] and [ɔ], leaving all the other vowels unaffected. We can therefore argue that the basic form is 'áɣî' and that 'éɣî' and 'ɔ́ɣî' are allomorphs. This gives us the following rule of vowel harmony:

(19) vowel harmony:

$$\begin{bmatrix} +\text{low} \\ -\text{bk} \end{bmatrix}_{V} \rightarrow \begin{bmatrix} -\text{hi} \\ -\text{low} \end{bmatrix}_{V} / \begin{bmatrix} +\text{hi} \\ -\text{low} \end{bmatrix} + \text{---} +$$

This rule states: the low front vowel [a] at morpheme boundary becomes the mid vowels, [ɛ] or [ɔ], after [ɛ] or [ɔ] respectively.

The derivations in (20) better clarify these arguments:

(20) sí jéláɣî sí jɛ́nɛ́ɣî sí sɔ́ɣɔ́ɣî

UR/ si-ø- jel-ak-i si-ø-jɛn-ak-i si-ø-sɔk-ak-i /

H H HL H H HL H H HL

Stratum 1.

Rt.	jel	jɛn	sɔk
	H	H	H
Stem	jel-ak-i	jɛn- ak -i	sɔk - ak -i
	H HL	H HL	H HL
Assib.	ɣ	ɣ	ɣ ɣ
V. harmony	_____	ɛ	ɔ
HTA1	jel-aɣ - i	jɛn -ɛɣ - i	sɔɣ - ɔɣ- i
	H HL	H HL	H HL
Stratum 2.	si-ø- jel-aɣ-i	si-ø-jɛn-ɛɣ-i	si-ø-sɔɣ-ɔɣ-i
	H H HL	H H HL	H H HL
Tone lk.	si-ø- jel-aɣ-i	si-ø-jɛn-ɛɣ-i	si-ø-sɔɣ-ɔɣ-i
	H H HL	H H HL	H H HL
PR	[sí jéláɣî	sí jɛ́nɛ́ɣî	sí sɔ́ɣɔ́ɣî]

Apart from these phonological processes, a process of vowel deletion takes place when the imperfect TM is added to verbs having a final -CV-. Below are some examples:

(21)	a.	ì-lá	'to beat'
		ì-kɔ̀	'to hate'
		ì-mɛ̀	'to swallow'
	b.	ì-jɔ̀lɔ̀	'to laugh'
		ì-kòfɔ̀	'to accept'
(22)	a.	sí láɣî	'we were beating'
		sí kɔ́ɣî	'we were hating'
		sí méɣî	'we were swallowing'
	b.	sí jólɔ́ɣî	'we were laughing'
		sí kófɔ́ɣî	'we were accepting'

The data in (21a) presents monosyllabic verb stems while that in (21b) presents disyllabic verb stems in the infinitive. In (22), they have been conjugated in the imperfect tense. In both forms in (22), when the TM is added, the vowel of the first TM formative deletes. After deletion, the H tone of the second formative "i" anticipates onto the second stem vowel. Note should be taken of the fact that the rule of HTA occurring at stratum one is morphologically conditioned as it does not affect the first vowel of the stem. When the SM "si" is added to the verb stem at stratum two, it spreads its H tone to the first stem vowel provoking the delinking of the L tone borne by this vowel, which gets stray erased. The following derivations best clarify these explanations.

(23) sí láɣî si méɣî sí kófóɣî

UR / si-ø-la-ak-i si-ø-mɛ-ak-i si-ø-kof-o-ak-i /

H H HL H L HL H L L HL

Stratum 1.

Rt.	la	mɛ	kof
	H	L	L
stem	la- ak-i	mɛ-ak-i	kof-o-ak-i
	H HL	L HL	L L HL
Assib	ɣ	ɣ	ɣ
V del.	ø	ø	ø
HTA1 + Dlk	_____	_____	kof-o-ɣ-i
			L L HL

Stratum 2.

	si-ø-la-ɣ-i	si-ø-mɛ-ɣ-ɪ	si-ø-kof-o-ɣ-i
	H H HL	H L HL	H L L HL
Tone lk	si-ø- sɪ-la-ɣ-i	si-ø-mɛ-ɣ-ɪ	si-ø-kof-o-ɣ-i
	H H HL	H L HL	H L L HL
HTS2 + Dlk	_____	si-ø-mɛ-ɣ-ɪ	si-ø-kof-o-ɣ-i
		H L HL	H L L HL
stray erasure	_____	⅄ø	⅄ø⅄ø

PR [sí láɣî sí méɣî sí kófóɣî]

It should be noted that HTA1 can apply iteratively, provided the first root vowel remains unaffected. Consider the data below:

(24)		ì-fètìnì	'to imitate'
	a.	à fètíníɣî	'he was imitating'
	b.	sí fétíníɣî	'we were imitating'

In the form in (24a), the verb is in the infinitive and all the root vowels bear L tones. In (24a), we realise that the two last root vowels have H tones. These tones can only be explained by arguing that the H tone of the second TM formative anticipates iteratively to these root vowels leaving the first root vowel unaffected. As for the form in (24b), we can argue that the H tone on the first root vowel comes from HTS with the SM, "sí", spreading its H tone to it.

Having discussed the phonology of the verb, we will move on to examine Bàlòŋ nominal forms.

CHAPTER V
THE PHONOLOGY OF THE NOUN

V. 0. INTRODUCTION

In this chapter, we are going to examine the Bàlòŋ noun. We will begin by looking at the noun structure, then at the noun classes and at the underlying forms of noun roots. We will end by examining some cases of reduplication in nouns.

V.1. NOUN STRUCTURE

The Bàlòŋ noun has a very simple structure which consists of a class prefix and a root. This structure is illustrated in (1) below:

(1) ì - tô 'ear'
Pfx-Rt

Some nouns do not have a prefix and are thus considered to have a zero prefix, "ø" as the example in (2) shows:

(2) ø - ɲû 'bee'
Pfx-Rt

All the noun prefixes are underlyingly L and have a CV-structure except for the noun prefixes 'i" and "ɛ" which have a V-shape.

V.2. NOUN CLASSES.

Bantu nouns have been classified into a number of classes and these classes are mostly determined by the prefixes these nouns bear. In his "Projet de thèse", *Morphologie du ɓàlòŋ*, KOUOH MBOUDJA distinguished thirteen (13) noun classes for Bàlòŋ nouns. Below are the noun classes with corresponding examples.

(3)

Class	Class Prefix	Example	
1a	mu-	ŋ̀kèn[1]	'stranger'
1b	ø-	sáŋgó	'sir
2	ba-	ɓà-kèn	'strangers'
3	mu-	ǹ-lém	'heart'
4	mi-	mì-lém	'hearts'
5	i-/di-	ì-sòŋ / dì-sòŋ	'tooth'
6	ma-	mà-sòŋ	'teeth'
7	ɛ-	è-ɓòɣòlɔ̀	'baton de manioc'
8	bi-	bì-ɓòɣòlɔ̀	'batons de manioc'
9	ø-	ŋgànd	'American crocodile'
10	ø	ŋgànd	'American crocodiles'
14	bu-	bw-èl	'medicine'
17	wu-	w-óm	'places'
19	fi-	fj-ɔ̀n	'mushroom'

[1] Some Bàlòŋ speakers (e.g. speakers from Muyuka village) have "mùkèn"as the word for "stranger ." We have however decided to adopt the form "ŋ̀kèn" used by the native speakers from "Fíkó" village given that the Bàlòŋ spoken here is standard as it is understood by all the other villages. Secondly, in our entire data, "mùkèn" is the only noun in which the prefix vowel is maintained.

Some nouns have regular prefixes while others show a lot of alternations. Examples are classes 1a, 2, 3, 4, 5, 6, 14, 17, and 19. In the following paragraphs, we are going to examine these noun classes so as to explain how the alternations come about.

V.2.1. Noun classes 1 and 3.

Classes 1 and 3, all singular classes have for noun prefix "mu-." They form their plurals in "ba-" and "mi-" respectively. Despite their underlying form "mu-", a lot of alternations are witnessed as the data below indicates:

(4) a. m̀-fɔ̀m 'rich man'(cl 1)
ǹ-lém 'heart'(cl 3)
ŋ̀-kàwú 'plantain'(cl 3)

b. m-òlô 'head'(cl 1)

c. mw-ăn 'child' (cl 1)
mw-àlàn 'woman'(cl 1)

We thus have the alternants m̀~ǹ~ŋ̀~m~mw, which we will explain in the following paragraphs.

In the forms in (4a), the alternations come about as a result of three phonological processes: vowel deletion, tone linking and nasal assimilation. When the vowel of the class prefix "mu-" deletes, its L tone remains floating. This floating tone docks onto the nasal sound, [m], which following a rule of nasal assimilation, assimilates the place of articulation of the following consonant. The derivations in (5) better illustrate this.

(5) m̀fɔ̀m	ǹlém	ŋ̀kàwú	
UR / mu-fɔm	mu-lem	mu-kawu /	
L	L H	L L H	
Stratum 1.	fɔm	lem	kawu
		¦	¦ ¦
		H	L H
Stratum 2.	mu-fɔm	mu-lem	mu-kawu
	¦	¦ |	¦ | |
	L	L H	L L H
V del.	ø	ø	ø
Tone lk	m-fɔm	m- lem	m-kawu
	\	¦\ |	¦\ | |
	L	¦L H	¦L L H
Nasal assim.	_____	n	ŋ
Postlexically:	m-fɔm	n- lem	ŋ- kawu
	| ¦	| |	| | |
	L ¦	L H	L L H
Def L	L		
PR	[m̀fɔ̀m	ǹlém	ŋ̀kàwú]

In the form in (4b), "mòlô", there has been vowel deletion but the difference here is that the floating L tone of the deleted class prefix vowel does not dock onto the preceding nasal as in (4a). This is surely due to the fact that the noun root starts with a vowel and the syllabic nasal does not occur before vowels. This floating L tone is then stray erased.

The forms in (4c), "mwăn" and "mwàlàn" present a process of gliding or devocalisation. When the prefix vowel [u] devocalizes into the glide, [w] its L tone remains floating. This floating L tone links onto the

root vowel provoking a contour tone for the form "mwăn" whose root is underlyingly H but is stray erased for the form "mwàlàn" which is underlyingly toneless. Consider the derivations in (6) below.

(6)

	mwăn	mwàlàn
UR /	mu-an	mu-alan /
	L H	L
Stratum 1.	an	alan
	¦	
	H	
Stratum 2.	mu - an	mu-alan
	¦ |	¦
	L H	L
Devoc.	w	w
Tone lk	mw-an	———
	⌐1	
	L H	
Stray erasure	———	mw-alan
		L
		⌒ø
Postlexically	mw-an	mw-alan
	Λ	¦ ¦
	L H	¦ ¦
Def L	———	L L
PR	[mwăn	mwàlàn]

V.2.2. Noun class 2

The alternations in noun class two come mainly from the deletion of the prefix vowel when it occurs before a noun root beginning with a vowel. When vowel deletion occurs, the L tone of the prefix vowel remains floating and docks to the root vowel provoking a contour tone in H tone noun roots, or is simply stray erased. Below are some examples:

(7) a. b-ăn 'children'
b. b-àlàn 'women'

Consider the derivations in (8)

(8)		ăn	àlàn
UR	/ ba-an		ba-alan /
	L H		L
Stratum 1.		an	alan
		¦	
		H	
Stratum 2.		ba-an	ba-alan
		¦ ¦	¦
		L H	L
V del.		ø	ø
Tone lk		b-an	———
		⌐1	
		L H	
Stray erasure		———	b-alan
			L
			⌒ø

Postlexically	b-an	b-alan
	Λ	¦ ¦
	L H	¦ ¦
Def L.	_____	LL
PR	[bǎn	bàlàn]

V.2.3. Noun classes 4,5,6,14,17, and 19.

Alternations within these noun classes result either from gliding or from the deletion of the prefix vowel when it is added to the noun roots beginning with a vowel. Consider the data in (9)

(9)	a.	d-ǐs	'eye'(cl 5)
		d-ǐn	'name'(cl 5)
		m-èl	'medicines' (cl 6)
		m-ènέ	'mirrors' (cl 6)
		m-ǐs	'eyes' (cl 6)
		m-ěm	'pregnancies' (cl 6)
		w-óm	'places' (cl 17)
	b.	mj-àsó	'forks'(cl 4)
		bw-èl	'medicine (cl 14)
		fj-ɔ̀n	'mushroom'(cl 19)
	c.	dʒ-ěm	'pregnancy'(cl 5)
		dʒ-ènέ	'mirror' (cl 5)
		dʒ-áŋgòlò	'mango (cl 5)
		dʒ-ó	'nose (cl 5)

In the forms in (9a), the prefix vowel undergoes vowel deletion leaving its L tone floating. This floating L tone either docks onto the root vowel provoking a contour tone in H tone noun roots or it is simply stray erased. This is illustrated in the derivations below.

(10)	dĭs	mĕm	mènέ	wóm
UR /	di-is	ma-ɛm	ma-ɛnɛ	wu-om /
	LH	LH	L LH	L H
Stratum 1.	is	ɛm	ɛnɛ	om
	¦	¦	¦ ¦	¦
	H	H	L H	H
Stratum 2.	di- is	ma- ɛm	ma-ɛnɛ	wu-om
	¦ |	¦ |	¦ | |	¦ |
	L H	L H	L LH	L H
V del.	ø	ø	ø	ø
Tone lk	d-is	m-ɛm	———	———
	⸍⸌	⸍⸌		
	LH	LH		
Stray erasure	———	———	m-ɛnɛ | |	w- om |
			L LH ⤡ø	L H ⤡ø
PR	[dĭs	mĕm	mènέ	wóm]

As for the forms in (9b), the noun prefix vowel undergoes devocalization before the noun root. Its L tone, however, remains floating and docks onto the root vowel or is stray erased. Consider the derivations in (11).

(11)

	mjàsó	bwèl	fjɔ̀n
UR /	mi-aso	bu-el	fi-ɔn /
	L LH	L	L
Stratum 1:	aso	el	ɔn
	L H		
Stratum 2:	mi-aso	bu-el	fi-ɔn
	L LH	L	L
Devoc.	J	w	j
Tone lk	mj-aso	bw-el	fj-ɔn
	L LH	L	L
Stray erasure	mj-aso	———	———
	LL H		
PR [	mjàsó	bwèl	fjɔ̀n]

Finally, the forms in (9c), first undergo vowel deletion, then a phonological process of palatalisation by which the alveolar sound, [d], becomes the palatal sound [dʒ] before non high vowels. This phonological process can be captured as follows:

(12) Palatalisation

$$\begin{bmatrix} +\text{ant} \\ -\text{son} \\ -\text{cont} \\ +\text{cor} \\ +\text{voice} \\ -\text{nas} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{del rel} \\ -\text{ant} \end{bmatrix} / \text{-- } \begin{matrix} [-\text{hi}] \\ V \end{matrix}$$

or simply: /d/ -> [dʒ] / -- [-hi]

V

At the tonal level, the floating L tone of the noun prefix docks onto the root vowel creating a contour tone for the H tone noun root in "dʒěm" but is stray erased for the forms "dʒènέ, dʒó", and "dʒáŋgòlò". The derivations in (13) better illustrate this:

(13)	dʒěm	dʒènέ	dʒó	dʒáŋgòlò
UR /	di-ɛm	di-ɛnɛ	di-o	di-aŋgolo /
	LH	L L H	L H	L H L
Stratum 1.	ɛm	ɛnɛ	o	aŋgolo
	¦	¦ ¦	¦	¦ ¦
	H	L H	H	H L
Stratum 2.	di- ɛm	di-ɛnɛ	di-o	di-aŋgolo
	¦ |	¦ | |	¦ |	¦ | |
	L H	L L H	L H	L H L
V. del.	ø	ø	ø	ø
Palat	dʒ-ɛm	dʒ-ɛnɛ	dʒ-o	dʒ-aŋgolo
	|	| |	|	| |
	LH	L L H	L H	L H L
Tone lk.	dʒ-ɛm	———	———	———
	LH			
Stray eras.	———	dʒ-ɛnɛ	dʒ-o	dʒ-aŋgolo
		| |	|	| |
		L L H	L H	L H L
		↘ø	↘ø	↘ø

Postlexically:	dʒ-ɛm	dʒ-ɛnɛ	dʒ-o	dʒ-aŋgolo
	Λ	| |	|	| | ¦
	LH	L H	H	H L ¦
Def. L.				L
PR [	dʒɛ̌m	dʒɛ̀nɛ́	dʒó	dʒáŋgòlò]

V.3. UNDERLYING FORM OF NOUN ROOTS

V.3.1. Syllable Structure

A syllable according to Wieseman et al. (1988) is a TBU. This definition suggests that each TBU should be the nucleus of a syllable. Another definition of a syllable put forward by phonologists is that a syllable consists of three parts:

i) the onset which is made up of a consonant
ii) the peak or nucleus made up of a vowel or a syllabic nasal
iii) the coda made up of a consonant (Pike 1947).

From these definitions, one can say that a syllable consists of the onset which is optional, the peak or the nucleus which is the most important component of the syllable and which carries the tone and the coda which is also optional. The syllable can therefore be represented thus:

(14) (C) V (C)

Bàlòŋ noun roots are made up of one or more syllables and in the following paragraphs, we will examine their syllable structures.

V.3.1.1. Monosyllabic noun roots.

They present the following structures:

-V	as	in ʤ-ó	"nose"
-VC	as	in b-ăn	"children"
-CV	as	in ì-tô	"ear"
-CVC	as	in ì-lèn	"knife"

One particularity about the -V and -VC noun roots is that they provoke either the gliding or the deletion of the prefix vowel when they come into contact with it.

V.3.1.2. Disyllabic noun roots.

They are the most attested noun roots in Bàlòŋ. They present four structures which are as follows:

-V.CV	as in	mw-àsó	"fork"
-CV.V	as in	è-ɓàà	"sun"
-CV.CV	as in	m̀-wútú	"student"
-CV.CVC	as in	m̀-fílím	"race"

Like the -V and -VC syllable structures,the -V.CV noun root also provokes gliding and vowel deletion when the noun prefix is added to it.

V.3.1.3. Trisyllabic noun roots.

Like the monosyllabic noun roots, they present four structures:

-CV.V.CV	as in	téélì	"table"
-CV.V.CVC	as in	è-túúkán	"local bush lamp"

-CV.CV.CV. as in è-kówɛ́lí "cry"

-CV.CV.CVC as in tɔ̀lɔ̀sìs "trousers"

As can be seen from the -CV.V.CV and -CV.V.CVC structures, Bàlòŋ permits only adjacent identical vowels within one word.

V.3.2. Underlying tones

Bàlòŋ noun roots exhibit a variety of surface tonal melodies. However, not all these tonal melodies are underlying. This section of the work is therefore going to determine which tones are underlying and it will be divided into monosyllabic, disyllabic and trisyllabic noun roots.

V.3.2.1. Monosyllabic noun roots.

Consider the data below:

(15) a. dʒ-ó 'nose'

m̀-wú 'ghost'

b. fj-ɔ̀n 'mushroom'

è-dù 'banana'

c. ì-tô 'ear'

dʒ-ô 'God'

d. wǐ 'theft'

ɲǎnd 'finger nail'

b-ǎn 'children'

Following the data in (15) above, monosyllabic noun roots present four surface tones, namely: H, L, HL, and LH. At the underlying level, however, monosyllabic noun roots will be argued to have only one tone, the H tone.

In the forms in (15a), the noun root bears a H tone which, presumably, starts by being floating and links to the first root vowel following the UAC (Pulleyblank 1986a). The forms in (15b) on their part are underlyingly toneless and get their L tone by default.

Those in (15c,d) can be argued to be H underlyingly and that the surface contour tones result from the linking of floating L tones. In (15c), the underlying H tone is followed by a floating L tone which links to the noun root. One strong argument for saying that this tone is floating is that, in phrasal constructions, it is no longer present. This is exemplified in the data in (16).

(16)	a.	ì-tô	'ear'
		m-òlô	'head'
	b.	ìtó dʒá mwăn	'the child's ear'
		ear of child	
		mòló mwá mwăn	'the child's head'
		head of child	

In (15d), the H tone of the noun root is affected by the floating L tone of the absent prefix vowel. These arguments are illustrated in the derivations below:

(17) m̀wú èdù ìtô wǐ

UR /	mu-wu	ɛ-du	i-to	ø-wi /
	L H	L	L HL	L H
Stratum 1.	/ wu	du	to	wi
	¦		¦	¦
	H		HL	H
Stratum 2.	mu-wu	ɛ-du	i-to	ø-wi
	¦ |	¦	¦ |	|
	L H	L	L HL	L H
V del.	ø	———	———	———

Tone lk.	m-wu	ɛ-du	i-to	ø-wi
	¦ |	|	| |\	⁄|
	L H	L	L HL	L H
Postlexically:	m-wu	ɛ-du	i-to	ø-wi
	| |	| ¦	/\	/\
	L H	L ¦	L HL	L H
Def L.	———	L	———	———
PR	[m̀wú	ɛ̀dù	ìtô	wǐ]

V.3.2.2. Disyllabic noun roots.

These noun roots which are the most attested noun roots in Bàlòŋ appear with the following surface tonal melodies.

(18) a. HH

ì-wíndí 'pencil'

m̀-wútú 'student'

b. H HL

fíɲɔ̂ 'snake'

(19) LL

wàɣɛ̀ 'chimpanzee'

mw-àlàn 'woman'

(20) a. HL

mj-ɔ́lɔ̀ 'canoes'

b. LH L

mw-ăndɛ̀m 'small child'

(21) a. LH

mw-àsó 'fork'

b. L HL

mj-òlô 'heads'

Despite these surface tonal melodies, disyllabic noun roots in Bàlòŋ essentially have three underlying tones: H, HL and LH. Noun roots which do not have these tones are considered to be underlyingly toneless. For the forms above, we will argue that those in (18) are underlyingly H, those in (19) are toneless, those in (20) have two underlying tones, H and L and that those in (21) have L and H as underlying tones.

In the forms in (18), the H tone is linked to the first root vowel. From here it spreads to the second root vowel which is toneless for the forms in (18a) but which has a floating L tone for the form in (18b). After HTS has taken place, the floating L tone links to the second root vowel giving rise to a HL contour tone.[2] This gives us the following derivations:

(22)

	ìwíndí	fíŋɔ̂
UR /	i-windi	ø- fíŋɔ̂ /
	L H	H L
Stratum 1.	windi	fíŋɔ̂
	|	|
	H	H L

[2] In the verbs, we argued that only adjacent H tones could block HTS but in the nouns, we will argue that adjacent L tones also block HTS. H tones thus spread only to segments that are toneless underlyingly. There is therefore the necessity for HTS to take place before Tone Linking for a form like "fíŋɔ̂" because if the reverse is done, the L tone of the second root vowel will block HTS and we will not come out with the right results. The right ordering of rules is therefore of vital importance.

Stratum 2.	i-windi	fíɲɔ̂	
	¦ |	|	
	L H	H L	
HTS1	i-windi	fíɲɔ̂	
	¦ ∨́	∨́	
	L H	H L	
Tone lk.		fíɲɔ̂	
		∨̀	
		H L	
PR [	ìwíndí	fíɲɔ̂	]

The forms in (19) can be argued to be toneless underlyingly and they get their L tones by default. This assumption is made more certain by the fact that, in phrasal constructions, a contour tone does not occur on these nouns when HTS takes place. Consider the data below:

(23) a. wàɣè 'chimpanzee'
mw-àlàn 'woman'

b. ìwíndí dʒá wáɣè 'the chimpanzee's pencil'
pencil of chimpanzee
ìwíndí dʒá mwálàn 'the woman's pencil'
pencil of woman

From the forms in (23b), we realize that if the noun roots for "wàɣè" and "mwàlàn" were underlyingly L, we would expect a contour tone when spreading takes place. Secondly, the fact that HTS takes place is a piece of evidence that the noun root is toneless because an underlying L tone will block HTS. These forms can be derived as follows:

(24)

	wàyɛ̀	mw-àlàn
UR /	wayɛ	mu-alan /
		L
Stratum 1.	wayɛ	alan
Stratum 2	wayɛ	mu-alan
		¦
		L
Devoc.	_____	w
Stray eras.	_____	mw-alan
		L
		↘ø
Postlexically:	wayɛ	mw-alan
	¦ ¦	¦ ¦
Def L	L L	LL
PR	[wàyɛ̀	mw-àlàn]

In the forms in (20a,b), we will argue that they have two underlying tones, H and L, which are linked to the root vowels. Note should be taken of the fact that HTS does not occur here because of the L tone borne by the second root vowel which blocks HTS. In both forms, we notice the devocalization of the prefix vowel. In (20a), when the prefix vowel devocalizes, its L tone remains floating and is stray erased whereas in (20b), it links to the first root vowel which already bears a H tone, thereby provoking a contour tone. The derivations in (25) better explain this:

(25)

	mjólɔ̀	mwǎndɛ̀m
UR /	mi-ɔlɔ	mu-andɛm /
	L HL	L H L
Stratum 1.	ɔlɔ	andɛm
	HL	H L
Stratum 2.	mi-ɔlɔ	mu-andɛm
	L HL	L H L
Devoc.	j	w
Tone lk.	_____	mw-andɛm
		L H L
Stray erasure	mj-ɔlɔ	_____
	L H L	
	↘ø	
PR	[mjólɔ̀	mwǎndɛ̀m]

Finally, we have considered the forms in (21) to have two underlying tones, L and H, which are linked to the root vowels. The difference between the forms in (a) and (b) is that the form in (21b) bears, in addition, a floating L tone which links to the second root vowel, provoking a HL contour tone. This is illustrated in the derivations in (26).

(26)

	mwàsó	mjòlô
UR /	mu-aso	mi-olo /
	| |	| |
	L L H	L L HL
Stratum 1.	aso	olo
	| |	| |
	LH	L H L
Stratum 2:	mu-aso	mi-olo
	¦ | |	¦ | |
	L L H	L LHL
Tone lk.	_____	mi-olo
		| ᛁ
		LL HL
Devoc.	mu-aso	mi-olo
	| | |	| |∧
	L L H	L LHL
	w	j
Stray erasure	mw-aso	mj-olo
	| |	| ∧
	L L H	L LHL
	↘ø	↘ø
PR	[mwàsó	mjòlô]

In summary, disyllabic noun roots have the following underlying tones: H, ø, HL, and LH.

V.32.3. Trisyllabic noun roots.

They appear with the following surface tonal melodies:

(27) a. HHL

téélì	'table'
táálì	'towel'

b. HLL

ǹ-tátìlì	'guard'
ŋgɔ́ɣɔ̀wɛ̀	'chain'

c. HHH

bà-káálá	'white men'
è-kówɛ́lí	'cry'

d. LLL

sɔ̀ɔ̀nì	'reed'
tùtùpè	'motor cycle'

e. LHL

mà-lòmbíndà	'perfumes'
ɲɔ̀píɲà	'sock'

f. LHH

è-kòwɛ́lí	'welcome'

At the underlying level, only four tonal melodies will be argued to exist, namely : H, HH, HL, and LH. Noun forms without these underlying tones have been considered toneless.

To begin with H tone noun roots, we will argue that the forms in (27a) are H underlyingly and that this H tone is linked to the first root vowel. This H tone spreads once to the second root vowel which is toneless and the third root vowel gets its L tone by default.

As for the form in (27b), it can be argued to have two underlying tones, H and L. These tones are linked to the first and second root vowels and the third root vowel gets its L tone by default. HTS does not take place here because of the tone borne by the second root vowel. Consider the derivations below:

(28)	téélì	ŋgóɣɔ̀wɛ̀
UR /	teeli	ŋgɔkɔwɛ /
	|	| |
	H	H L
Stratum 1.	teeli	ŋgɔkɔwɛ
	|	⟊ |
	H	H⟊ L
Assib.	_____	ɣ
Stratum 2.	teeli	ŋgɔɣɔwɛ
	|	| |
	H	H L
HTS 1	teeli	_____
	⟋	
	H	
Postlexically:	teeli	ŋgɔɣɔwɛ
	V ⟊	| | ⟊
	H ⟊	H L ⟊
Def L	L	L
PR	[téélì	ŋgóɣɔ̀wɛ̀]

The forms in (27c) have been assumed to be HH underlyingly. The reason for this tonal melody is that the three root vowels all bear surface H

tones and all along we have demonstrated that HTS is not iterative. This therefore means that for the right results to be obtained, the underlying tonal melody must be HH. We will argue that the first H tone is prelinked to the first root vowel while the second H tone, which is floating, links to the third root vowel. This argument is aimed at avoiding a violation of the Obligatory Contour Principle (OCP) according to which adjacent identical tones are banned from the lexical representation. With this underlying form, the first H tone spreads once to the second root vowel while the second H tone remains unaffected. These arguments are illustrated in the derivation in (29).

(29)

	bàkáálá
UR /	ba-kaala /
	|
	L H H
Stratum 1.	kaala
	|
	H H
Stratum 2.	ba-kaala
	¦ |
	L H H
HTS 1	ba-kaala
	| |′
	L H H
Tone lk.	ba-kaala
	| |/ ¦
	L H H
PR	[bàkáálá]

The forms in (27d) have been assumed to be toneless underlyingly, and they get their L tones by default.

Those in (27e) have been attributed two underlying tones, H and L, with the H tone prelinked to the second root vowel. Following the UAC (Pulleyblank 1986a) which posit that association lines do not cross, the L tone which is floating links to the third root vowel and the first root vowel gets its L tone by default.

Finally, the form in (27f) will be argued to have two underlying tones, L and H. With these underlying tones, the L tone links to the first root vowel while the H tone links to the second root vowel. From here, the H tone spreads to the third root vowel which is underlyingly toneless. The derivations in (30) best illustrate these arguments.

(30)

	màlòmbíndà	èkòwɛ́lí
UR	/ ma-lombinda	ɛ-kowɛli /
	L H L	L L H
Stratum 1.	lombinda	kowɛli
	H L	L H
Stratum 2.	ma-lombinda	ɛ-kowɛli
HTS 1	L H L	L L H

Postlexically:	ma-lombinda	ɛ-kowɛli
	L H L	L L H
Def L	L	

PR [màlòmbíndà èkòwɛ́lí]

In summary, Bàlòŋ noun roots have the following underlying tones:

Monosyllabic noun roots: H and ø

Disyllabic noun roots: H, ø, HL, and LH

Trisyllabic noun roots: H, ø, HL, HH and LH

In general, therefore, Bàlòŋ noun roots have five underlying tones: H, ø, HL,HH, and LH.

V.4. REDUPLICATES.

Consider the data below:

(31)	a.	ŋkòŋkò	'evening'
		fì-kùpɛ̀kùpɛ̀	'bat'
	b.	è-kólìkólì	'butterfly'
	c.	è-ɓóɣóɓóɣó	'anthill
		pólópóló	'cockroach'
	d.	kòɓákòɓá	'goose'

Like in verb reduplication, we will argue that the tone is copied in the reduplicate in nouns. In the forms in (31a), the noun root will be argued to be underlyingly toneless. When reduplication takes place, the base and the reduplicate get their L tones by default.

In (31b), the noun root has been assumed to bear two underlying tones, H and L. These tones dock onto the two root vowels and are then copied in the reduplicate. The derivations below better illustrate this:

(32)	fì-kùpèkùpè	è-kólìkólì
UR	/ fi-kupɛ	ɛ-koli /
	L	L H L
Stratum 1.	kupɛ	koli
		H L
Redup	kupɛ.kupɛ	koli.koli
		HL H L
Stratum 2.	fi-kupɛ.kupɛ	ɛ-koli.koli
	L	L H L H L
Postlexcally:	fi-kupɛ.kupɛ	ɛ-koli.koli
	L	L H L H L
Def L	L L L L	_____
PR	[fì-kùpèkùpè	è-kólìkólì]

In (31c), the noun root will be considered to be underlyingly H. This H tone links onto the first root vowel and then spreads to the second root vowel which is toneless. These tones are then copied in the reduplicate.

As the form in (31d), we have assumed that it bears two underlying tones, L and H. The L tone links to the first root vowel and the H tone to the second root vowel. When reduplication occurs, these tones are copied in the reduplicate. This is better clarified in the derivations in (33).

(33)	è-ɓóɣóɓóɣó	kòɓákòɓá
UR	/ɛ-boko	koba /
	L H	L H
Stratum 1.	boko	koba
	¦	¦ ¦
	H	L H
Assib.	ɣ	
HTS 1	boɣo	koba
	L´	¦ ¦
	H	L H
Redup.	boɣo.boɣo	koba.koba
	V V	¦ ¦ ¦ ¦
	H H	L H L H
Stratum 2.	ɛ-boɣo.boɣo	koba.koba
	¦ ¦ V ¦V	¦ ¦¦ ¦ ¦¦
	L¦ H ¦H	L¦H L¦ H
Impl.	ɓ ɓ	ɓ ɓ
PR	[èɓóɣóɓóɣó	kòɓákòɓá]

GENERAL CONCLUSION

In this section of our work, we will look at the theoretical assumptions of the Lexical Phonology model and then we will give a conclusion to the work.

I. THE LEXICAL PHONOLOGY MODEL

As earlier said, Lexical Phonology, unlike Standard Generative Phonology, assumes an interaction between morphology and phonology. In other words, there is an interleaving between the phonological rules and the different stages of the word formation (Kiparsky 1982, Mohanan 1986, Pulleyblank 1986, Mutaka 1990). To better explain this model, we will look at the notions of cycles, strata, lexical and postlexical rule applications.

I.1. Cycles and Strata.

I.1.1. Cycles.

A new cycle in Lexical Phonology begins whenever a form is passed to the morphological rule system (Mohanan 1986). At every stratum, we have at least one cycle. In a cyclic stratum, the phonological rule system is scanned for applicability of rules every time there is a new form at a given stratum. On the contrary, in a non cyclic stratum the phonological rule system is scanned for applicability of rules only after all the morphological rules have applied at a given stratum. Cyclicity is therefore a property of the stratum, not of the rule in Lexical Phonology (Mohanan 1986). From our analysis of Bàlòŋ, only stratum one is cyclic with the first cycle deriving the root and the second cycle the stem.

I.1.2. Strata.

Lexical Phonology is divided into two main components: the Lexicon or lexical component and the postlexical component. Claims have been made about Bantu Lexical Phonology that the lexicon has two levels or strata: stratum one and stratum two (Mutaka 1994). Stratum one which is usually cyclic derives the stem while stratum two which is non cyclic derives the word. Lexical items leaving the lexicon go directly into the syntax from where they undergo postlexical rule application. This claim is true for Bàlòŋ as forms are first derived in the lexicon before being passed onto the postlexical component where postlexical rules apply.

In our analysis, it has been proven that a stratally organised phonology best suits Bàlòŋ verbal and nominal forms. This is because it better explains the underlying tonal and phonological patterns of words. Consider the following data:

1)	ìkɔ̀k	'to grind'
	ìkɔ̀ ɣ ìl	'to make s. o. grind'
	sí kɔ́ɣ á ɣî	'we were grinding.

Following our earlier analysis, [k] becomes [ɣ] in between two vowels following a rule of assibilation which is a stratum one phenomenon. A non cyclic approach that does not take into account different strata will not give satisfactory results as we find [k] appearing in between the vowels [i] and [ɔ] in all the three forms above. This is because such an approach assumes that phonological rules apply only after all the morphological processes have taken place. Such an assumption gives us the following faulty results if the rule were to apply for all the forms.

2)	ìkɔ̀k	ìkɔ̀ɣìl	sí kɔ́ɣáɣî
UR /	i-kɔk	i-kɔk-il	si-ø-kɔk-ak-i /
Assib.	¦	¦ ¦	¦ ¦ ¦
	ɣ	ɣ ɣ	ɣ ɣ ɣ
PR *	[ìɣɔ́k	ì ɣɔ́ɣîl	sí ɣɔ́ɣáɣî]

NB: we have ignored the tones because what we want to highlight is the process of assibilation.

The only answer to this difficulty is a cyclic approach which recognises different strata as the derivations in (3) illustrate:

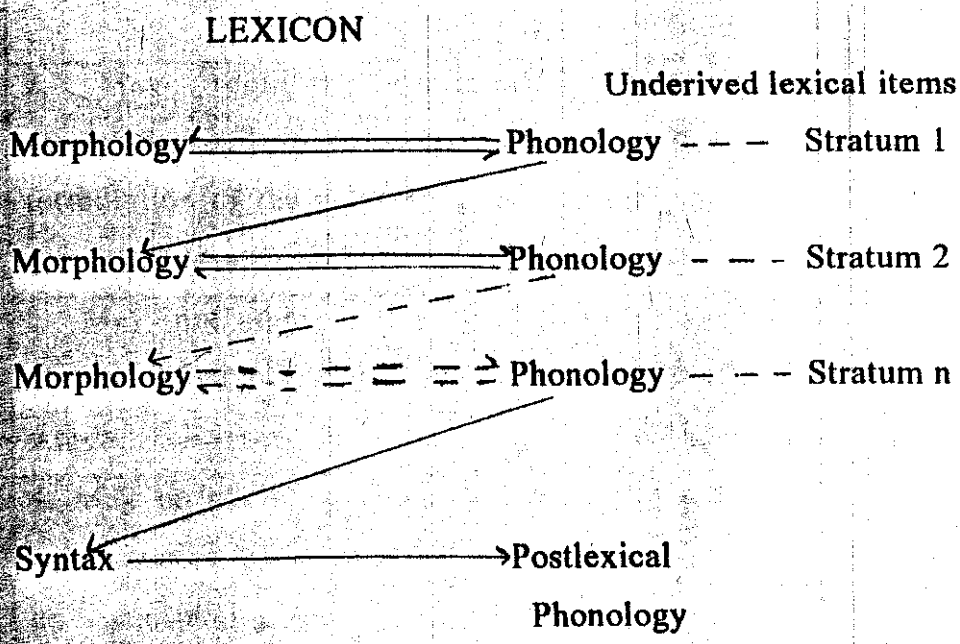
3)	ìkɔ́k	ìkɔ́ɣîl	sí kɔ́ɣáɣî
UR /	i-kɔk	i-kɔk-il	si-ø-kɔk-ak-i /
Stratum 1.			
Rt.	kɔk	kɔk	kɔk
Stem.	kɔk	kɔk - il	kɔk -ak-i
		¦	¦ ¦
Assib.		ɣ	ɣ ɣ
Stratum 2.			
	i-kɔk	i-kɔɣ-il	si-ø-kɔɣ-aɣ-i
PR	[ìkɔ̀k	ìkɔ̀ɣìl	sí kɔ́ɣáɣî].

This is where the Lexical Phonology model has an upper hand over the Standard Generative Phonology Model which cannot adequately explain why assibilation occurs in some instances but not in others.

I.2. Lexical and postlexical rule applications[3].

"At the heart of Lexical Phonology is the idea that a subset of phonological rule applications takes place in the Lexicon, in tandem with the morphological operations and another subset takes place postlexically" (Mohanan 1986:8). This orchestrates the division of phonological rules into lexical and postlexical rules. The Lexical Phonology model can be presented thus:

(4)



Kiparsky (1982a, Vernyuy (1999).

The lexicon contains morphological and phonological rules. These rules are hierarchically organised into strata. The number of strata is not fixed as indicated in the model in (4) above, by the broken arrows and stratum number 'n', with 'n' standing for any number. It is however worth

[3] According to Mohonan (1986), two types of rule applications, instead of rules exist. Rule applications are distinguished in terms of the module in which they apply. A rule may apply in the lexical module, the postlexical module or in both. There is therefore no distinction between lexical and postlexical rules as the same rule may apply in both. Thus we talk of rule application and not rules.

noting that for Bàlòŋ verbal and nominal forms, the number of strata has been limited to two in the lexicon.

Lexical items leaving the lexicon go directly into the syntax where they undergo postlexical rule applications. The following differences can help us distinguish between lexical and postlexical rule applications:

Lexical rule applications	Postlexical rule applications
1. may have to take into account lexical exceptions	No exceptions. The rule applies across the board to all forms whose structural description is met
2. May require word-internal (morphological) information in the formulation of the rule. They never refer to phrasal boundaries.	May not refer to word internal structure. The only boundaries ever used are word boundaries and phrasal boundaries
3. May not apply across words; apply exclusively in the middle of words.	May apply across word boundaries (although they may also apply in the middle of words.)
4. May be cyclic; may apply more than once as the word is being built up morphologically after the addition of each affix.	May not be cyclic; apply only once.
5. Must precede all postlexical rule applications.	Must follow all lexical rule applications

(Mohanan 1986, Kiparsky 1982, Vernyuy 1999).

Bàlòŋ like many other Bantu languages distinguishes between lexical and postlexical rule applications. Phonological rules like assibilation, vowel deletion, devocalization, stray erasure, tone linking and many others have been shown to fall under lexical rule applications while a rule like default

low has been assumed to fall under the postlexical rule applications. This gives us a summary of rules discussed in this work which is as follows:

	Verbs	Nouns
Stratum 1 Root Stem	+ATR association +low delinking Assibilation. [+hi] spreading HTS1 HTA1 Vowel deletion Tone linking consonant insertion consonant spreading Tone dissimilation Delinking vowel harmony	Assibilation HTS1
Stratum 2	vowel deletion Tone linking Nasal assimilation stray erasure Implosion Postnasal hardening g deletion k insertion HTS2 HTA2 Meeussen's rule Delinking	vowel deletion Tone linking. Nasal assimilation Stray erasure Implosion Devocalization Palatalisation HTS1
Postlexically	Default Low	Default Low

II. CONCLUSION

Throughout this work, a number of proposals have been made in order to explicitly deal with the Bàlòŋ tonal and phonological data and also to show how the Lexical Phonology model works in Bàlòŋ. Some of the proposals are as follows:

Firstly, a stratally organized phonology is necessary for a better handling of Bàlòŋ verbal and nominal forms. Two lexical strata have been argued for: stratum one which is cyclic and stratum two which is non-cyclic. Postlexical rules apply after all the lexical rules and in our work, we have come out with only one postlexical rule which is Default Low.

Secondly, following our arguments, rules are assigned to specific strata. Thus we have lexical and postlexical rule applications. Certain rules have been found to apply only in certain components of the phonological word, for example Meeussen's rule which applies only in the INFL formatives.

In reduplicates, it has been argued that the tone is copied in both verbs and nouns.

We will like to note here that Bàlòŋ like many other Bantu languages is very rich and researchers could do a lot of work on it, especially in the field of syntax where virtually noting has been done.

It is also our hope that this work will be of great value to linguists who might want to work on Bàlòŋ. We cannot, however, say that the work is exhaustive; as such, loopholes in it can be used as bases for further linguistic research.

REFERENCES

BITJAA, Kody Zachée Denis. 1990. *Le système verbal du ßàsáá* (bantu A43). Thèse de doctorat de 3e cycle. Université de Yaoundé, 530p.

BOBDA, A. Simo and MBAGWANA, Paul. 1993. *An Introduction to Spoken English*. University of Lagos Press, 226p.

BRETON, R et BIKIA, F. 1991. *Atlas administratif des langues nationales camerounaises*. Programme DYLAN/ALCAM, CREA, ISH, ACCT, MESIRES, CERDOTOLA, Yaoundé, 143p.

DIEU, Michel et RENAUD, P. (eds.) 1983. *Atlas linguistique de l'Afrique Centrale: situation linguistique en Afrique Centrale*. ALCAM, Inventaire préliminaire. Yaoundé / Paris, ACCT, CERDOTOLA, 475p.

DUGAST, Idelette. 1949. *Inventaire ethnique du Sud-Cameroun*. Mémoire de l'IFAN, Centre du Cameroun.

ESSONO, J.M. (unpublished). *Phonétique et Phonologie*.

GREENBERG, Joseph H. 1963. *The Languages of Africa*. The Hague, Mouton. 171p.

GUTHRIE, Malcolm. 1967. *Comparative Bantu*. London: Gregg International.

KIPARSKY, Paul. 1982. "Lexical Phonology and Morphology" in Yang I.S. (ed.) *Linguistics in the Morning Calm*: 3-91, Linguistics Society of Korea, Hanshin, Seoul.

KOUOH MBOUDJA, C-J. *Esquisse phonologique du ßàlòŋ*. Mémoire de Maîtrise. Université de Yaoundé I, 157p.

--- . 1999. *Morphologie du ßàlòŋ* Projet de Thèse. Université de Yaoundé I, 49p.

MEEUSSEN, A.E. 1967. "Bantu Grammatical Reconstructions" in *Africana Linguistica* III: 81-121. Annales du Musée Royal de l'Afrique Centrale, No. 121. Tervuren, 154p.

MOHANAN, K.P. 1986. *The Theory of Lexical Phonology*. Reidel: Dordrecht, Holland, 219p.

MUTAKA, Ngessimo M. 1994. *The Lexical Tonology of Kinande*. Munich: Lincom Europa.

-- and TAMANJI, Pius. 1995. *An Introduction to African Linguistics*. Université Catholique de l'Afrique Centrale, I.C.Y. and University of Yaounde I, 256p.

-- and BITJAA, Kody. 1999. "Vowel raising in Bàsáá verbal forms" To appear in JWAL.

-- . (unpublished). "Data building for a lexical phonology analysis of a Bantu language" in *Research Mate in African Linguistics*, Mutaka, N. & B.S. Chumbow (eds.)

NGORAN, Loveline L. 1999. *A sketch outline of the phonology of Ndemli*. Maîtrise dissertation, University of Yaounde I.

ODDEN, David. 1986. "On the role of the Obligatory Contour Principle in phonological theory" in *Language* 62.2:353-383.

PIKE, Kenneth. 1947. *Phonetics: a technique for reducing language to writing*. Ann Arbor: University of Michigan Press, USA.

SEBASONI, Servilien. 1967. "La préfinale du verbe bantou" in *Africana Linguistica III*: 124-135. Annales du Musée Royal de l'Afrique Centrale, No. 121. Tervuren, 154p.

TADADJEU, Maurice et SADEMBOUO, E. (eds.) 1984. *Alphabet général des langues camerounaises*. Collection PROPELCA No. 1, Edition bilingue, SIL, ISH, CREA-DLL. Université de Yaoundé 1, FALSH, DLAL, 34p.

VERNYUY, Francis. 1999. *The Lexical Tonology of Lamnso?*. Thesis project. University of Yaounde I.

WIESEMAN et al. 1988. *Guide pour le développement des systèmes d'écriture des langues africaines*. Collection PROPELCA, No. 2.

APPENDIX.

In this section, the data will be divided into nouns and verbs.

Nouns.

Monosyllabic nouns

Word	Gloss	Word	Gloss
ɲû	bee	fóm	place
wǐ	theft	m̀bèŋ	elbow
sém	need	m̀wú	ghost
mbû	rain	m̀fɔ̀m	bourgeois
kɔ́	snail	ǹtúm	walking stick
lɔ̀ŋ	brain	bûm	baobab tree
mbús	back (of a person)	mûm	baobab trees
kêm	monkey	dǐs	eye
ndɔ̀	earth	dʒěm	pregnancy
ŋgànd	American crocodile		
mwǎn	child		

Disyllabic nouns

ìtô	ear	èkú	yam
ìlèn	knife	m̀fílím	race
ìnû	knee	ǹsàŋgò	peace
ìwɔ́	toad	ndàndò	okra
ìkóp	flame	mòlô	head
ìfɔ̀m	fats	mjòlô	heads
ìpàp	wing (of a bird)	bùlû	night
ìɓé	kola nut	mjùlû	nights
èkò	foot	ŋ̀kòmbì	crocodile

èbû	stream
èsà	toothbrush
èdúŋ	basket
èsàn	placenta
èpàs	half
èkú	yam

Trisyllabic nouns

èlèlà	duck
èkólì	chameleon
èɓásì	button
èsúwá	standing water
ètótó	penis
èɓòló	work
ìtùmbè	hair scarf
ìsùɣùl	owl
ìkèlè	dew
ìlámbá	buttock
ìfèndén	change

Quadrisyllabic nouns

ètúúkán	local bush lamp
èɓáámbó	plank
ìlɔ̀mbíndà	perfume

kàɓà	gown
sísè	ancestor
kálát	textbook
ǹlélì	teacher
sămbà	seven

ìlàsèn	forgiveness
màlámbá	buttocks
màjómbó	thoughts
è báá	sun
ètɔ́ɔ́	swamp
táálì	towel
sɔ̀ɔ̀nì	reed
ŋkáálá	whiteman
mwààlà	stock
ǹtátìlì	guard
ŋgɔ́ɣɔ̀wè	chain

màlɔ̀mbíndà	perfumes
èkówɛ́lí	cry
bìɓòɣɔ̀lɔ̀	"batons de manioc"

VERBS

Disyllabic verbs

ìlá	to bite
ìkò	to welcome

ìkɔ̀	to hate
ìtút	to wrap

ìfû	to arrive
ìɓó	to break
ìkà	to share/ divide
ìmà	to finish / terminate
ìdú	to make love
ìʒì	to cry
ìbjá	to talk
ìdʒà	to eat (chew)
ìléf	to give advice
ìsìs	to frighten
ìnìŋ	to adore
ìjànd	to buy
ìjél	to go
ìjón	to plant
ìtúm	to pound
ìjòk	to listen

Trisyllabic verbs

ìmímâ	to sit down
ìkòfò	to accept
ìkòyò	to admit
ìbjábjá	to rave
ìkáwô	to detach
ìbwèlè	to destroy
ìfèlè	to be apt
ìjúfû	to ask
ìjòlè	to shelter oneself
ìkùtù	to be sick with malaria fever
ìjòlò	to laugh
ìtóyô	to deny
ìkèlìl	to take
ìféyîl	todry
ìlóndîl	to fill
ìɓèndàm	to perch
ìfèndèn	to change
ìtíwôm	to become
ìɓáŋgân	to prevent
ìtóndʒên	to organize
ìlɛŋgêm	to bend oneself

Quadrisyllabic verbs

ìɓàyèlè	to accuse
ìfètìnì	to initiate
ìkájìsè	to judge
ìsèyèlè	to sift
ìpáŋgìnì	to scatter