A PHONOLOGY OF BĂŊGULAŊ AND A PROPOSED ORTHOGRAPHY

A DISERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF A MAITRISE IN GENERAL LINGUISTICS

BY:

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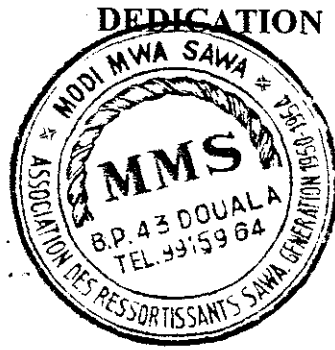UNIVERSITY OF YAOUNDE 1**

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DEDICATION

To my departed Dad and Sisters

Pa Ndam, Debora, Diana and Bernadette.

To my beloved Mom and Uncle

Mami Regina Tiku and Mr Werewu Lucas.

Finally to all the Njeck's family.

ACKNOWLEDGEMENT

-My last but not the least appreciation goes to Mr Tatchum Noussi of NACALCO who help as a technical editor of the dissertation.

-Finally I want to thank everyone who has in one way or the other helped and encouraged me in the conceptualisation and materialization of the project.

ABBREVIATIONS AND SYMBOLS USED

ALCAM	Atlas Linguistique du Cameroon.
CG	Consonant + Glide
NC	Prenasalised consonants
G	Glide
C	Consonant
V	Vowel
C^W	Labialisation
C^J	Palatalisation
C_1	First consonant in consonant clusters
CC	Consonant cluster
C_2	Second consonant in consonant clusters
V_1	First vowel in vowel clusters
H	High tone
L	Low tone
M	Mid tone
R	Rising tone
F	Falling tone
EX	Exclamation
F1	Future (certain) Tense
F2	Future (uncertain) Tense
HAB	Habitual Aspect
IMP	Imperative Mood
INF	Infinitive Prefix
NEG	Negative Marker
NP	Noun Phrase

PST	Past Tense
PROG	Progressive Aspect
1s	First Person Singular
2s	Second Person Singular
3s	Third Person Singular
1p	First Person Plural
2p	Second Person Plural
3p	Third Person Plural
TBU	Tone Bearing Unit.
[...]	Phonetic transcription
/.../	Phonemic transcriptions
#	Word boundary
→	Is realised as
SIL	Summer Institute of Linguistics
BASAL	Basic Standardisation of all Unwritten African Languages
NACALCO	National Association of Cameroonian Language Committees

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CHAPTER ONE

GENERAL INTRODUCTION

1.0 Introduction

The title of this dissertation is " A phonology of Băŋgulaŋ and a proposed orthography." This language is spoken in the Babessi subdivision, Ngoke-tunjia Division of the Northwest province of the Republic of Cameroon.

The introductory chapter serves as an introduction into the entire work. It is divided into seven sections: The first section spells out the aim of the study while section two contains the motivation behind the choice of the topic. Section three dwells on the scope of the work followed by section four which locates Băŋgulaŋ geographically, presents brief historical background of the people, the language and linguistic classification. Section five points out some literature review and in section six; we discuss the methodology used in analysing the data that is, the theoretical framework, data collection and interpretation. The last section of this chapter presents the plan of work.

1.1 Aim of study

The aim of this work is to describe the phonology and propose a writing system for the Băŋgulaŋ language. We have chosen to start with this descriptive study to create awareness in the mind of the Băŋgulaŋ people that their language can be written like any other language like English and French. Further more, we believe that it will necessarily serve as a foundation for any other research to be carried out on the language.

1.2 Motivation

It is but apt for us to explain why we have decided to carry out this research. Considering the fact that existing knowledge in any field of linguistic can only be augmented through some research study, it is our primary goal to add something to what already exists in the field of linguistic in its search for

language universals. In a narrower dimension we like SIL and NACALCO, deeply wish to have the Baŋgulaŋ language written. Since phonological analysis is a precondition for any language to be written, we thought it would be necessary to start with it. The urge to have the language written is reinforced by the recent drive toward the introduction of national language into the school system and the necessity for the native speakers to be literate in their own language. This reflection can be found in the three different official texts about the usage of the national language in the educational system of Cameroon after the General Forum on Education 1995, the constitution of 1996 and the law on the orientation of education in Cameroon of 1998. The National Assembly later concretised this reflection in 1998 with the law authorising the usage of Cameroonian languages in our educational milieu alongside English and French

1.3 Scope of work

.   This level of study in any language is a pre-condition to its orthographic system. Orthographic system means sounds or symbols or, the manner in which sounds should be combined or the set of rules that permit the combination of graphic symbols (the alphabet) into words, phrases and sentences. This leads to the writing system and rules for reading the language.

A phonological analysis is thus the most elementary description required by any unwritten language because it is only after this that it's grammar and writing system can be established, standardised and more over provide the basis for further studies on the language. It is in view of the fact that we regard a phonological analysis of a language as being a necessary preliminary level of study that we have adopted the structural approach to phonological analysis in this study. Structuralists such as Pike (1947) as stated in Ayafor (2002), considered phonology as necessary in any language. They are advocates of the

methodology of providing contrast in identical environment and /or in the analogous contexts of sounds in order to establish the phonemes and allophones.

Phonemes on the one hand are basic sound unit which morpheme words and sentences are composed of while allophones on the other hand are sounds, which are the phonetic variants of a given phoneme. We will therefore establish the pertinent consonants, vowels and tones that do exist in Ɓaŋgulaŋ. These preliminary descriptions of the structure of the language will help us to establish an alphabet and orthographic principles.

1.4 Geographical location of Ɓaŋgulaŋ

Ɓaŋgulaŋ is found in Babessi subdivision located near the eastern border of the Ngoketunjia Division of the Northwest province of Cameroon. Ɓaŋgulaŋ is made up of eleven quarters with each under the leadership of a quarter head. The people are mainly involved in the cultivation of maize, rice and groundnut. The following neighbouring villages surround Bangolan: Babessi village in the north, Bamunka in the west, Bambalang in the south and Banso in the east.

Figure I: below presents Ngoketunjia Division where Bangolan is found.

BANGOLAN LANGUAGE WITH NEIGHBOURING LANGUAGES
IN NGOKETUNJIA DIVISION

Bul

95·30·03
Babungo

Babai
95·30·14

Babessi
95·30·04

MEZAM

95·30·02
Bamessing

95·30·06
Bangolan

Bamali
95·30·08

N80P
Bamunka
J55001

95·30·11
Bali kumbat

Bamukumbit
• 95·30·10

Bambalang
95·30·039

L. BAMENDJIM

B. Gangsin
• 95·30·121

Bafanji
95·30·07

Bali Gashu
• 95·30·13

BAMBOUTOS

NOUN

| 0 | | 5 | | 10 | | 15 | | 20 | | 25Km |
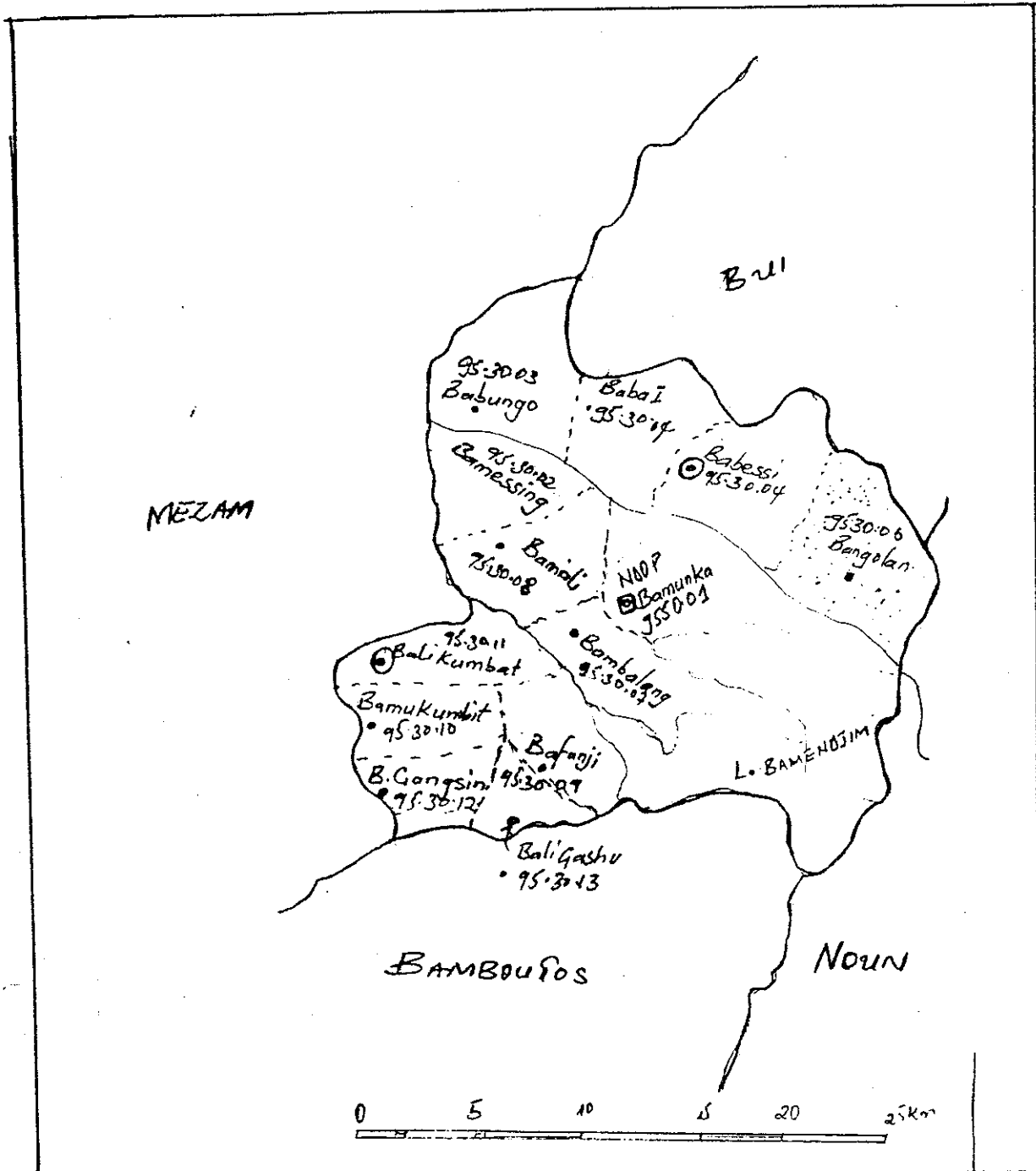
▣	Divisional Headquarter
⌇	Divisional boundary
◉	Subdivisional headquarter
⌇	Subdivisional boundary

	Language of study
⌇	Village boundary
≡	LAKE

1.4.1 Brief Historical Background

The people of Băŋgulaŋ are said to have originated from Nduru in the Adamawa land, Bankem of the Republic of Cameroon. Confirmed oral sources state that they migrated southward and settled in Bamoum in a place today called Bangourain in the western province. When their leader called Chatmufornduru died, the Bamoum people together with the Fulani arrow fighters also known as Pantsot (red lips) invaded and drove them away. The Băŋgulaŋ people then escaped under the leadership of Fon Chatfah Ngomba to Banso land in a place today known as Kat Ngomba named after the death of Chatfah Ngomba. Because of cold, their Fon died alongside many others.

They then migrated to Forgie in Oku under another Fon called Mbipefah who later moved from Oku to Babungo and settled in a quarter called Ngonfonteh. When Mbipefah died in Babungo, Chatfah Nyanka succeeded him and led the Bangolan people to the present site on the 11th of February 1911. They settled in a quarter called Fiyeh where Nyanka ruled till 10th June 1949.His successor Mbipefah Pichaka ruled till 1982.He died and was succeeded by the present fon: Chatfah Mbunka Isaach the eleventh (11th)

1.4.2 Language

The name "ŋgbáŋlɛ" and "sɔ́ŋnɔ́ ŋgbáŋlɛ" are the native appellations that the Băŋgulaŋ people refer to themselves and language respectively. Məndɔ́ŋkyɛ (I am saying that...) is another name that is more technical that they would use for their language. From the different interviews we conducted in and out of the village, the native speakers prefer the name Băŋgulaŋ to be used for the language and the village. To them, Băŋgulaŋ is commonly known even by the administration. We will use the name " Băŋgulaŋ " in this work

since we are proposing a writing system for the language and the form "
Băŋgulaŋ" reflects the real pronunciation.

Băŋgulaŋ language is spoken in Ngoketunjia Division near the eastern
border precisely in Babessi subdivision (see fig II on page 7 showing the
Băŋgulaŋ language amongst its neighbouring languages in Ngoketunjia
Division.) According to SIL source quoted in Margaret A. Graffin (1994), the
population of Băŋgulaŋ was 6.300 following the 1987 census. If we multiply
the 1987 population times a typical 2.9 % yearly increase, you might guess that
the population in 2003 is likely to be around 10,000. The fact that the village
now counts 11 quarters compared to 9 in 1994 also makes one believe that it
must have gone higher.

1.4.3 Linguistic Classification

Bangolan is classified as shʉ paməm (901) in ALCAM (Dieu and
Renaud 1983:121) along with Bamoum, Bapi, Bamali, Bafanji and Bambalang.
It is further classified in the Ethnologue (Grimes 1992: 183) as Niger-Congo,
Atlantic-Congo, Volta-Congo, Bantoid, Southern, Broad Bantu, Wide
Grassfield, Mbam Nkam, Nun.

Băŋgulaŋ has no dialect. Therefore, there are no differences in the
pronunciation (place it is spoken). The language is thus homogenous. This
language is classified linguistically as shown below. ALCAM 1983 adaptation.

Phylum   Niger-Kordofanian
                                                   ↓

Sub Phylum   Niger-Congo
                                                   ↓

Family   Banue-Congo
                                                   ↓

Branch   Bantu
                                               ↓

Sub Branch   Bantu-Grassfield
                                                   ↓

Group   Nun (Noun)
                                               ↓

Language   Bafanji, Bamukumbit, Băŋgulaŋ Bambalang,

                                    Bamali, etc......

LOCATION OF NGOKETUNJIA DIVISION IN CAMEROON

Key

Notrth west province

Ngoketunjia Division

International boundry

Provincial boundry

Divisional boundry

National Capital
1 Donga Matung
2 Menchum
3 Boyo
4 Momo
5 Mezam
6 Ngoketunjia
7 Bui

Extreme North

North

Adamawa

South West

West

Centre

Yaounde

East

Littoral

South

0   200km

SOURCE: Adapted from Njodzeka: 1996, 8
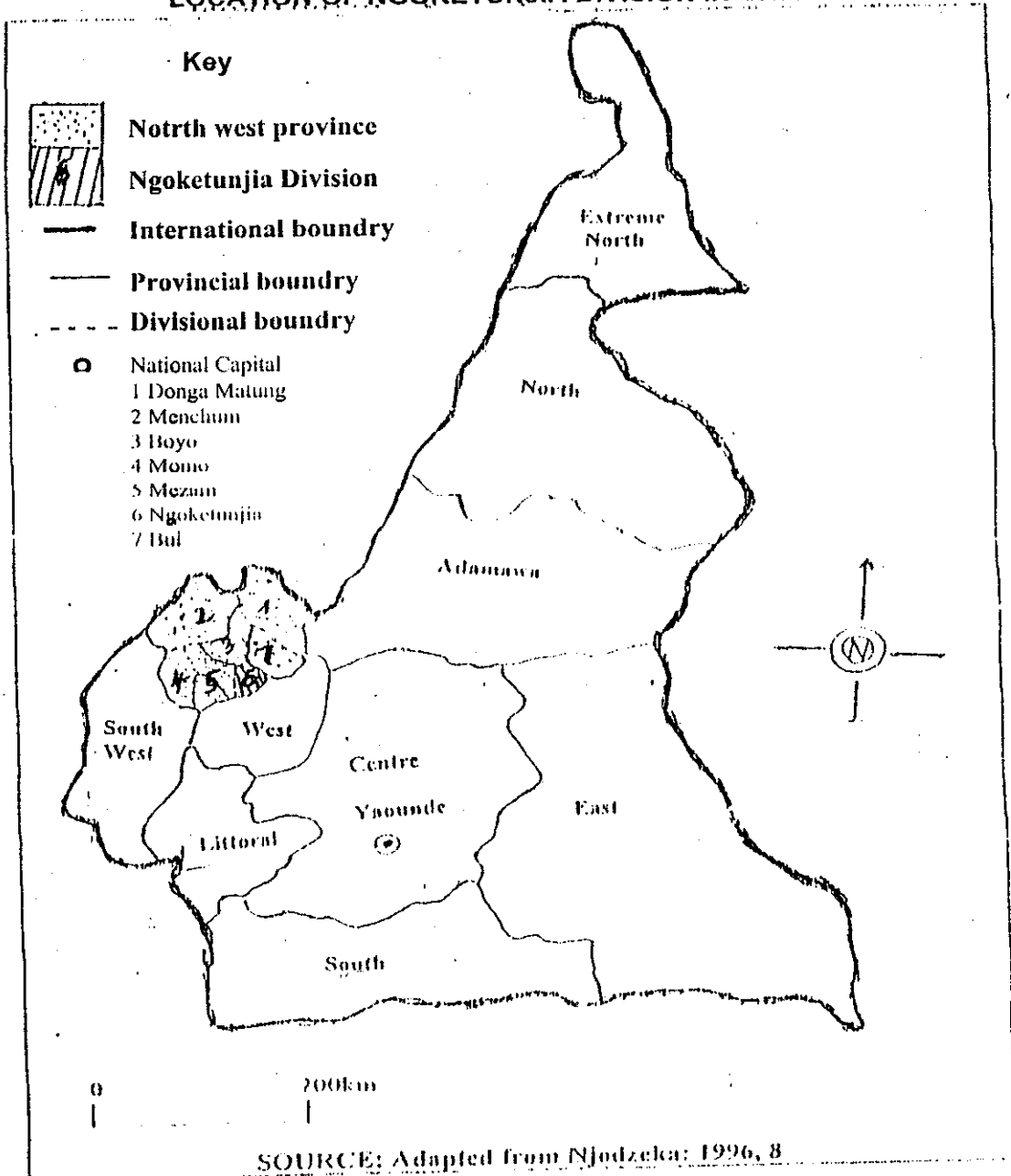
Figure 1

1.5 Review of literature

We found just three linguistic works that mentioned something on Băŋgulaŋ. These are <u>Ethnologue</u> by Barbara F. Grimes (1992), <u>A diaclectometrical study of the languages in Ndop plain</u> by Nashipu (1989) and <u>A Rapid Appraisal Survey of</u> Băŋgulaŋ by Margaret A. Graffin (1994). Grimes (1994) in Ethnologue, presents just information about the geographical and linguistic location of Băŋgulaŋ.

Nashipu (1994) points out fascinating facts about the nature and relationship amongst the different languages in the Ndop plain. To this author, these languages belong to three groups, the Nun, the Ring and the undetermined group in which the Balikumbat language belongs. Like Grimes (1992), he classified Băŋgulaŋ as a language on its own and not a dialect of another language. Grafin (1994) presents the socio linguistic survey of Bangolan in relation to other languages, its geographical, socio-economic situation and its speakers.

The above linguistic works showed that they are mainly concerned with the classification of Băŋgulaŋ. There is none that has done a descriptive work on the language.

Another book do exists about the Băŋgulaŋ known as <u>Bangolan Yesterday and Today</u> (Ndiwane 2000). He recounts the history of Băŋgulaŋ people and their successive rulers. He also examines and presents some cultural and socio-economic factors of the Băŋgulaŋ people. His views as to where the Băŋgulaŋ people originated contradicts that of some prominent figures like Rev Ndiloseh Isaiah and Aladji Chifornditwi that we contacted. To them, the Băŋgulaŋ man originated from Adamawa land, North of the Republic of Cameroon from a place called 'Nduru' and not from present Bamunka as stated by Ndiwane in his book.

1.6 Methodology

Here we will focus on two things, the theoretical framework within which the analysis is done, and the practical methodology that consist in the collection of the data, its analysis and its interpretation.

1.6.1. Theoretical framework

The focus in this work will be on the sound system of the Băŋgulaŋ language. We will analyse words in minimal pairs in order to bring out pertinent sounds in this language. Pitch phonemes as well as possible combination of sounds in to larger units will be taken into consideration. The theoretical framework known as the structural approach to phonological analysis has a good number of proponents postulated by the fathers of modern linguistics Ferdinand de Sausure and also Troubetzkoy. Some parts of the structuralist principles we will use can be found in Martinet (1970) and others. These principles consist in working from a phonetic inventory to a phonic chart, to the establishment of suspicious pairs, to the establishment of minimal pairs to the contextual analysis of sounds. These procedures are also well elaborated in Essono (1998:90-91). This exercise will permit us to know which sounds in Băŋgulaŋ are phonemes and which are allophones. The tones and the syllabic structure are analysed using the generative approach.

1.6.2 Data Collection, Interpretation and Analysis.

We used a data of 1800 words for the present analysis. This data was collected using the SIL comparative African word list. The data was collected on the field between the period of October 2000 to October 2002 from a main informant and secondary informants. This data was first collected to fulfil the task of the BASAL project, which I worked as a pioneer volunteer. This project is the conception of NACALCO centre for applied linguistic. It is responsible

for the basic standardisation of all unwritten African languages. The roles of the secondary informants mentioned above were for the verification of the data collected. We classified this data from the word list into nouns, verbs, adjectives and various syllable groups. This classification was to easily deduce sounds in minimal pairs. An inventory of all the sounds was then elaborated in Băŋgulaŋ and we proceeded with the procedure of structural phonological analysis.

1.7 Plan of work

This work is made up of six chapters that is an introductory chapter with five main chapters. Chapter one introduces the work by giving the aim of the study, the motivation of the choice of topic, the scope of the study, the location of Băŋgulaŋ, the review of literature, and the methodology used. The second chapter discusses the Băŋgulaŋ consonants sounds. Chapter three focuses on the Băŋgulaŋ vowel sounds. Chapter four dwells on the tones of the language establishing tonemes and examining the tonal processes. The fifth chapter examines the syllabic structure of Băŋgulaŋ. The last chapter presents the alphabet and orthography proposal including writing and reading principles.

CHAPTER TWO

CONSONANT SOUNDS

2.0 Introduction :

This chapter identifies and classifies the consonant sounds of the Băŋgulaŋ Language. The minimal pair and contrast in near minimal context approaches elaborated in Essono (1998) will be used to establish the distinctive sounds in the language. In the case where the sounds fail to be distinguished as being independent phonemes, the environment of occurrence or distribution in words in which they occur will be used to establish them as being allophones of one phoneme or as being separate phonemes.

2.1 Inventory of phonetic consonant sounds.

Below is the phonic chart of all consonants attested in the Băŋgulaŋ language. These consonants are displayed on the chart according to their place and manner of articulation. The sounds will be analysed following their degree of suspiciousness. That is only those sounds that exhibit some phonetic similarities of one sort or another will be analysed together. This is because the closer the sounds are phonetically, the more likely it might be that they are allophones of the same phoneme and the further apart sounds are phonetically, the more likely it is that they are separate phonemes. We will limit ourselves to those sounds that are phonetically close and then use phonological analysis to determine their real relationship.

Table 1 Phonic table of consonants.

	Bilabial	Labio-dental	Alveolar	Post-alveolar	Palatal	Velar	labial-velar	Glottal
Voiceless stops	p pw pj		t tw tj th			k kw kj	kp	ʔ
Voiced stops	b bw bj		d dw dj			g gw gj	gb	
Prenasalized Stops	mb		nd nt			ŋg ŋk	mkp mgb	
Affricates			ts	tʃ tʃw				
Prenasalized affricates			nts ndz	ntʃ ndʒ				
voiceless fricatives		f fw fj	s	ʃ ʃw				h
voiced fricatives		v vw	z	ʒ ʒw		ɣ		
Prenasalised fricatives		mf mv		nʒ				
Nasals	m mw mj		n		ɲ ɲw	ŋ ŋw		
Liquids			l lw lj					
Flap			r					
Glides					j		w	

Our initial examination of the data collected produced the "simple consonant sounds" listed below. The expression "simple consonant sounds" is used to contrast sounds such as [p, t, k etc.] from their modified counterparts as

[pw, tw, kw etc..] and complex sounds such as [mb, nd, ŋg etc...] The following pure consonants were identified.

Pure consonants [p, t, k, ʔ, m, n, f, v, s, z, h, l, r, j, ɲ, ŋ, ɣ, ʃ, ʒ]

A closer examination of the data showed that some consonant sounds are modified via labialisation, palatalisation and aspiration. These modified consonants are listed below.

Labialised consonants [pw, mbw, mw, fw, vw, tw, ndw, lw, tʃw, ʃw, ʒw, ɲw, kw, ŋgw, ŋw]

Palatalized consonants [pj, mbj, mj, fj, tj, ndj, lj, kj, ŋgj]

Aspirated Consonants [th]

In addition to these, we do found another set of consonants, which we term for now complex sounds. Their complexity is because they could be interpreted as single sounds units or as cluster of two consonants. This set include the following [ndz, mb, nd, mf, mv, nt, ntʃ, ŋg, ŋk, ndʒ, nts, mkp, mgb]

Before we proceed to analyse the phonemic status of the Băŋgulaŋ consonants, it is necessary to first establish the phonetic status of the modified consonants and complex consonants. That is, we first of all want to determine whether the modified consonants and complex consonants constitute single sounds or clusters of two consonants. We think that this exercise is necessary before embarking on the phonemic analysis because the exercise will determine whether the modified and complex consonants should be part of the phonemic analysis or not. Without this, one may double or even treble the number of consonant phonemes. This same analysis is found in Haynes (1984) for Yemba.

2.2 Modified and Complex Consonant Sounds

2.2.1 Modified consonants

Usually, doing sound analysis in linguistic studies, we face some ambiguities that pose serious interpretation problems. These ambiguities and their attendant interpretation problems can better be analysed on the basis of the internal organisation and structure of the language under study. Some of these problems that we have, include sounds that could be treated either as single units or as a sequence of units. In the following lines we are going to clarify these problems as far as Băŋgulaŋ language is concerned.

Labialised and Palatalised sounds

We will present data that comprise these features and posit conclusions in relation to the assumptions of generative phonology.

Labialised consonant sounds

This feature occurs mostly before back high vowels in African languages. In the Băŋgulaŋ language, it occurs before back high and front vowels. Consider the following examples:

pwé	"breast"
twí	"tree"
ŋkwàt	"rope"
ndwèt	"beard"
mbwé	"money"
vwàt	"circumcision"
lwé	"weed"
kwú	"touch"

From the above examples, what we want to know is whether these labialised segments are of a [C] or [Cw] structure. If they are [C] then there is labialisation. If [Cw] then it is a consonant clusters.

What generally leads people to conclude that in words like *twí*, [t] is labialised is that there are no ordinary [CC] clusters elsewhere in the language (Ngangandu (2001). This argument is weak when applied to Băŋgulaŋ. Notice that if we assume that the t̠ in *twí* is labialised for example, and then there must be a uniform phonetic environment influencing labialisation; for example, when a segment like p̠ is followed by [+round], it can be labialised.

However, the phonetic environment influencing the so-called labialisation in the language is not uniform. Consider the following examples.

1. Labialised Consonants followed by [+round] vowels:

vwɔ   "stomach"

kwu   "touch"

2. Labialised consonants followed by vowels which are [-round]

pwát   "sky"

twí   "tree"

m̂bwɔ́   "body"

lwé   "weed"

In the example in (1), the labialised consonants are followed by [+round] vowels. The phonetic environment is one that can influence labialisation. This is however not the case with the examples in (2). It will therefore not be correct to say that in Băŋgulaŋ, all cases of [Cw] are derived from labialisation. We certainly need a different account for the [Cw] cases noticed in the examples in (2).

Also, we have cases in the language where labialised sounds contrast with their unlabialised counterparts. Consider the data below:

3 a) kwέt   "heap"   kɛt   "arrow"

   b) ǹdwét   "beard"   ǹdɛ́t   "lick"

   c) lwé   "weed"   lé   "say"

   d) ŋ̀kwàt   "rope"   ŋ̀kàt   "bush"

   e) m̀bwé   "money"   m̀bé   "nail"

These examples make us question why for example segments like *k* and *l* should be labialised in *kwέt* "heap" and *lwé* "weed" and unlabialised in *kέt* "arrow" and *lé* "say" respectively. And more striking ɛ and e are not the type of vowels that can influence labialisation. It is better therefore to conclude that in *kwέt* and *lwé*, we have an initial CC clusters. Although the language does not accept clusters, it can permit cluster of a certain type: C + G. This is a common phenomenon in language where the existence of such clusters are opposed to others is accounted for by the sonority hierarchy. Where the glide comes from is another problem. But Generative phonology argues that the glide is from an underlying /CVV/ structure. This is supported by the occurrence sometimes of contour tones in the language.

We will therefore generalise that where there is C^w, we have two consonants: C followed by W. For example in 3(a) above for the word *kwέt,* we have k and W. In the sound system, we have k and W separate sounds but not kw

Palatalised Consonant Sounds

Consider the data below

4. a) tjàŋ   "plan"

   b) kpàljáŋ   "plank"

   c) tjé   "market"

d) ŋkjì   "water"

e) kɸèʔɛ́   "guide"

f) pjì   "kola nut"

g) ndjàŋ   "granary"

We know that palatalisation generally occurs before front high vowels. In this language, we have palatalisation occurring even before front low and central vowels. Extending the argument we raised against labialisation, we will also conclude that in the examples in 4 above, we have an initial CC cluster. Although the language does not permit cluster, it can accept cluster of a certain type C + G. The existence of glide, generative phonology argues, is from CVV underlying. For examples

5. a) tíàŋ   ⟶   tjăŋ   "plan"

  b) kpalíàŋ⟶   kpàljăŋ   "plank"

  c) tíé   ⟶   tjé   "market"

  d) pìì   ⟶   pjì   "kolanut"

Therefore, where there is Cj, we have two consonants C followed by j. For example, the word tjàŋ in 4(a) above, we have t followed by j. In our sound system, we will have t and j but not tj

Aspirated sounds

These are sounds produced with a puff of air, which is always represented or reflected in the pharyngeal fricative [h]

Consider the following data.

6. a) thú   "head"

  b) lúŋthú   "pity"

  c) pŭʔthú   "headache"

  d) ndùthúpùʔ   "toilet"

  e) məthú   "to send"

Aspirated sounds in Baŋgulaŋ occupy only a specific position in the word. From the data in <u>6</u> above, we have the aspirated consonant [th] occurring only before syllable final [u] vowel while [t] which is unaspirated, occupies initial, medial and final position of words in the language.

Examples

7. a) fɛ kpà t   "shoe"

   b) ŷa ɓ   "divide"

   c) ntɔʔ   "palace"

   d) kɛ t   " spear"

   c) ɗ   " run"

We therefore conclude from the above data that the aspirated sound [th] will not be considered as a phoneme. This is because it is a modified sound and is not underlying. It will not be part of our phonemic analysis.

2.2.2 Complex Consonant Sounds

Prenasalisation

During speech production in most African, it happens that a nasal is emitted alongside an oral sound. As far as such sounds are concerned, it is necessary to determine whether they are single (prenasals) or separate units (consonant clusters). Most often, where sound sequences are considered as single sound unit, the preceding nasal is usually non-syllabic that is, it does not bear a tone and vice versa.

Consider the data below

8 a) m̀ ɓa t   "winds"

  b) ǹ ɓ   "intestine"

c) ŋ gɔʔ   "stone"

d) ɲi ndo   "road"

e) ƙu mbɔ   "lazy"

f) mûŋgɔ̀ʔ   "grinding stone"

h) ŋ ƙat   "forest"

The sequence mb, nt, ŋk, and nd seen in 8 above can either be interpreted as single or separate units in Baŋgulaŋ.

In the case of a nasal and oral consonant sequence at noun-initial position, the homorganic nasal is interpreted as a syllabic nasal. This is because the nasal bears a tone and function as a syllable nucleus and there is a perceptible phonetic break between the nasal segment and the oral consonant during emission. Consequently at the initial position of nouns with a nasal and an oral consonant sequence, the nasal and consonant will be interpreted as a case of a consonant cluster, that is, a sequence of two consonants. In the above example, the nasal sequence is also interpreted as the noun class prefix which is a common phenomenon in most Grassfield Bantu languages, Tadadjeu (1980:166)

In the case of nasal and oral consonant preceded by a vowel in word medial positions as seen in the words *ƙu mbɔ* and *mûŋgɔʔ* in 8 e and f above, the homorganic nasal in Baŋgulaŋ looses its syllabicity and the phonetic break (during emission of the sounds) between the nasal and the oral consonant is no longer perceptible. This sequence will be interpreted as a single unit. Also, since Baŋgulaŋ does not allow consonant cluster in word medial position, this case is best interpreted as a case of prenasalisation (NC) that is, a single unit

To summarise the discussion so far, we have argued that instances of a consonant followed by a glide w or j are to be interpreted as sequences of two separate consonants. In the case of a nasal followed by an oral stop in the initial position of words, we also have two separate consonants. Where this sequence occurs in word medial position, we have a prenasalised consonant. Having established the phonetic status of these so-called complex sequences, we are now in the position to continue with the phonological analysis.

2.3. Phonological Analysis of Consonants

In this section, we shall proceed to determine consonant phonemes by contrasting sounds in minimal pairs of words. These are pairs of words that are almost similar and in which the only difference is at the sound being opposed. Nevertheless, if some suspicious pairs cannot stand on the identical context (I.C) we shall examine them looking at their context of appearance. This will enable us see whether it is the context or not that renders these sounds different. We will first present an inventory of the suspicious pairs of these sounds that will suit this discussion.

2.3.1 Suspicious Pairs of Consonants

The following suspicious pairs are sorted from the above phonic chart. (p,mb), (p,m), (p,f), (f,v), (ts,t), (t,s), (nd,l), (d,z), (m,n), (s,z), (s,ts), (l,ɾ), (s,ʃ), (z,ʒ), (ts,tʃ), (k,g), (k,ʔ), (g,ɣ), (ʔ,h),(w,j) (kp,gb), (ʒ, dʒ), (z,dz), (n,ŋ), (m,ɲ), (gb,w), (t,l), (d,l), (d,nd) (b,mb), (ŋ,ŋg), (g,ŋg), (ts,dz)

2.3.2 Identification of Phonemes through their contrast in Minimal pairs

The consonant /p/

It is attested as a phoneme through the following contrasts.

p/f	[ṕo]	"hut"	[fo]	"eight"
	[ṕɛ ŋ]	"canoe"	[fɛŋ]	"ox"
p/m	[ṕɔ]	"hands"	[mɔ]	"things"
	[ṕu šaŋ]	"stars"	[mu šaŋ]	"star"
p/mb	[ṕa ṕe]	"cornfufu (buddles)"	[ṕa mɓe]	"nails"
	[ṕa pwe]	"breasts "	[ṕa mbwe]	"monies"

This contrast in minimal pair establishes the status of p̱ as a phoneme. This contrast is further confirmed by the following contrasts

p/k	[ṕu t]	"dust"	[ku t]	"tie (v)"
	[pwa ɓ]	"wrap up"	[kwa ɓ]	"cackle (v)"

The phoneme /p/ is a voiceless, bilabial, oral stop.

The consonant /mb/

It is attested as a phoneme through the following contrast

mb/p seen in p/mb

mb/m	[ṕa mɓ]	"yards "	[ṕa m]	"necks "

The phoneme /mb/ is a bilabial prenasal.

The consonant /m/

It acquires its phonemic status through the following contrasts.

m/p	seen in p/m			
m/b	seen in b/m			
m/mb	seen in mb/m			
m/n	[mi nɓ]	"hope"	[ni ŋɓ]	"marsh"
	[ma]	"me"	[na]	"garden"

[mɔ̀]　　　　"one"　　　　[ŋɔ̀]　　　　"person"

The phoneme /m/ is a bilabial nasal

The consonant /f/

　　　It is established as a phoneme through the following contrasts

f/v　　[fù]　　　　"medicine"　　[vù]　　　"ashes"

　　　[fwàt]　　　"feather"　　　[vwàt]　　"circumcision"

f/m　　[fî]　　　　"thatch"　　　[mì]　　　"neck"

This contrast in minimal pair establishes the status of f as a phoneme in the language. This status is further confirmed by the following contrasts.

f/ʃ　　[fíŋ]　　　　"wound"　　　[ʃîŋ]　　　"needle"

The phoneme f is a voiceless, labio-dental fricative

The consonant /v/

　　　It is proven as a phoneme through the following contrast

v/f　　seen in f/v

　　　[vʉt]　　"oil"　　　　　[fʉ́t]　　　"chew corn"

The phoneme /v/ is a voiced, labio-dental fricative.

The consonant /t/

　　　It acquires its pertinence through the following contrasts

t/d　　[ǹtí]　　　"place of the dead"　[ǹdí]　　　"smoke"

　　　[ǹtɔ́ŋ]　　"umbilical cord"　　[ǹdɔ́ŋ]　　"cup"

s/t　　[sú]　　　"fish"　　　　[tú]　　　"head"

　　　[sŭŋ]　　"steer"　　　　[túŋ]　　　"dig up"

t/ts　　[tá]　　　"come"　　　　[tsá]　　　"chew"

　　　[tɔ́ʔ]　　"mortar"　　　[tsɔ́ʔ]　　"borrow"

t/tʃ　　[tí]　　　"run"　　　　[tʃî]　　　"blood"

[twé]   "spit"   [tʃwé]   "arrive"

These contrasts confirmed t̪ as a phoneme in the language. This status
is further confirmed by the following contrast.

t/k   [tú]   "send"   [kú]   "die"

        [tā]   "hole"   [kā]   "rust"

The phoneme /t/ is a voiceless, alveolar, stop.

The consonant /d/

Its phonemic status is acquired through the following contrast.

d/t seen in t/d

The phoneme /d/ is a voiced, alveolar stop.

The consonant /nd/

Its phonemic status is seen through the following contrast.

nd/n   [mə́ndá]   "to do"   [mə́nā]   "animal"

nd/l   [pàndə̀ŋ]   "horses"   [pàlə̀ŋ]   "chair"

The phoneme/nd/ is an alveolar prenasal.

The consonant /n/

It is attested as phoneme through the following contrasts

n/m seen in m/n

n/nd seen in nd/n

n/ɲ   [nì]   "with"   [ɲì]   "nail"

n/l   [núŋ]   "suck"   [lúŋ]   "smell"

      [nɔ̀ʔlə́] "difficult"   [lɔ̀ʔnə́] "snore"

The phoneme /n/ is an alveolar nasal.

The Consonant /s/

It is attested as a phoneme through the following contrasts;

s/t   seen in t/s

s/z	[sáŋ]	"corn"	[záŋ]	"illness"
	[sɛ́ʔ]	"announce"	[zɛ́ʔ]	"learn"
s/ts	[sɔ́t]	"hole"	[tsɔ̀t]	"mouth"
	[sə̀ʔ]	"comb"	[tsə̀ʔ]	"cap"
s/ʃ	[sísí]	"dragonfly"	[ʃíʃí]	"black "

The phoneme /s/ is a voiceless, alveolar, fricative

The consonant /z/

It gains its status as a phoneme through the following contrasts

z/s   seen in s/z

z/ʒ	[zí]	"face"	[ʒí]	"know"

The phoneme /z/ is a voiced, alveolar, fricative.

The consonant/ts/

It gains its status as a phoneme through the following contrasts

ts/t   seen in t/ts

ts/s   seen in s/ts

ts/tʃ	[tsì]	"urine"	[tʃì]	"blood"
ts/dz	[ǹtsɔ̀ʔ]	"borrow"	[ǹdzɔ̀ʔ]	"heart"

The phoneme /ts/ is a voiceless, alveolar, fricative.

The consonant /l/

Its status as a phoneme is established through the following contrasts

l/n   seen in n/l

l/nd   seen in nd/l

l/t   [lè?] "fish trap"   [tè?] "snail"

            [lá]   "marriage"   [tá]   "hole"

The phoneme /l/ is an alveolar lateral.

The consonant /ʃ/

It is attested as a phoneme through the following contrasts.

ʃ/s   seen in s/ʃ

ʃ/ʒ   [ʃénə]   "argue"   [ʒènə]   "hasitate"

            [ʃwì]   "thread"   [ʒwì]   "nose"

ʃ/tʃ   [ʃíʃí]   "black"   [tʃítʃí]   "dumb"

The phoneme /ʃ/ is a voiceless, pre palatal, fricative

The consonant /ʒ/

ʒ/z   seen in z/ʒ

ʒ/ʃ   seen in ʃ/ʒ

ʒ/tʃ   [ʒí]   "know"   [tʃì]   "blood"

The phoneme/ʒ/ is a voice, pre palatal fricative.

The consonant tʃ

It is attested as a phoneme through the following contrast.

tʃ/ts   seen in ts/ tʃ

tʃ / ʒ   seen in ʒ/tʃ

The phoneme / tʃ/ is a voicless, post-alveolar affricate.

The consonant /j/

It is attested as a phoneme through the following contrasts

| j/w | [ját] | "hold" | [wát] | "them (their)" |
| j/ɲ | [jí] | "call" | [ɲít] | "have" |

The phoneme /j/ is a palatal glide.

The consonant /ɲ/

ɲ/j	seen in j/ɲ			
ɲ/n	seen in n/ ɲ			
m/ɲ	[mɛ̀ʔtə́]	"permit"	[ɲɛ̀ʔtə́]	"trip"
ɲ/ŋ	[ɲáŋrə́]	"weaver"	[ŋáŋrə́]	"crawl"

The consonant /ɲ/ ia a palatal nasal.

The consonant /k/

It is attested as o phoneme through the following contrasts.

k/kp	[kát]	"forest"	[kpát]	"pain"
k/ɣ	[kɔ̀ŋ]	"pestle"	[ɣɔ̀ŋ]	"spear"
	[kàtə́]	"scratch"	[ɣàtə́]	"divide
	[kùʔú]	"cocoyam"	[kùkú]	"pimples"
k/g	[ŋ̀kyì]	"water"	[ŋ̀gyì]	"voice"

These contrasts confirm [k] as a phoneme in the language. This status is further confirmed by the following contrasts

k/p   seen in p/k

k/t   seen in t/k

The phoneme /k/ is a voiceless, velar stop.

The consonant /g/

Its phonemic status is proven through the following contrasts

g/k   seen in k/g

g/gʙ   [ŋ̀gát]   "gun"   [ŋ̀gbát]   "tattoo"

The phoneme /g/ is a voiced, velar stop.

The consonant /ŋg/

Its status as a phoneme is seen through the following contrast.

ŋg/ŋ   [ŋ̀gá]   "palaver   [ŋá]   "spider"

        [ŋ̀gɔʔɔ́]   "grind (v)"   [ŋɔʔɔ́]   "wink"

The phoneme /ŋg/ is a voiced, prenasalissed velar stop.

The consonant /ŋ/

It is proven as a phoneme through the following contrasts.

ŋ/m   seen in m/ŋ

ŋ/n   seen in n/ŋ

ŋ/ɲ   seen in ɲ/ŋ

ŋ/ŋg   seen in ŋg/ŋ

This is further confirmed in the following contrasts

ŋ/k   [ŋá]   "spider"   [ká]   "krab"

ŋ/ɣ   [ŋɔ]   "person"   [ɣɔ́ʔ]   "bone"

The phoneme /ŋ/ is a velar nasal.

The consonant /ɣ/

It is attested as a phoneme through the following contrasts

ɣ/k   seen in k/ɣ

ɣ/ŋ   seen in ŋ/ɣ

The phoneme /ɣ/ is a voiced, velar, fricative.

The consonant /ʔ/

    Its phonemic status is proven through the following contrasts

ʔ/h   [fɛ̀ʔɛ́]   "Working"   [fɛ́hɛ́]   "twins"

         [mɔ̀ʔɔ́]   "something"   [mɔ́hɔ́]   "fire"

The phoneme /ʔ/ is a voiceless, glottal, fricative.

The consonant /h/

    Its phonemic status is established through the following contrast

h/ʔ   seen in ʔ/h

The phoneme /ʔ/ is a voiceless, glottal, fricative.

The consonant /kp/

    It is attested as a phoneme through the following contrasts

kp/k   seen in k/kp

kp/gb   [m̀kpàt]   "slave"   [ŋ̀gbàt]   "tattoo"

         [kpɛ́hɛ́]   "limp"   [gbɛ́hɛ́]   "(be) hot"

kp/w   [kpát]   "paint"   [wát]   "them"

The phoneme /kp/ is voiceless, labio-velar stop.

The consonant /gb/

    Its status as a phoneme is proven through the following contrasts

gb/kp   seen in kp/gb

gb/g   seen in g/gb

gb/w   [gbé]   "wife"   [wé]   "go"

The phoneme /gb/ is a voiced, labio-velar stop.

The consonant /w/

    It is attested as a phoneme in the following contrasts

w/j   seen in j/w

w/gb   seen in gb/w

w/kp   seen in kp/w

The phoneme /w/ is a labio-velar glide.

2.3.3 Consonants in Complementary Distribution.

We will examine the environment of occurrence or distribution in word of two closely related consonants occurring in naturally exclusive contexts and establish them as allophones of the same phoneme.

The pair (p,b): Consider the data below.

[p]		[b]	
[pí le]	"ground nut"	[m ɓa t]	"wind"
[pò p̂oŋ]	"beautiful"	[m ɓɛ]	"liver"
[pó]	"hut"	[m bɛŋ]	"palmnut"
[p̀ɛ ŋ]	"conoe"	[m ɓo]	"egg"
[pó]	"hands"	[m ɓɔ]	"hand"

In the data above, [p] occurs word initial and medially while [b] is restricted to occurring after nasal consonant. We can claim that when the nasal is added to mark noun class, the [p] assimilates the voice feature of the nasal to [b]. Therefore, [p] and [b] are allophones of the same phoneme. Hyman (1972: 52,62) refers to this as a Voicing rule shown in rule 1 below

$$/p/ \Bigg\langle \begin{array}{l} \text{[p] / \# } \underline{\hspace{1cm}} \text{,v-v} \\ \text{[b] / N } \underline{\hspace{1cm}} \end{array}$$
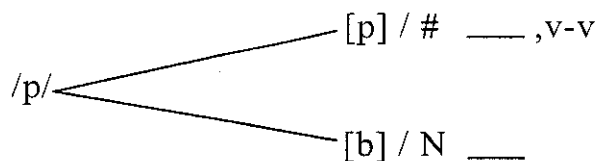
The pair (z,dz)

[z]		[dz]	
[źaŋ]	"illness"	[n dʑə]	"dream"
[zó]	"debts"	[n dʑɔ ʔ]	"heart"

[múzāŋ]	"star"	[n̄dzə̀ŋ]	"bell"
[zə̀ŋnə́]	"learn"	[n̄dzà]	"axe"

The above data show that [z] occurs at word initial and medial position between vowels while [dz] is restricted to occurring after a nasal consonant as shown in rule 2 below

Rule 2

$$/z/ \Big\langle \begin{array}{l} \text{[z] / \# \_\_\_\_ , v-v} \\ \text{[dz] / N \_\_\_\_} \end{array}$$
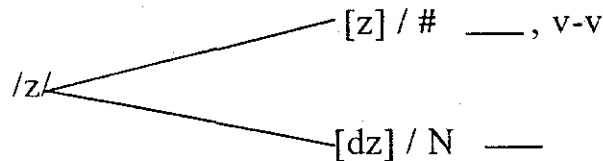
This rule above shows that the phoneme /z/ is realised as /z/ at initial position (between vowels) of words and as [dz] after an alveolar nasal.

The pair (ʒ, dʒ). Consider the data below:

[ʒ]   [dʒ]

[ʒí]	"know"	[n̄dʒì]	"hunger]
[ʒíʔtə́]	"wisdom"	[n̄dʒìŋ]	"nakeness"
[mə́ʒènə́]	"to hasitate"	[n̄dʒíŋ]	"darkness"
[wă̌ʒwí]	"lion"		

The above data, shows that [ʒ] occurs at word initial and medial position of words while [dʒ] is limited to occurring after a nasal as captured by the rule in 3 below.

Rule 3

$$/ʒ/ \Big\langle \begin{array}{l} \text{[ʒ] / \# \_\_\_\_ ,v-v} \\ \text{[dʒ] / N \_\_\_\_} \end{array}$$
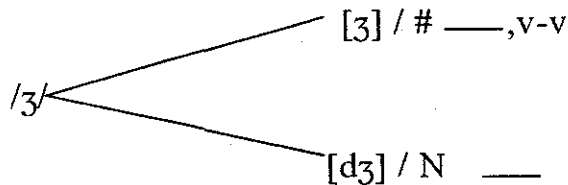
Rule 3 states that the phoneme /ʒ/ is realised as [ʒ] at initial and medial position (between vowels) of words and [dʒ] after an alveolar nasal.

The pair (r,l)

These consonants are in free variation in the Băŋgulaŋ language.

Consider the data below.

[túŋlə]		[túŋrə]	"ear"
[m̀bwàlà]		[m̀bwàrà]	"pus"
[ŋwà?lə]	OR	[ŋwà?rə]	"book"
[ɣàlə]		[ɣàrə]	"armpit"

The data above shows that [l] and [r] vary freely at word medial, syllable initial

At the initial position, [l] and [r] are in complementary distribution. Only [l] is attested in this position. See data below

[ləŋ]		[rəŋ]
[lā]	NOT	[rā]
[lè?]		[rè?]

The distributions of these allophones are as follows;

	Initial	Medial	Final
l	+	+	-
r	-	+	-

We conclude from the analysis above that [l] and [r] are allophones of the same phoneme /l/.

2.3.4 Consonant Alternation

In Băŋgulaŋ as in other Bantu Grassfield languages, we noticed some interesting phonetic alternation between consonants in word roots that have syllabic nasal prefix and similar word roots without such

prefix. For example, consonant phones [d,g] occur after nasal consonant phones (usually nasal prefixes) while alternate consonant phones [l, ɣ] occur in other positions.

Examples

[n̄dù]   "husband"

[mə́ ŋgwɔ́ʔ]   "I grind"

When the nasal is absent, the onset consonant in the above lexical roots of the word for "husband" and "grind" are replaced by [l, ɣ] respectively as seen below

[lù]   "husband"

[a ɣɔ́ʔ]   "he grinds"

The above analysis, as seen in Bird's analysis for Yemba [Bird 1999:6,7] is captured by the following rules below.

1) Delateralisation rule

   /l/ ──────────▸ [d] / N-
   [n̄dù] "husband"   [lù]   "husbands"

2) Intrusive stop formation

   /∅/ ──────▸ C / N-C   ɣ ──────▸ gw / N-

   [à ɣɔ́ʔ] "he grinds"   [mə́ ŋgwɔ́ʔ] "I grind"

Both the delateralisation rule and the intrusive formation rule involve the spreading of the feature [-continuant] from the preceding nasal.

Further investigations are yet to be made on the phonological principles that underlie these consonant alternations.

2.4 Phonemic Inventory

From our analysis, we came out with twenty-eight consonant sounds as distinct phoneme in Băŋgulaŋ.

/p, m, mb, f, v, t, d, n, nd, ts, s, z, l, ʃ, ʒ, tʃ, j, k, g, ɣ, ɲ, ŋ, ŋg, ʔ, h, kp, gb, w/

2.5 Definition and Classification of Phoneme

2.5.1 Definition of phonemic consonants

Focus here is precisely on what distinguished a phoneme from the other phonemes. We consider the place of articulation, the manner of articulation and the voicing. The phonemes are defined as seen below:

/p/ - voiceless bilabial stop

/mb/ - bilabial prenasalised stop

/d/ - voiced alveolar stop

/nd/ - alveolar prenasalised stop

/t/ - voiceless alveolar stop

/k/ - voiceless velar stop

/g/ - voiced velar stop

/ʔ/ - glottal voiceless stop

/f/ - voiceless labio-dental fricative

/v/ - voiced labio-dental fricative

/ʃ/ - voiceless pre-palatal fricative

/ʒ/ - voiced pre-palatal fricative

/s/ - voiceless alveolar stop

/z/ - voiced alveolar fricative

/ts/   - voiceless alveolar affricate

/tʃ/ - voiceless pre-palatal affricate

/ɣ/   - voiced velar fricative

/h/   - voiceless glottal fricative

/kp/ - voiceless labio-velar stop

/gb/ - voiced labio-velar stop

/m/   - bilabial nasal stop

/n/   - alveolar nasal stop

/ŋ/   - velar nasal stop

/ŋg/ - velar prenasalised stop

/ɲ/   - palatal nasal stop

/l/   - alveola oral lateral

/w/   - is labio-velar glide

/j/ is palatal compared to /w/

2.5.2 Classification of Phonemes

This will be classified according to the place and manner of classification

Manner of articulation

Stops

Stops: p, t, d, k, g, ʔ, kp, gb,

Pre-nasals   mb, nd, ŋg

Nasals: m, n, ɲ, ŋ

Fricatives

Frictives: f, v, s, z, ʃ, ʒ, ɣ, h.

Affricates: tʃ, ts.

Sonorants:

Lateral:　　　 l

Glides:　　　 j, w

Place of Articulation

Labials:　 p, m, f, v

Alveolar:　 t, d, n, ts, s, z, l

Palatals:　 ʃ, tʃ, ʒ, j, ɲ.

Velars:　　 k, g, ŋ, ɣ.

Glottals:　　　 ʔ, h

Labio-velar:　 kp, gb, w

2.6 Phonemic Table of Consonants

Table 2 Phonemic table of consonants

	Labials	Coronal	palatal	Velars	Glottal	Labio-Velars
Plosives	p	t d		k g	ʔ	kp gb
Fricatives	f v	s z	ʃ ʒ	ɣ	h	
Affricates		ts	tʃ			
Nasals	m	n	ɲ	ŋ		
Prenasals	mb	nd		ŋg		
Laterals		l				
Glides		j				w

2.7 Phonemic Transcription of Consonants.

[p] ———→ /p/   [pút]   /pút/   "dust"

[mb]———→ /mb/   [mèmbâŋ]   /màmbâŋ/   "boy"

[t] ———→ /t/   [tú]   /tú/   "head"

[d]———→ /d/   [ǹdé]   /ǹdé/   "sleep"

[nd]———→ /nd/   [pàndát]   /pàndát/   "houses"

[k]———→ /k/   [kàŋ]   /kàŋ/   "chest"

[g]———→ /g/   [ŋ̀gɔ́ʔ]   /ŋ̀gɔ́/   "termite"

[kp] ———→ /kp/   [kpàt]   /kpàt/   "leg"

[gb]———→ /gb/   [gbí]   /gbí/   "locust"

[f] ———→ /f/   [fì]   /fì/   "thatch"

[v] ———→ /v/   [vɨ́t]   /vɨ́t/   "oil"

[s] ———→ /s/   [sə́sát]   /sə́sát/   "sugar cane"

[z]———→ /z/   [zɔ̀ŋ]   /zɔ̀ŋ/   "noise"

[ts]———→ /ts/   [tsɔ̀t]   /tsɔ̀t/   "mouth"

[tʃ] ———→ /tʃ/   [tʃì]   /tʃì /   "blood"

[ʃ] ———→ /ʃ/   [mə́ʃìŋ]   /mə́ʃìŋ/   "bird"

[ʒ] ———→ /ʒ/   [ʒìʔtə́]   /ʒìʔtə́/   "wisdom"

[h]———→ /h/   [ǹdíhí]   /ǹdíhí/   "eye"

[ʔ] ———→ /ʔ/   [nàʔ]   /naʔ/   "cow"

[m]———→ /m/   [mə́nà]   /mə́nà]   "animal"

[n] ———→ /n/   [nɔ́]   /nɔ́/   "snake"

[ɲ] ———→ /ɲ/   [ɲít]   /ɲít/   "have"

[ŋ] ———→ /ŋ/   [ŋɔ̀]   /ŋɔ́/   "person"

[ŋg]———→ /ŋg/   [mûŋgɔ̀ʔ]   /mûŋgɔ̀ʔ/   "small stone"

[ɣ] ———→ /ɣ/   [ɣɔ́ʔ]   /ɣɔ́ʔ/   "bone"

[l] ——→ /l/	[lɔ̀ŋ]	/lɔ̀ŋ/	"chair"
[w] ——→ /w/	[wú]	/wú/	"death"
[j] ——→ /j/	[ját]	/ját/	"hold"

2.8 Conclusion

This second chapter of our work has helped us to identify the distinctive consonant sounds in Băŋgulaŋ. These distinctive sounds were achieved through the identification of minimal pairs and sounds at identical contexts for the most part and through complementary distribution. The prosodies palatalisation, labialisation and prenasalisation were examined before focusing on the phonological status of consonant sounds. From our analysis, we came out with twenty-five consonant phonemes. We shall be looking at the distinctive vowel sounds in the next chapter.

CHAPTER THREE

VOWELS

3.0 Introduction

On a phonetic chart, we will present the entire vocalic realisation in the language. Then, we will examine the phonological status of these vowels through the contrast of each of the vowels sounds in one or many minimal pairs with other vowels that are phonetically similar. In case we do not find contrasts in identical environments or minimal pairs, we use near minimal pairs showing two phonetic differences between the words with a difference in meaning. Finally, we present the phonetic chart of the vowels.

3.1 Phonetic Inventory of Vowels

From the data collected, we came out with the following vowel sounds listed below in the Bãŋɡulaŋ language.

[i, į e, ɛ, ɛ̧ a, a̧ ɨ, ɔ, ɔ̧ u, u̧ o, ɔ, ɔ̧]

3.2 Phonetic Chart of Vowels.

Table 3 Phonetic chart of vowels

	Front		Central		Back	
High	i, į		ɨ			u, u̧
Mid	e ɛ, ɛ̧		ə, ə̧			o ɔ, ɔ̧
Low			a, a̧			

Băŋgulaŋ does not have contrastive long vowels, or vowel-vowel sequences, so the vowel inventory is relatively straightforward.

3.3 Phonological Analysis of Vowels

3.3.1 Identification of the phonemes.

The above phonetic vowels proved to posses phonemic status through contrast in identical environment in minimal pairs. These phonemes will be determined from the following suspicious pairs below.

(i, j) (i, e), (e, ε), (i, ε), (e, ə), (ε, ə) (a, a̱) (ε, a), (ə, ə̱) (ə, a),(ɔ, ɔ̱) (ə, ɔ), (ə, o), (u, u̱) (u, ɨ), (ɨ, ə), (i, ɨ),

The phoneme /i/

The phonemic status of this sound is attested through the following contrast.

i/e	[m̀bí]	"cockroach"	[m̀bé]	"nail"
	[mə́lí]	"to look"	[mə́lé]	"to say"
i/ε	[m̀bít]	"excrement"	[m̀bét]	"hill"
	[tí]	"run"	[té]	"kick"
i/ɨ	[[pí]	"(be) bitter"	[pɨ́]	"account"

The vowel /i/ is a high, unrounded and front

The phoneme /e/

It gains its pertinence through the following contrasts:

e/i	seen in i/e			
e/ε	[sé]	"elephant"	[sέ]	"ground"
	[tét]	"three"	[tέt]	"father"
e/ə	[pé]	"cornfufu"	[pə́]	"never"
	[séʔ]	"blaze"	[sə́ʔ]	"razor"

The vowel /e/ is a mid-high, unrounded, front vowel

The vowel /ɛ/

It is attested as a phoneme through the following contrasts.

ɛ/e seen in e/ɛ

ɛ/a   [m̀bɛ́t]   "hill"   [m̀bàt]   "wings"

         [mɛ́]   "mother"   [mā]   "child"

ɛ/ə   [fɛ́hɛ́]   "twins"   [fə́hə́]   "cold"

        [m̀bɛ̀hɛ̀]   "vegetable"   [m̀bə̀hə̀]   "leftover"

The phoneme /ɛ/ is a mid-low, unrounded, front vowel.

The Phoneme /ɨ/

It is established as a phoneme through the following contrasts:

ɨ/i   seen in i/ɨ

ɨ/u   [kɨ́t]   "crack (groundnut)"   [kút]   "tie (v)

        [pɨ́hɨ́]   "(be) bad"   [púhú]   "cut open"

ɨ/ə   [pɨ̌t]   "revive"   [pə̌t]   "turn over"

        [pɨ́hɨ́]   "spoil"   [pə́hə́]   "ruminate"

The phoneme /ɨ/ is a high, unrounded, central vowel.

The Phoneme /ə/

Its phonemic status is revealed through the following contrasts:

ə/ɛ seen in ɛ/ə

ə/e seen in e/ə

ə/ɨ seen in ɨ/ə

ə/a   [ñdzə̀]   "dream"   [ñdzà]   "axe"

      [mə́tə́]   "to refuse"   [mə́tá]   "to come"

ə/o   [pə́]   "not (NEG)"   [pó]   "groundnut pudding"

      [mə́tə́]   " to refuse"   [mə́tó   "to burnt"

ə/ɔ   [kə̀ŋ]   "pot"   [kɔ̀ŋ]   "spear"

      [ŋgə̀ʔ]   " suffer"   [ŋgɔ̀ʔ]   "stone"

The phoneme /ə/ is half-high, unrounded and central.

The phoneme /a/

It gains its pertinence as a phoneme through the following contrasts.

a/ɛ   seen in ɛ/a

a/ə   seen in ə/a

a/ɔ   [tsá]   "chew"   [tsɔ́]   "dwell, inhabit"

           [páhá]   "we"   [pɔ́hɔ́]   "affraid"

The phoneme /a/ is a low, unrounded and central.

The phoneme /u/

It is attested as a phoneme through the following contrasts;

u/o [fú]   "medicine"   [fó]   "eight"

      [lú]   "honey"   [ló]   "thing"

u/ɨ seen in ɨ/u

u/ɔ [kì?]   "namesake"   [kɔ̀?]   "stool"

      [ǹdúŋ]   "price"   [ǹdɔ́ŋ]   "flute"

The phoneme /u/ is high, rounded and back.

The phoneme /o/

It is proven as a distinctive phoneme through the following contrasts

o/u   seen in u/o

o/ɔ   [m̀bò]   "egg"   [m̀bɔ́]   "hand"

          [zó]   "yesterday"   [zɔ́]   "debt"

o/e   seen in e/o

o/ə   seen in ə/o

The phoneme /o/ is half-high, rounded back vowel

The phoneme /ɔ/

It is attested as a phoneme through the following contrasts.

ɔ/o seen in o/ɔ

ɔ/u seen in u/ɔ

ɔ/ə   seen in ə/ɔ

ɔ/a   seen in a/ɔ

The phoneme /ɔ/ is mid-low, rounded and back.

3.3.2 The status of Nasalised Vowels

In our initial data collection, we found nasalised vowels as seen on the chart above. These nasalised vowels are attested in this language only in front of a syllable final /ŋ/. This predictable nasalisation is shown in the following examples (vowel nasalisation here is shown by a tilde under the vowel in order to reserve the space above for the tone diacritic). Consider the examples below

[ţĩŋ]   "strong"

[pɛ̃ŋ]   "canoe"

[lũŋ]   "smell"

[m̃bɔ̃ŋ]   "papa"

[kpaljaŋ]   "plank"

[m̃bɔ̃ŋ]   "rain"

Judging from the above distribution of these nasalised vowels, we conclude that these vowels are nasalised due to assimilation process caused by the following nasal. Therefore, these nasalised vowels are contextual variants of the oral counterparts where we posit this rule.

$$V \longrightarrow \tilde{v} \ / \ \text{-}ŋ$$

A vowel becomes nasalised when it is preceded by a syllable final /ŋ/.

As seen in the above examples, all the vowels except /e, o, i/ occur in close syllable before the consonant /ŋ/ and the vowel is always in these contexts.

3.4 Definitions and Classification of Vowel Phoneme

3.4.1 Definition of vowel phonemes

The feature characterising each vowel and consequently giving its distinctive status are presented below:

/i/ Front high unrounded vowel

/e/ Front mid-high unrounded vowel

/ɛ/ Front mid-low unrounded vowel

/ɨ/ Central high unrounded vowel

/ə/ Central mid-high unrounded vowel

/a/ Central low unrounded vowel

/u/ Back high rounded vowel

/o/ Back mid-high rounded vowel

/ɔ/ Back mid-low rounded vowel

3.4.2 Classification of vowel phonemes

The classification here will be established following
- The position of the tongue in the mouth (front, central, back)
- The position of the lips (rounded, unrounded)
- The height of the tongue in the mouth (high, mid-high, mid-low and low)

The Height of the tongue

Front   / i/, /e/, /ɛ/

Central   /ɨ/, /ə/, /a/

Back   /u/, /o/, /ɔ/

The position of the lips

Unrounded   /i/, /e/, /ɛ/, /ə/, /ɨ/, /ə/, /a/

Rounded   /u/, /o/, /ɔ

The Height of the lips

High   /i/, /ɨ/, /u/

Mid-High   /e/, /ə/, /o/

Mid-low   /ɛ/, /ɔ/

Low   /a/

From the above definition and classification of vowel phonemes, we have set up a phonemic vowel chart as seen below.

3.5. Phonemic Vowel chart

Table 4: Phonemic vowel chart

point / manner	Fronts (unrounded)	Central (unrounded)	Back (round)
High	i	ɨ	u
Mid-high	e	ə	o
Mid-low	ɛ		ɔ
Low		a	

3.6 Phonemic Transcription

[i] ——▶ /i/   [pí t]   /pí t/   "ask"

[e] ——▶ /e/   [ɾe]   /ɾe/   "say"

[ɛ] ——▶ /ɛ/   [fɛ ɦɛ]   /fɛ ɦɛ/   "twins"

[ɨ] ——▶ /ɨ/   [ví t]   /ví t/   "oil"

[ə] ——▶ /ə/   [lə ŋ]   /lə ŋ/   "chair"

[a] ——▶ /a/   [kpà t]   / kpà t/   "leg"

[u] ——▶ /u/   [tú]   /head/   "head"

[o] ——▶ /o/   [pó]   /hut/   "hut"

[ɔ]———→ /ɔ/   [sɔ́t]   /hoe/   "hoe"

3.7 Conclusion

We started this chapter with the identification of nine vocalic phonetic realisations. From our phonological analysis through contrast in minimal pairs at identical contexts, we realised that the nine vowels are phonemic. We also encountered cases of nasalised vowels that turn out to be as a result of assimilation process caused by a following nasal. The fourth chapter will focus on Tones in the Băŋgulaŋ language.

CHAPTER FOUR

TONES

4.0 Introduction

Like many Grassfield languages, Băŋgulaŋ is a tone language. In this chapter, we will attempt to provide some clear view of the tonal system of the Băŋgulaŋ language. It will begin with a discussion of tone as an African language phenomenon. The next section will provide an inventory of the tones; give tone patterns and some tonal phonological processes discovered in the language.

4.1 Tone Language

Generally, a language can either be a tone language or a toneless language. A tone language is one in which tone plays a distinctive function as do consonants and vowels. Tone can be defined as a prosodic feature that represents the relative but significant height of the voice during the production of a syllable. According to Pike (1942), a tone language is one that has lexically significant, contrastive but relative pitch on each syllable.

Accordingly, any change in the syllable pitch leads to a change in the meaning of this syllable or words. This explains why the difference in the meaning of the following nouns in Băŋgulaŋ is brought about by a change in their pitches.

1)   ǹdù   "honey"

        ǹdú   "husband"

        ŋgɔʔ   "stone"

        ŋgɔ́ʔ   "termite"

Basically, two types of tone languages do exist. These are contour and register tone languages. A contour tone language has tone glide as distinctive units in the language. Snider (1999) talks of contour tones as being of two types: composite contour which functions primarily as a phonological unit. Register tone language as defined by Pike (1948) is one in which "there is a restricted number of pitch contrastss between level tonemes". Some of these register tone language also have glides.

4.2 Tone Inventory.

We have identified five basic phonetic pitches on single syllables in Băŋgulaŋ; three level tones, high [á], mid [ā], and low [à]; and three contour tones, low-high (Rising tone) [ǎ], and high-low (Falling tone).

4.2.1 Level Tones

They are pitches produced when the height of the voice does not vary during the production of a syllable. There are three level tones attested in Băŋgulaŋ as mentioned above.

High Tone (´)

This is the highest pitch of the voice in the production of a syllable. It is realised in words like:

2) [sɔ́t)   "hoe"

   [fɛ́hɛ́]   "twin"

   [pɔ́hɔ́]   "fear"

   [mɔ́lɛ́]   "to say"

   [tá]   "come"

Low Tone (`)

It is the lowest tonal level in the language. It is characterised by a low tension and a relatively slow vibration of the vocal cords. This low tone can be found in this language, on the following words.

3) [nywì]   "God"

   [mbìnà]   "farm"

   [làŋ]   "chair"

   [sɔ̀ŋ]   "tooth"

   [ʃwì]   "thread"

Mid Tone (-)

This is noticed when the pitch of the voice is neither high nor low in the production of a syllable. It is marked with a macron [-]. This tone is illustrated on the following words;

4) [mā]   "child"

   [tā]   "hole"

   [músāŋ]   "rib"

   [mə̀nā]   "animal"

4.2.2 Contour Tones

During the production of contour tones, the musical height of the voice varies during its emission of a syllable.

The Rising Tone (˘)

This is the combination of a low and a high tone. It is known as a rising tone because the pitch begins with a low tone and ends in a high tone in the production of a syllable. Examples of words with this tone include the following;

5) [n̆tă]   "sweet potato]

   [lŏŋ]   "tap (v)

[kpăt]   "paint"

[fwɔ]   "bump"

[wŭ]   "fail"

Falling Tone (ˆ)

This is the combination of the high and the low tone. It is called falling tone since its pitch starts with a high voice and ends up with a low tone in the production of a syllable. Examples of words bearing this tone include;

6)   [mûmbêŋ]   "boy"

        [ǹtê]   "cricket"

        [m̀bê]   "abcess "

        [pìpêŋ]   "red"

        [ŋ̀kɔ̂ŋ]   "plantain"

4.3 Phonic Tone Chart

The different tones found in the Băŋgulaŋ language are presented on the chart below.

Table 5 Phonic tone chart.

ˋ	˗	ˊ
ˇ		ˆ

4.4 Phonemic Status of Tone.

In this section, we will examine the status of the various tones in this language. We will focus on the contrastive tones that orchestrate meaning changes in words since it is a tone language, the pitch contrast or significant pitch difference entails one pitch is different from another

pitch in the immediate context. In Baŋgulaŋ language, we noticed pitch contrast or contrastive tone at the level of nouns, verbs and others.

4.4.1 Suspicious Pairs of Tones

The following suspicious pairs of tones listed below are sorted from the above tone chart.

(ˊ), (ˉ), (ˇ), (ˊ), (ˆ), (ˉ), (ˆ)

4.4.2 Identification of tonemes through their contrast in minimal pairs

The High Tone ( )or H

H/L	[pɔ̀ ʔ]	"mushroom"	[pɔ́ ʔ]	"small depression"
	[m ɓ̀]	"yard"	[m ɓ́]	"cockcroach"
H/M	[fá]	"come"	[fā]	"hole"
	[šé]	"elephant"	[šē]	"hatch"
H/LH	[kú]	"die"	[kǔ]	"touch"
	[n dé]	"sleep"	[n dě]	"no"

The above examples prove that the high tone ( ) is a toneme in the language.

The Low Tone ( )or L

Its tonemic status is seen through the following contrasts

L/H	seen in H/L			
L/LH	[kɔ̀ ŋ]	"pot"	[kɔ̌ ŋ]	"scream(cry out)"
	[kɔ̀ t]	"penis"	[kɔ̌ t]	"hang out"
L/HL	[ŋ kɟ̀]	"water"	[ŋ kɟ̂]	"song"
	[n dʑ̀ ŋ]	"clitoris"	[n dʑ̂ ŋ]	"thorn"

L/M   [mà]   "me"   [mā]   "child"

The above contrast established the low tone / `/ as a toneme in the language.

The Mid Tone /¯/ or M

Its status as a phoneme is established through the following contrast.

M/H   seen in H/M

M/L   seen in L/M

The above contrast prove that the mid tone /¯/ is a toneme in the language.

The High-Low Tone (ˆ) or Falling Tone (HL)

Its tonemic status is established through the following contrasts;

HL/L   seen in L/HL

HL/LH   [kpî]   "arm"   [kpǐ]   "fill"

The above contrasts show that the High-low tone /ˆ/ is a toneme in the language

The Low-High Tone /ˇ/ or Rising Tone (LH)

Its tonemic status is revealed through the following contrasts.

LH/H seen in H/LH

LH/L seen in L/LH

LH/HL seen in HL/LH

These contrasts show that the Low-High Tone /ˇ/ is a toneme in the language.

The chart below summarises the various pitch contrasts in the language;

Table 6. Table of pitch contrasts:

	H	M	L	LH	HL
H					
M	X				
L	X				
LH	X		X		
HL	X		X	X	

As seen from the above chart, we noticed that five out of the six pitches contrast with the other four. The mid tone is our one problematic tone. It is hard to get it to contrast with all the other tone because it is rare in the language. Even though it is rare, it does contrast with high tone. Since no phonetic rule for combining mid tone with another tone has yet been found, we will consider mid tone to be contrastive with all the other until further evidence proves otherwise.

The preceding analysis of the Băŋgulaŋ tone has helped us to arrive at the following toneme presented on the chart below. Their tonemic status is obtained because a change of any of them in certain words leads to a difference in the meaning.

The fact that we arrived at the tonemic status of the three contour tones above in the surface structure of words does not meant they are underlying. They are consider derived through phonological process of tone docking which is as a result of avoiding segment clustering. The rule will be examined in a subsequent section.

4.5 Toneme Chart

Table 7 Toneme chart

`	–	´
ˇ	‵‵	^

4.6 Lexical Tone.

It is fairly easy to find Băŋgulaŋ words where the only difference between them is their pitch. We did discuss this in section (4.4) when examining the tonemic status of the different tones. Look at the minimal tone pairs below between the four most frequent contrasted tones.

[m̀bí]   " yard"

[m̀bì]   "cockroach"

[kpî]   " arm'

[kpǐ]   " hang out"

4.7 Grammatical Tone

Contrastive pitch also plays an important role in the grammar of the Băŋgulaŋ language. The contrastive pitch effect is on the verbs. The example below will illustrate how contrastive pitch effect on the verb is capable of changing a phrase from the present perfective to present progressive. We will illustrate this with the following two verbs in the imperative forms.

1) ǹdʒwí   "eat"

2) kɔ́ʔ   "climb"

Present progressive constructions

1) Mə̀   ǹdʒwī   kò   məkálà   "I am eating rice "
   1S   P.PROG   eat   beans White man.

   À   dʒwī   kò   məkálà   " He is eating rice"

   3S   P.PROG eat   bean white man.

   Pɔ́   dʒwī   kò   məkálà   "They are eating rice"
   3P P.PROG eat bean white man.

2) Mə̀   kɔ́ʔ   ṁbɛ́t   "I am climbing a tree "
   1S   P.PROG. climb   mountain

   À   kɔ́ʔ   ṁbɛ́t   " He is climbing a mountain"
   3S P.PROG. climb mountain

   Pɔ́   kɔ́ʔ   ṁbɛ́t.   "They are climbing a mountain"
   3P P.PROG. climb mountain

In the above phrases in 1 and 2, the two verbs "eat" and "climb" all changed from the imperative form with a high tone to a mid tone thus converting the sentences to present progressive / continuous tense.

     When the above verbs maintain the high tone of the imperative form in the above constructions, the sentences will be in the present perfective as seen below.

3) Mə̀   ǹdʒwí   kò   məkálà   "I have eaten rice"
   1S   P.PERF. eat   beans   whiteman

   À   dʒwí   kò   məkálà   "He has eaten rice"
   3S P.PERF. eat beans whiteman.

   Pɔ́   dʒwí   kò   mə̀ kàkálà   "They have eaten rice"
   3P P.PERF. eat beans whiteman.

4). Mə̀   kɔ́ʔ   m̀bɛ́t   "I have climbed a mountain"
   1S P.PERF. climb mountain

À   kɔ́ʔ   m̀bɛ́t   "He has climbed a mountain"
   3S P.PERF. climb mountain.

Pɔ́   kɔ́ʔ   m̀bɛ́t   "They have climbed a mountain"
   3P P.PERF. climb mountain

4.8 Tonal Processes

Here, we will examine some of the tonal processes attested in
the language. These processes are Tone Docking and Tone Spreading.
Our discussion here will be a purely descriptive account than
theoretical. All these come as a result of phonological processes.

4.8.1 Tone Docking

This tonal process in African languages especially the grassfield
languages is usually derived from two segmental processes;
devocalisation and vowel deletion. That is, when a vowel devocalises or
is deleted, the floating tone of this vowel docks on to the preceding
vowel and the result of this docking is either a contour tone or a
complex register tone. Ngeloh (2002) for Bamunka. The tone results in
a contour tone when the underlying tone is different from that of the
affected vowel.

In the Bǎŋgulaŋ language, vowel clustering is not allowed such
that when one or two vowels are in a sequence, vowel deletion must
take place to avoid clustering. The examples below illustrate cases
where /cv́v̀/ ⟶ [cv̂] /cv̀v́/ ⟶ [cv̌]
/ǹtáà/ ⟶ [ǹtâ]   "potato"
/pipɛ́èŋ/ ⟶ [pìpɛ̂ŋ]   "red"

/wʊ́ú/ ⟶ [wǔ]   "fail"

/sʊ̀úŋ/ ⟶ [sǔŋ]   "steer, (pull)"

From the above example, we can see that when there is the deletion of one of the vowel (V₁) to avoid clustering, the floating low or high tone docks on to the preceding vowel resulting to contour tones. This process in the Bǎŋgulaŋ language is derived from sequences of long identical vowels and not through devocalisation

Contrarily to the vowel deletion that result to contour tones, we have instances of devocalisation in Bǎŋgulaŋ that results in tone fusion and not contour tone. When devocalisation occurs, docking results in tone fusion where a complex register tone is created by fusing the tone of the affected vowel and that of the vowel that caused devocalisation. See examples below.

[v́v́] ⟶ /v́ / and [v̀v̀] ⟶ /v̀/

[lúé] ⟶ /lwé/   "weed (v)"

[ǹdúé] ⟶ /ǹdwé/   "tongue"

[tìàŋ ⟶ /tjàŋ/   "plan"

4.8.2 Tone Spreading.

Tone spreading is a common phenomenon in African languages. Usually, when this phenomenon occurs, the tone of one TBU "spreads" over to one or more adjacent TBU. Often when this happens, the original tone of the recipient TBU is wiped and replaced completely by the first tone. Sometimes however, the tone is not wiped. Instead the first tone spreads on to the adjacent TBU and joins the second tone to create a contour tone. Snider (2003) in "Tonal phenomenon common to African Languages"

Tone spreading in Băŋgulaŋ is as seen in the following examples;

1) Tɔ́   mbɛ̀ŋ mɔ̀kálà ⟶ [Tɔ́ mbêŋ mɔ̀kálà] "Coconut tree's nut"
   palmtree nut   whiteman

      In this example above, the high tone of the word for palmtree spreads rightward onto the root for "nut". In this case, it does not wipe the original low tone of the recipient TBU, but rather joins with it to create a falling contour. The High tone spreading here is non-iterative in application, that is, it spreads only to the next TBU rather than to many TBU as possible (iterative application)

      We also have cases of High Tone spreading and Low Tone delinking in Băŋgulaŋ as seen in the this example below

2) À wé   mɔ́ tùtɔ́   ⟶ [À wé mɔ́tútɔ́]   "He has gone to play"
  3S go INF play.

      From the above example, the high tone of the infinitive marker of the verb "mɔ́" (to) spreads rightward onto the first TBU of the following word; the verb "tùtɔ́" (play) and wipes the original low tone from the TBU. Just like in many other languages, when High tone spreads, a following Low tone is wiped as seen in example (2) above. High Tone Spread and Low Tone Delink are rules in Băŋgulaŋ. Example (1) and (2) above can be represented auto segmentally as seen below.

1) High Tone Spread (no delink)

H   L   H   L

tɔ   mbɛŋ mɔ̀kálà   tɔ mbɛŋ mɔ̀kálà
/tɔ́ mbɛ̀ŋ mɔ̀kálà/   [tɔ́ mbêŋ mɔ̀kálà]"coconut tree's nut"
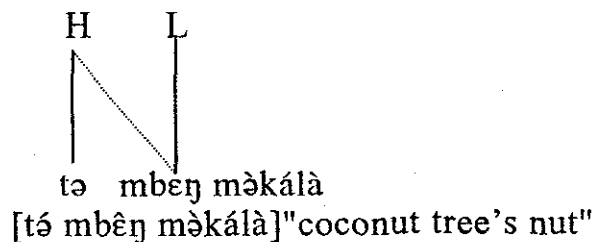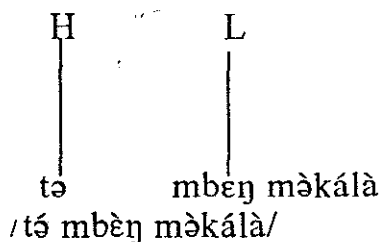
2) High Tone Spread and Low Tone Delink


```
L   H   HLH              L   H   HLH
|   |   |||              |   |   |\||
|   |   |||              |   |   | \|
|   |   |||              |   |   |  ≠|
|   |   |||              |   |   |  ||
A  we  mətutə            A  we  mətutə
À  wé  mòtùtó            À  wé  mòtútó        "He has gone to play"
```

4.9 Definitions and Classification of Tonemes

A toneme here like a phoneme is that tone which functions distinctively in a language. That is, being capable of distinguishing lexical items from other lexical items.

From our tonemic analysis, we realised that all the six basic surface tone in Băŋgulaŋ do contrast with one another. Therefore, we have six tonemes in Băŋgulaŋ which are three level tones, high [á], mid [ā], and low [à]; and three contour tones, low-high (rising) [ǎ], high-low (falling) [â] and low-falling [à]

4.9.1 Definition of Tonemes

Our definition of tonemes here as stated above relates to the pertinent feature which differentiate a toneme from the other. The various tonemes are defined as follows.

/ ´ / is high compared to / ` / and / ¯ /

/ ` / is low compared to / ´ / and / ¯ /

/ ¯ / is mid compared to / ´ / and / ` /

/ ^ / is high low compared to / ´ /, and / ˇ /

/ ˇ / is low high compared to / ` /, / ´ /, and / ^ /

Tone hierarchy in B'aŋgulaŋ can be presented as seen below.

```
                      Toneme
                     /      \
                    /        \
                Level        Contour
              / |  \         /      \
           high mid low   rising    falling
```
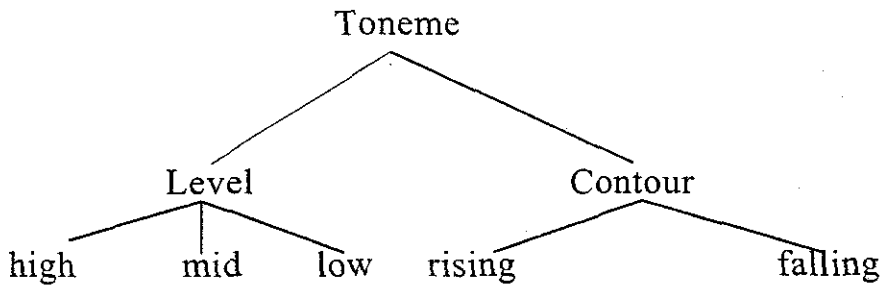
Each toneme in B'aŋgulaŋ is defined in each branch of the schema.

4.9.2 Classification of Tonemes

We are classifying the various tonemes in B'aŋgulaŋ following the definition above. The table below classifies the different tonemes.

Table 8 Tonemic table

Level	**H**	/ ˊ /
	L	/ ˋ /
	M	/ ˉ /
Contour	**HL**	/ ˆ /
	LH	/ ˇ /

4.10 Conclusion.

Altogether we identified six basic phonetic pitches on single syllables in B'aŋgulaŋ; three level tones and three contour tones. Our phonological analysis showed that these pitches are all tonemic in B'aŋgulaŋ as they contrast in minimal pair of words. Lexical and Grammatical functions were also examined and a discussion on some Tonal processes; Tone spreading and Tone Docking. Our next chapter will be on syllable structure, morpheme and word structure. This will be the topic for chapter five.

CHAPTER FIVE

SYLLABLE, MORPHEME AND WORD STRUCTURE

5.0 Introduction :

This chapter sets out to identify the different morphemes and words in the Băŋgulaŋ language. According to Wiesemann et el (1983), a syllable is a unit of sound sequence containing at least the centre of the syllable which is its summit or its nucleus. The nucleus can be a vowel or a syllabic nasal; it can be defined by the tone it bears, or it can be defined by the duration of emission of the sound sequence. The constituent elements that make up a syllable are an onset, a nucleus, and a coda. We can represent these elements in a tree as seen below;

Syllable (o)

(Onset (o)) Rhyme (R)

Nucleus (N) (Coda (co))

C V C
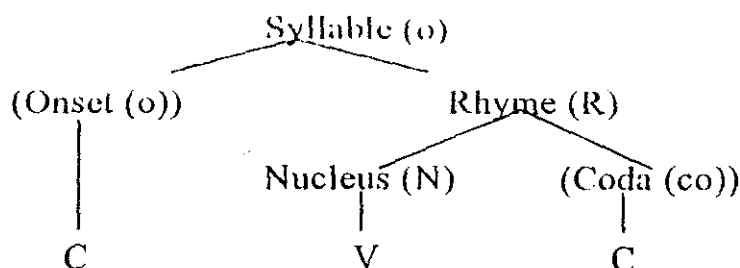
A syllable therefore as seen from the above tree, is broken down into onset and rhyme. Rhyme is further divided into nucleus and coda. The terminal nodes CVC indicate the general tendency as attested in human languages. That is, the onsets tend to be consonants, nuclei vowels and coda consonants. It should be noted however that the onset as well as the coda are optional in a syllable.

The Băŋgulaŋ language possesses syllable of the structure V, N, CV and CVC as basic types. Of these types, only CV and CVC are really basic. The V type has one example attested in the language while the N types only occur as prefixes.

5.1 Segmental Syllables Types

5.1.1 Basic Syllable Types

The following combination of unmodified consonants and vowel are found in Băŋgulaŋ syllables

1)	V	[à]	"he/she/it"
11)	CV	[pà]	"bag"
111)	CVC	[kɔʔ]	"stool"

5.2.2 Syllable Types Based on Consonant Cluster.

Analysing the syllables types this way; we could have the following where N stands for a homorganic nasal and G for either of the two semi-vowels glides. (W and j). Examples below;

1) V	[à]	"he/she/it"
2) CV	[pà]	"bag"
3) CVC	[kɔʔ]	"stool"
4) CGV	[pjì]	"kolanut"
5) CGVC	[fwát]	"feather"
6) NCV	[m̀bé]	"nail"
7) NCVC	[ǹdát]	"house"
8) NCGV	[ǹdwé]	"tongue"
9) NCGVC	[ǹtwɛ́t]	"waist"

It should be noted that like English, Băŋgulaŋ consonant clusters would have severe restrictions on which consonant can appear in which positions. These restrictions could be symbolised with the following formula:

Syllable $\longrightarrow$ (N) (C_1) (G) V (C_2)

This formula states that syllables have an obligatory vowel in Băŋgulaŋ, preceded by an optional nasal consonant, an optional syllable-final consonant. It should be noted that syllable final consonants in this language are severely restricted to ʔ, t and ŋ.

5.2 Mono-Phonemic Syllable

The syllable structure V and N are mono-phonemic syllable because they have just one phoneme; vowel or consonant. These syllables are not characterised by prosodic feature such as labialisation, palatalisation and prenasalisation. The syllable V is always an open syllable that bears a tone. The vowel that assumes this is [a].

The syllable N is a nasal, which can be realised as m, n, ŋ depending on the nature of the consonant that comes after it.

5.3. Poly-Phonemic Syllable

a) CV. This is an open syllable consisting of a consonant and a vowel. It occurs as words, prefixes and suffixes. Below is an illustration of co-occurrences of consonants and vowels in this syllable structure.

Table 9 Syntagmatic Combination table of CV type

V C	I	e	ɛ	i	ɔ	a	u	o	ɔ	+	-
p	+	+	+	+	+	+	+	+	+	9	0
b	+	+	+	-	+	+	+	+	+	8	1
t	+	+	+	-	+	+	+	+	+	8	1
d	+	+	+	-	+	+	+	+	+	8	1
k	+	-	+	+	+	+	+	+	+	8	1
g	+	-	+	-	+	+	+	-	+	6	3
ʔ	+	-	+	-	-	+	+	-	+	5	4
kp	+	-	+	-	-	+	-	-	-	3	6
gb	+	-	+	-	+	+	-	-	-	4	5
f	+	+	+	-	+	+	+	+	+	8	1
v	-	-	-	+	-	+	+	+	-	4	5
s	+	+	+	-	+	+	+	+	+	8	1
z	+	-	+	-	+	+	+	+	+	7	2
ʃ	+	-	+	-	-	-	-	-	-	2	7

3	+	-	+	-	-	-	-	-	-	2	7
ɣ	-	-	-	-	+	-	-	-	+	2	7
h	+	-	+	-	-	+	+	-	+	5	4
l	+	+	+	-	+	+	+	+	+	8	1
m	+	-	+	-	+	+	+	-	-	5	4
n	+	-	+	-	+	+	+	-	+	6	3
ɲ	+	-	+	-	-	+	-	-	-	3	6
ŋ	-	-	-	-	+	+	-	-	+	3	6
j	+	-	+	-	+	+	-	-	-	4	5
w	+	+	-	-	+	+	+	-	-	4	5
+	21	8	20	3	17	21	16	10	15		
-	4	16	4	21	6	3	8	14	9		

From the table above, we realised that the most frequent consonant in open syllable of CV structure is /p/. It comes before all the nine vowels of the language. This is followed by /b/, /t/, /d/, /k/, /f/, /s/, each occurring with eight of the nine vowels.

The most frequent vowel in this open syllable are /i/ and /a/ occurring with twenty-one of the twenty-four consonants.

Generally, all the consonants and the vowels of the language occur in this open syllable structure.

b) CGV: This is an open syllable that contains a consonant, a glide and a vowel

Table 10 Syntagmatic Combination table of CGV type.

V CG	I	e	ε	i	ə	a	u	o	ɔ	+	-
p	+	+	+	-	-	+	-	-	-	4	5
b	+	+	-	-	+	-	-	-	-	3	7
t	+	+	+	-	-	+	-	-	-	4	5
d	+	+	-	-	-	+	-	-	-	3	6
k	+	-	+	-	-	+	+	-	-	4	5
g	+	-	+	-	+	+	+	-	+	6	3
ʔ	-	-	-	-	-	-	-	-	-	0	9
kp	-	-	-	-	-	-	-	-	-	0	9
gb	-	-	-	-	-	-	-	-	-	0	9
f	+	+	+	-	-	+	-	-	-	4	5
v	-	-	-	-	-	+	-	-	+	2	7
s	-	-	-	-	-	-	-	-	-	0	9
z	-	-	-	-	-	-	-	-	-	0	9

ʃ	+	+	+	-	-	-	-	-	-	3	6
ʒ	+	-	+	-	-	-	-	-	-	2	7
ɣ	-	-	-	-	-	-	-	-	-	0	9
h	-	-	-	-	-	-	-	-	-	0	9
l	-	+	+	-	-	-	-	-	-	2	7
m	-	-	-	-	-	+	-	-	-	1	8
n	-	-	-	-	-	-	-	-	-	0	9
ɲ	+	+	+	-	-	-	-	-	-	3	6
ŋ	-	-	-	-	-	-	-	-	-	0	9
+	10	9	8	0	1	8	1	0	2		
-	14	15	16	24	23	16	23	24	22		

It has been noticed that not all vowels and consonant occur in CGV sequences. The most recurrent vowel in this sequence is /i/ which combines with ten of the twenty-four consonants. The vowels/ɨ, o/ do not come after glides. The consonant with the highest number of vowel in CGV sequences is /g/ occurring with six of the nine vowels. This is followed by /p, t, k, f/. They each go with four of the nine vowels.

c) CVC: This is a close syllable with a consonant, a vowel and a consonant respectively. Below is an illustration of co-occurrences of consonants and vowels in this syllable structure.

Table 11 Syntagmatic Combination table of CVC type.

C \ V	i	e	ɛ	ɨ	ə	a	u	o	ɔ	+	-
p	+	-	+	-	-	+	+	-	+	4	5
b	+	-	+	-	+	+	+	-	-	5	4
t	+	+	+	-	+	-	+	-	-	5	4
d	-	+	+	-	+	+	+	-	+	6	3
k	-	-	+	+	+	+	+	-	+	6	3
g	-	-	-	-	-	+	-	-	-	1	8
ʔ	-	-	-	-	-	-	-	-	-	0	9
kp	-	-	-	-	-	+	-	-	-	1	8
gb	-	-	-	-	-	+	-	-	-	1	8
f	+	-	+	-	-	-	+	-	-	3	6
v	-	-	-	-	-	-	-	-	-	0	9
s	-	-	+	-	-	-	-	-	-	1	8
z	-	-	+	-	-	+	-	-	+	3	6
ʃ	-	-	-	-	-	-	-	-	-	0	9
ʒ	-	-	-	-	-	-	-	-	-	0	9
ɣ	-	-	-	-	-	-	-	-	+	1	8

	I	e	ε	i	ə	a	u	o	ɔ	+	-
h	-	-	-	-	-	-	-	-	-	0	9
l	-	-	+	-	-	-	+	-	-	2	7
m	-	-	-	-	+	-	-	-	+	2	7
n	-	-	-	-	-	+	-	-	-	1	8
ɲ	+	-	-	-	-	-	-	-	-	1	8
ŋ	-	-	-	-	-	-	-	-	-	0	9
j	-	-	-	-	-	-	-	-	-	0	9
w	-	-	-	-	-	+	-	-	-	1	8
+	6	1	9	1	6	10	8	0	6		
-	18	23	15	23	18	14	14	24	18		

The most recurrent consonants in C_1 of closed syllables are /d/ and /k/ which occur with six of the nine vowels each. These are followed by /b/ and /t/ which occur with five of the vowels.

The vowel /a/ combines with the highest number of consonants. It comes after ten of the twenty-four consonant. /ε/ and /u/ precede nine and eight consonants respectively. The only vowel that does not occur in such sequence is /o/ while the consonants that do not occur in such structure are /ʔ, v, s, , ʒ, j, w/.

d) CGVC: This close syllable is composed of a consonant, a glide, a vowel and a consonant respectively. For the different combination in consonants and vowels in this structure, see chart below.

Table 12: Syntagmatic Combinations table of CGVC type.

V CG	I	e	ε	i	ə	a	u	o	ɔ	+	-
p	-	-	-	-	-	+	-	-	-	1	8
b	-	-	-	-	-	-	-	-	-	0	9
t	+	-	-	-	-	+	-	-	-	1	8
d	-	-	-	-	-	+	-	-	-	0	9
k	+	-	+	-	-	-	-	-	-	2	7
g	-	-	-	-	-	-	-	-	-	0	9
ʔ	-	-	-	-	-	-	-	-	-	0	9
kp	-	-	-	-	-	-	-	-	-	0	9
gb	-	-	-	-	-	-	-	-	-	0	9
f	-	-	-	-	-	+	-	-	-	1	8
v	-	-	-	-	-	+	-	-	-	1	8
s	-	-	-	-	-	-	-	-	-	0	9
z	-	-	-	-	-	-	-	-	-	0	9
ʃ	-	-	+	-	-	-	-	-	-	1	8
ʒ	-	-	+	-	-	-	-	-	-	1	8

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γ	-	-	-	-	-	-	-	-	-	0	9
h	-	-	-	-	-	-	-	-	-	0	9
l	-	-	-	-	-	-	-	-	-	0	9
m	-	-	-	-	-	-	-	-	-	0	9
n	-	-	-	-	-	-	-	-	-	0	9
ɲ	-	-	-	-	-	-	-	-	-	0	9
ŋ	-	-	-	-	-	-	-	-	-	0	9
+	2	0	3	0	0	3	0	0	0		
-	22	24	21	24	24	23	24	24	24		

Generally, a very limited number of vowels occur in the sequence CGVC. The most frequent vowels /ɛ/, /a/ and /i/ which occur with three, three and two consonants accordingly. The remaining six do not occur in such structures.

Also, a few numbers of consonants do occur in CGVC sequences. The consonants that occur in C_1 of CGVC are /k/ and /p, b, t, f, v, ʃ, ʒ/. They each go with two and one of the nine vowels accordingly. The following consonants never occur in such combination. /d, g, ʔ, kp, gb, s, z, γ, h, l, m, n, ɲ, j, w/

5.4 Morpheme Structure

According to A Dictionary of phonetic And phonology, a morpheme is "the minimal grammatical units; the smallest unit which plays any part in morphology and which cannot be further decomposed except in phonological terms."

We will adopt this definition from where, it can be deduced that a morpheme can either contain a sound or a combination of sounds, can either be a word root, prefix or a suffix.

Therefore, the morpheme structures that have proven to exist in Băŋgulaŋ are: V, N, CV, CVC, CGV, CGVC, and CGCV.CV. Of these structures, the structure

V ———— is often a word when used within a sentence.

N ———— is always a word prefix.

CV———— is often a word prefix, a word surffix and a word root

CVC———— usually, it functions as a word root.

CGV———— it is often a word and sometimes a root.

CGVC, CGVCV and CGVC.CV, all functions as words

Examples; Table 13, Morpheme structure chart.

Morpheme structure	Illustration	Gloss
V	à tá	He came
N	ŋ̀ gùt	skin
CV	tɔ̰́ pà tú	palm tree heads
CVC	pɔ̀ʔ	mushroom
CGV	twí	tree
CGVC	kwáŋ	burry
CV.CV	tùtɔ́	play
CGVC.CV	ʒwéʔtɔ́	listen

5.5 Word Structure

A word is a unit of language consisting of one or more spoken sounds or their written counterparts. It can stand as a complete utterance. It is composed of one or more morphemes or roots and affixes and represents an indivisible concept, action or feeling. In writing, we separate it by spaces.

The word structure with a single sound attested in Băŋgulaŋ is [à] meaning "he/it". The rest of the word structure that have been attested in the language include monosyllabic, disyllabic, tri-syllabic, quadri-syllabic and at times penta-syllabic word structure are found only in loan words and compounds.

Examples; Table 13 Word structure chart.

Word structure	Illustration	Gloss
Monosyllabic CV CVC	m̄a kɔ ?	child stool
Disyllabic C.CV C.CVC CVC.CV CV.CVC	ǹ de m̀ ɓat śɔ ŋ ńə tɛ́ kp̀at	sleep wings speak shoe
Trisyllabic CV.CV.CV C.CVC.CV	pá rə̀ ńə `n du? ńə	slow/soft joy
Quadrisyllable CV.CV.CV.CV CVC.CV.CV.CVC	mə́ ɓə lə̀ ɓə ʃu ʔə̀ kɨ́ kɨ́ t	to blow hiccough
	WordnStructure with Glides	
Monosyllabic CGV CGVC	pwˊe tja ŋ	breast plan
Disyllabic C.CGV CV.CGV	`n .dwˊe mə́ .lwˊe	tongue to weed
Trisyllabic C.CGV.CV CV.CVC.CV	m̀ .bwˋa .la pà .ŋwˋa ?.lə	pus books
Quadrisyllabic C.CGV.CV.CV	`n .dwɨ̀ .lɨ̀ .ǹ	end

The above word structure is presented in terms of syllable and morpheme breaks. The syllable breaks are denoted by a /./

5.6 Phoneme Distribution:

Phoneme distribution deals with the manner in which the phonemes of a language are generally distributed within syllables or words. There are some distinctive sounds, which occur only initially,

other medially, and other finally. There are yet others, which occur in all these positions.

In the B̶aŋgulaŋ language:

1) All the nine vowels do not occur word initially.

2) Two of the twenty-for consonants do not occur word initially. These are [b, d]

3) All the twenty-four and nine vowels occur word medially.

4) Three of the twenty-four consonants occur word finally. There are [ŋ, t, ʔ]

5) All the nine vowels occur word finally

6) Two of the twenty-four consonant occur words initially, medial and final. They are [ŋ, t]

5.7 Conclusion

Through out this chapter, we have identified the different syllables, morpheme and word structure in the B̶aŋgulaŋ Language. We have identified three basic syllable types with ten other types derived from the prosodies of labialisation. Palatalisation and prenasalisation

We end the chapter with a discussion on the different positions of morphemes in the words of the B̶aŋgulaŋ language. In the next chapter which, is the last chapter of this dissertaton, we will present an Alphabet proposal for the Language basing on the General principle of Cameroonian languages

CHAPTER SIX

ALPHABET AND ORTHOGRAPHY

6.0 Introduction

This chapter will be focused on the alphabet and orthography of the Băŋgulaŋ language. An alphabet here is the set of graphic symbols used in writing a specific language; orthography on its part is a set of rules that are used in combining in a meaningful manner these graphic symbols. The knowledge of the alphabetic system without orthographic rules will not suffice in the writing of a language. Thus, the art of writing words with the proper letters according to accepted usage and correct spelling is preconditioned by rules that guide it.

The orthography of any language is a precondition for its development and standardisation. In the course of proposing the writing system for this language, we had certain preoccupations as to whether the adopted symbols or graphemes will suit pedagogic or educational goals, the native speakers attitude toward the graphemes and finally what previous knowledge they have of the adopted graphemes.

The graphemes that we have adopted for the writing system of the Băŋgulaŋ language are taken from the graphemes found in the "General alphabet of Cameroonian Languages" (Tadadjeu and Sadembouo, 1984), which was adopted in 1979 by the National committee for the unification and harmonisation of the alphabet of Cameroonian languages. These graphemes are easy to be used and are representative of the phonemes attested in the language. In most cases the phonemes are maintained as graphemes and in other cases, both the allophones and the phonemes are represented as graphemes in the language. The orthography proposal here comprises of the following

sections: Consonants graphemes, Vowel graphemes, Tone diacritics, orthographic rules and illustrative text.

6.1 Allophones adopted as graphemes

The sound [b] is an allophone of /p/ in the Băŋgulaŋ language but we have preferred to maintain both sounds as graphemes because through their knowledge of the English language, the native speakers of Băŋgulaŋ know these sounds as being distinctive.

The phonemes /nd/ and /ŋg/ will not be represented as different letters of the alphabet because each of the sounds in the group already constitute a letter in the alphabet.

The sound [dʒ] is an allophone of the phoneme /ʒ/ in the Băŋgulaŋ language but we have chosen /dʒ/ as the grapheme representing the two thus reducing the number of graphemes in the language.

The phoneme /ɲ/ is represented as ny in Cameroon alphabet. Since n and y are separate graphemes in the Băŋgulaŋ language, we have decided not to represent ny as a separate graphemes thus reducing the number of graphemes for the native speakers.

As for l and r, we have chosen to represent both sounds with the phoneme /l/

6.2 Alphabet-Consonant graphemes

A a, B b, Ch ch, D d, E e, Ɛ ɛ, Ə ə, F f, G g, Gb gb, H h, I i, I i, J j, K k, Kp kp, L l, Mm, N n, Ŋŋ, O o, Ɔ ɔ, P p, S s, Sh sh, T t, Ts ts, U u, V v, W w, Y y, Z z, '.

The above consonant phonemes, their allophones and graphemes are presented in Table 14 below. We also show their use in various positions in the word (the three final consonants [t], [ŋ] and ['] are all very common in Băŋgulaŋ):

Table 15 Consonants grapheme chart.

Phoneme	Allophone	Grapheme	Initial position	Medial position	Final position
/p/	[p]	P p	pa *bag*	pəpôŋ *beautiful*	—
	[b]	B b	—	mbé *nail*	—
/d/	[d]	D d	—	ndóŋ *horn*	—
	[l]	L l	ləŋ *chair*	—	—
	[l] ~ [r]		—	tuŋlə *ear*	—
/g/	[g]	G g	—	ŋgut *skin*	—
	[ɣ]		gató *divide*	kəgaŋ *okra*	—
/gb/	[gb]	Gb gb	gbó *laugh*	məmgbé *girl*	—
/kp/	[kp]	Kp kp	kpat *leg*	tékpat *shoe*	—
/t/	[t]	T t	túŋ *dig (v)*	ntê *cricket*	sɔt *hoe*
/k/	[k]	K k	kú *die (v)*	ŋkyi *water*	—
/ʔ/	[ʔ]	' '	—	tɛ'é *find*	na' *cow*
/v/	[v]	V v	vú *ash*	mvwat *circumcision*	—
/z/	[z]	Z z	zí *face*	muzəŋ *rib*	—
	[dz]		—	nzə *dream*	—
/ʒ/	[ʒ]	J j	jí *know (v)*	wăjwí *lion*	—

	[dʒ]		—	njiŋ *darkness*	—
/f/	[f]	F f	fu *leaf*	mɛfɛ *squirrel*	—
/s/	[s]	S s	saŋ *corn*	sɔ́sât *sugarcane*	—
/ʃ/	[ʃ]	Sh sh	shihi *vein*	mɔ́shíŋ *bird*	—
/h/	[h]	H h	hé *give (v)*	míhí *eyes*	—
/ts/	[ts]	Ts ts	tsɔt *mouth*	ntsɔ *war*	—
/tʃ/	[tʃ]	Ch ch	chi *blood*	mɔ́chwɔ *eagle*	—
/m/	[m]	M m	mɔ́na *animal (v)*	lemu *orange*	—
/n/	[n]	N n	nɔ́ *snake*	nunuŋ *bee*	—
/ŋ/	[ŋ]	Ŋ ŋ	ŋá *spider*	sɔŋnɔ́ *speak (v)*	kaŋ *chest*
/w/	[w]	W w	wú *fall (v)*	mɔ́wɔ *hawk*	—
/y/	[j]	Y y	yí *read*	mɔ́yele *leaf*	—

6.2.1 Consonant Orthography Rules.

Various rules on which consonants can occur in which positions or which can occur before and after other consonants are important to learn. Here is a list of consonant orthographic rules.

1. Never write "b" without an "m" in front of it.
2. Never write "d" without an "n" in front of it.
3. Never write "d" between "n" and "z".
4. Never write "d" between "n" and "j".
5. Never write "'" word-initially.
6. Never write "b" word-initially.
7. Never write "d" word-initially.

8. The only consonants that can be word-final are "t", "ŋ" and "' "

9. Never write an "r". If you hear an "r", write an "l".

10. If you hear a nasal consonant before "k" or "g", always write "ŋ".

11. If you hear a nasal consonants before "kp" or "gb" always write m

6.3 Alphabet- Vowel Graphemes

Baŋgulaŋ has nine vowel phonemes presented with their allophones and graphemes in Table 13 below. The sounds are shown as they occur in different positions of the word.

Table 16 Vowel Graphemes phonemes

Phoneme	Allophone	Grapheme	Initial position	Medial position	Final position
/i/	[i]	I i	—	pí t *ask (v)*	ndí lí *name*
/e/	[e]	E e	—	fe líe *grasp[v]*	nde *sleep*
/ɛ/	[ɛ]	Ɛ ɛ	—	fɛ t *father*	fɛ líɛ *twins*
/a/	[a]	A a	a *he/she/it*	kaŋ *chest*	ta *come*
/ɔ/	[ɔ]	Ɔ ɔ	—	sɔ ŋ *tooth*	mɔ́ *things*
/o/	[o]	O o	—	mə́ po' *cane rat*	pó *hut*
/u/	[u]	U u	—	kú t *tie (v)*	tú *head*
/ə/	[ə]	Ə ə	—	mə́ na *animal*	zə lə *broom*
/ɨ/	[ɨ]	I ɨ	—	ví t *oil*	pɨ *bad*

6.4 Tone Marking

As of this point in time, we have discovered numerous minimal tone pairs for words that contrast high tone, rising tone and high-falling tone with each other or with either of the two low tones. Because

minimal tone pairs are so rare between mid and high tones, we proposed orthography where only high (together with mid), rising and high-falling tones are marked by diacritics and the low tone is not marked. (It is common orthographic practice to indicate non-contrastive or less contrastive tones or even one of the well-attested contrastive tones by specifically omitting to mark a diacritic over the vowel.) See the chart below:

Table 17 Tone Grapheme Table

Tone	Phonetic	Grapheme (Diacritic)	Examples	Remark
High	[á]	á	kú die (v)	Marked
Mid	[ā]	ā	mā child	Marked
Low	[à]	a	ma self	Unmarked
Rising	[ǎ]	ǎ	kǔ touch (v)	Marked
High-falling	[â]	â	twê carry(v)	marked

6.5 Word Division

In Băŋgulaŋ, we have chosen to adopt in large measure the orthographic conventions of the language of wider communication of the area, namely English. Our proposals also follow the guidelines of the General Alphabet of Cameroon Languages (Tadadjeu and Sadembouo, 1979).

6.5.1 Subject Marker

Subject markers in Băŋgulaŋ are written as separate pronouns, as below:

1) A pənó mbina.   "He returned from the farm."
    3s return farm   (yesterday or earlier today)

Pɔ́ pəná mbina.   "They returned from the farm."
3p return farm   (yesterday or earlier today)

6.5.2 Noun Phrase

The noun phrase may consist of a head noun, followed by modifiers such as adjectives and/or determiners.

6.5.2.1 Associative Phrase

Noun phrases often include NP-NP ("associative" or "genitive") constructions in which the first NP is "possessed" by the second NP. In Băŋgulaŋ, there is no written associative morpheme (equivalent to "of" in English) between the possessor and the possessed. In Grassfields Bantu languages in general, the associative marker is usually just a floating tone morpheme between the two words. These floating tone morphemes change the phonetic surface tone on the words according to rules that every Băŋgulaŋ speaker has in his head. We therefore choose not to write either the floating tone morphemes or the phonetic surface tone, but to write the words with the same tone patterns they have in isolation. Typical associative noun phrases are therefore written with basic word tone on each of the words, as follows. Words with vowels without tone marks are pronounced with a low tone including syllabic nasals with their low tone marks.

(2)   ndát   Tatá   mbɛ   mbɛhɛ
       house   Tatá   fence   vegetable
       "Tata's house"   "fence of vegetable"

6.5.2.2 Reduplication

Reduplication has a wide range of forms and functions in Bangolan. In the proposed orthography, reduplicated words are separated by hyphens, as below:

(3) zahá   "quickly"   zaha-zahá   "very quickly"

papwɔ "people"   papwɔ-papwɔ   "full of people"

gɔ́'   "bone"   gɔ́'-gɔ́'   "bony"

mɔ́hɔ́ "fire"   mɔ́hɔ́-mɔ́hɔ́   "full of fire"

6.5.2.3 Compound Nouns

Compound nouns, on the other hand, are written in Băŋgulaŋ without a hyphen, just the two roots written together as a single word, as below:

(4) njĕ   "back"   ndát   "house"   njĕndát   "room"
     mɔ́na "animal   mbo   "egg"   mɔ́nambo   "banana"
     píhí   "bad"   nzɔ'   "heart"   píhínzɔ'   "wicked"
     sáŋ   "tail"   mɔ́na   "animal"   sáŋmɔ́na   "tail"
     tíŋ   strong"   nduŋ   "price"   tíŋnduŋ   "expensive"

6.5.3 Verb Phrase

The imperative is taken as the citation form of the verb in Băŋgulaŋ Imperative verb forms do not have visible prefixes or suffixes but do have a high tone suffix that fuses onto the stem. The verb root in Băŋgulaŋ is usually monosyllabic, though sometimes it becomes disyllabic because of the addition of some formerly productive Bantu

extension, which has become lexicalised in present day Băŋgulaŋ (either –nɔ́ or –tɔ́). The result is that you would not find disyllabic verbs without one of these two extensions as the second syllable.

6.5.3.1 Tense

Băŋgulaŋ distinguishes four tenses which appear as near past, far past, future certain, and future uncertain when combined with perfective aspect. In the orthography, the tense markers are written separately. Note that the "near past" tense is really the recent perfective (or zero perfective) construction, as shown below:

(5) Near past   **A tɔ́.**   "He refused."
    (present   3s refuse   (yesterday or earlier today)
    perfective)

    Far past   **A ka tɔ́.**   "He refused."
                     3s PST refuse   (two or more days ago)

    Future (certain) **A wú tɔ́.**   "He will refuse."
                     3s F1 refuse

    Future (uncertain) **A ki tɔ́.**   "He may refuse."
                     3s F2 refuse

6.5.3.2 Aspect

In addition to the unmarked perfective aspect, Băŋgulaŋ has two kinds of constructions where a tone change on the verb is (sometimes the only) indication of the marked imperfective aspect: progressive constructions and habitual constructions. Note that while habitual constructions have a habitual marker preceding the verb, progressive constructions have only a tone change on the verb (marked below by the mid tone diacritic). These two kinds of imperfective constructions are shown in the unmarked zero (present) tense below (the parallel zero tense perfective aspect was already shown above):

(6) Present Progressive **A tɔ̄.**   "He is refusing."
                          3s refuse.PROG

     Present habitual   **A nyáŋ tɔ̄.**   "He (usually) refuses."
                          3s HAB refuse.

This means that the verbs in all progressive and habitual constructions are all marked with the mid tone diacritic, no matter if the tense is present, past or future.

6.5.3.3 Infinitive

The infinitival prefix in Băŋgulaŋ is the simple prefix '*mɔ́-*' attached to the verb root. In the orthography, this form is written as a single word, as below.

(7)
     mɔ́tɔ́   "to refuse"
     INF-refuse

     mɔ́zɔhɔ́   "to sweep"
     INF-sweep

6.5.4 Negation

There is only one type of general negation in Băŋgulaŋ. The negative word '*pə*' is always clause final, as in the examples below.

(8) **A ka tɔ́ pɔ́.**   "He did not refuse."
     3s PST refuse NEG

     A tɔ̄ pɔ́.   "He is not refusing."
     3s   refuse.PROG
     NEG

     A wú tɔ́ pɔ́.   'He will not refuse.
     3s F1 refuse NEG

6.6 Punctuation and Capitalisation

The punctuation marks and the rules that govern the Băŋgulaŋ language are the same as those for English. The punctuation marks used for Băŋgulaŋ are therefore as follows:

1) Full stop (.)

2) Question mark (?)

3) Exclamation mark (!)

4) Comma (,)

5) Colon (:)

6) Semicolon (;)

7) Quotation marks (" ... ") and (' ... ')

6.6.1 Full Stop

The full stop (.) in Băŋgulaŋ marks the end of a declarative sentence.

(9)   Tatá wē mbina.
       Tatá go farm
       "Tata is going to the farm."

6.6.2 Question Mark

The question mark (?) marks the end of an interrogative sentence.

(10)   Mémé ka sú ka tyé?
        Meme PST buy what market
        "What did Meme buy in the market?"

6.6.3 Exclamation Mark

The exclamation mark is written at the end of a command, or it is placed following exclamatory words or phrases. It functions to express interjections, surprises, excitement, and forceful comments as well as simple commands; as below.

(11)   **Wé!**
       go.IMP
       "Go!"

(12)   **A tutó pó!**
       3s play NEG
       "She should not play!"

(13)   **Ndi!   Mă lé wu pó?**
       EX   I tell you NEG
       "Ndi! (a call to attention). Did I not tell you?"

6.6.4 Comma

Commas are used to separate clauses or parallel words within a clause, as below:

(14)   **Pó wē sukût pó, pó wē tyé.**
       3p go school NEG 3p go market
       "They are not going to school, they are going to the market".

(15)   **Sali nyít mbúshi, muŋguŋwáŋ pú mvúme' yetét nzo' ndát.**
       Sali has cat dog and goats three in house
       "Sali has a cat, dog, and three goats in the house."

6.6.5 Quotation Marks

Quotation marks (" ... ") occur at the beginning and end of direct speech, as below:

(16)   **A lé ndé, "Wu wē ha?"**
       3s say that 2s go where
       "He said, "Where are you going?""

Note: In English and Băŋgulaŋ, other punctuation marks always precede quotation marks when they occur next to each other.

6.6.6 Capitalisation

Capital letters are used at the beginning of sentences, for proper nouns, and after a colon.

First word in a sentence:

(17) **Pɔ́ wú wé tyé nywě.**
    3p F1 go market today
    "They will go to the market today."

Proper nouns:

(18) **Ndi ka wé mbina ŋgyí Tala, Mémé, Sali pú Tatá.**
    Ndi PST go farm call Tala Meme Sali and Tata
    "Ndi went to the farm and called Tala, Meme, Sali, and Tata."

After a colon:

(19) **Mɔ'ɔ lớ yɛ: A tsɔ́ ndɔ' pɔ́.**
    One thing is 3s is house NEG
    "One thing is true: He is not in the house."

6.7 A Sample Text.

We have decided to present this text to show how the writing principle in the language works as well as the sounds (Alphabet). We will present the text in the Bǎŋgulaŋ language and then give the literal translation in English.

<div align="center">Ŋɔ ke'ɛ jí ŋwa'lɔ</div>

Mɔ'ɔ́ ŋgyaŋ ke'ɛ jí ŋwa'lɔ kátsɔ́ nzɔ' mɔ'ɔ́ ŋgɔŋ pɔ́ ká ŋgyí nɔ̀ m̀biŋkɔm. A kátsɔ́ nzɔ' m̀búlúŋ nde ŋgbɛhɔ yé la zhí móyí lớ kɛ'ɛ mónɛ'lớ ŋwa'lɔ pɔ́. A kanyít mɔ'ɔ́ mà ndíhí mbá Mbipɛ' a katsɔ́ nzɔ' mɔ'ɔ́ ŋgɔŋ tsâŋ sɔsɛ. Chichɛ ŋkɔ' yɛ a nɛ'ɛ́ ŋwa'lɔ hé nɔ téli nɛ a yí ŋɔ mbɛ'hɔ hɛ̄ nɔ yi.

Mɔ'ɔ́ ndímbí a wú záŋ pɔ wé nɔ yi nde'fù. Ne'é zaŋ yi ká tíŋ fĕtmbêŋ né ŋɔ pét mbɛ-í wé tsɔ' mbwé nzɔ' mɔ'ɔ́ nde' mgbɛ'hɔ nzɔ' ndîhĭ.

Pɔ́ kazātó mólá fɛ' mbúlí ndímbi ye pā nɛ tsét a zā mópōnó tí hɛ mópónó ká sāŋga pwa papwe. Mbí kale, a pít nɔ ŋɔ pét mbɛ yí ɛ ntwene' a ndetó nde'ɛ mbwé ye a katsó' nɛ. Ŋɔ yɛ kapōlɔ ndenɔ yi ndé a ne'é ŋwa'lɔ ntú nɔ mu yi a léhé mbwé gó. Ŋɔ yɛ pít nɔ i ndɛ a ne'é mbanē kɛ'ɛ hɛnɔ yi. A ka nê ne'é ŋwa'lɔ gó kpɛ'hɔ fù' ndúŋ mbwé gó ne'é a kají nde ŋɔ yɛ njí ŋwa'lɔ nɛ pó. Ŋgyaŋ kɛ'é jí ŋwa'lɔ yɛ pɛ'é ŋwa'lɔ gó mówé tú nɔ mú yi. Ŋkɔ'a katú shíndó nɛ kpɛ'tɔ́ nde a póŋ sɔŋnɔ nó mú yi nzɔ' ŋkwat. A kawé hɛ nɛ pɔnɔ ndinɔ mgbaŋ mbaŋ yɛ zó ŋɔ pɔ nzétó twí yɛ ŋkwat sɔŋnɔ gɔ katsuŋ fɔ̌ nɛ, mbɛ́t tsɔh nzɔ' mɔ'ɔ ŋkwat nzā móyí "Mbipɛ', Mbipɛ' .... a ma wú nyaŋ nzu'ú"

Mɔ'ɔ́ ŋgyaŋ kyɛ kazó-i ndú twí gó nzɔŋ "Ɛi ŋgyáŋ pét, wú lá mbá ka ndúhi né? Shwí' sé nɔ ndɔ́lɔ́. Ŋɔ gó polɔ́ nde "mǎ mbɛt pɛt pɔ́. Mɔtɛ'é sɔŋnɔ sɔŋnɔ nɔ mu-a yɛ a tsó a séhé nɛ, Ŋɔ kyɛ lé shwí'sɛ móna'tó nú ntwéne'ɛ wu mbí sɔŋnɔ nɔ yi nzɔ' ŋkwat nɛ.

Ŋɔ wa polɔ́ ndé nywi kɛhɛlɔ yi, shwí' ŋkɔ'gó nɔ ndɔ́lɔ ŋkɔ' a kashwí' nɛ, ŋɔ kyɛ wá nu'ú kpé ŋgélí yɛ́t ŋgwé fwɛ. Nzɔ'ndwihi-nî ŋkɔ' a kazó ndé ŋɔ yɛ nzhí lo yɛ kâ nda nɛ pó a nɛ'tó yí.

Ti' lɛ ka nɛ tsɛt yɛ a jwe ti ntu wasimbita ŋkɔ' mu yi Mbipɛ' kazó ŋwa'lɔ gó ne'sɛ nde a póŋ á tá yi pú mbwé gó. A káchwé nde' nɛ̈ wé ndɛ'ɛ mbwé gó nde mgbɛ'hɔ nzɔ́ ndɛfu' mbwé yɛ ŋɔ pɛt mbɛ tɛli kane'é nzɔ' ŋwa'lɔ nɛ ka yɛ' fɛ́t fù' mbwé yɛ a ka nzɔ' nzɔ' mgbɛ'hɔ nɛ. Tɔŋ mbipɛ' ka pāhó a pwé nde nɔ téli tɔŋy i nu'ú mbóhó fɛtmbêŋ mbɛnɔ nde ŋɔ pet mbɛ-i yɛ a ka nóhó nzɔ' i mbuli né kâ ntɛ'é jweli.

Mbipɛ' ka zó ŋkɔ' gó nde-a póŋ nde papwe ka njí mɛnɛ'é nu'ú ŋgyí ŋgyí ŋwa'lɔ nɔ mbûbát. A kalé nɔ téli nde a zātó mówé zé' ŋwa'lɔ

pwé twîmɛ. Sáŋ ɛ kpa ka né tsɛ́t tɛ́lí jí mɔ́yí nu'ú nɛ'ɛ́ ŋwa'lə. Tsɔ'ni ŋkə' gɔ́ yɛ ŋɔ kanu'ú ŋgyí nu'ú nɛ'ɛ́ ŋwa'lə yi hɛ́ nə yi pɔ́. A kazā mɔ́káŋ nzɔ' yi ka twíhí pəmɔ'ɔ́ pwe twímɛ nde pə zɛ́' mɔ́yí nu'ú nɛ'ɛ́ ŋwa'lə.

Ŋɔ kɛ'ɛ́ jí ŋwa'lə fîmíhí.

6.8 A literal Translation of the Sample Text

An illiterate man

Once upon a time, in a certain village called Mbinkom, there lived a man who was illiterate. He was a member of many Njangi groups but he could never know how to read and write. He had a child called Mbipe' who lived in a distance country. Whenever he wrote a letter to his father, a different person read it for him.

One day, he fell ill and was taken to the hospital. Since his illness was serious, his neighbor, who was a young man, decided to borrow money at interest on his behalf from one of the Njangis.

He started receiving treatment and after two days, he started responding well. He could sit up and converse with people.

One day, he asked the young man, "How shall I repay the money you borrowed from the Njangi" The young man replied, "write a letter to your son and ask him to send the money" The man then asked "How will I write when I do not know how to write"? "I will write for you," he answered.

The letter was then written to the man's child. Since the young man knew that this man was illiterate he decided to increase the amount demanded by the man.

After writing, he took the letter to the post office. On his way, he thought it was wise to send a telephone message.

After leaving the post office, the young man looked right and left and behind and saw that nobody was coming. He hurriedly climbed on a telephone pole, held one of the cables and put it in his mouth and started calling "Mbipɛ', Mbipɛ' "I am the one, do you hear?"

A police saw this young man on the telephone pole and shouted, ɛi mad man what are you doing up there, come down quickly. "I am not mad" the young man replied. "I want to send a message to my child who is far from here". Come down, the police said, "I will tell you how to send a telephone message".

"Thank you" said the young man and he happily climbed down. When he came down, the policeman instead arrested him and locked him in the cell.

The sick man got well after a week and went back home. Meanwhile the child Mbipɛ' saw the letter that was written to him and decided to bring the money that was borrowed from the Njangi group.

When he arrived home, he went to repay the money and to his surprise, he discovered that the amount borrowed was smaller than what was demanded from him. He grew annoyed and when he got home, he informed his father. His father became very angry because the young man whom he trusted had wanted to cheat him.

Mbipɛ' then discovered that it is a good thing for people to be able to read and write. He told his father to start attending adult literacy classes. His father agreed and started the classes. After four

months, he was able to read and write from then on, no body could read and write for him because he was already able to read and write. He became proud of himself and advised other people, young and old to learn how to read and write.

An illiterate is a blind man.

GENERAL CONCLUSION

We intended to carry out this phonological description and proposed orthography for the Băŋgulaŋ language. With this in mind, we have consequently analysed and studied the properties or qualities of the sound system, which speakers do internalise before communicating effectively in the language. Therefore, from the phonemes identified, we proposed graphemes and some orthographic rules to be used in the reading and writing system of the language. A sample text is given to help in highlighting the degree to which a common orthography is plausible.

Generally, we identified sixty-six phonetic consonants, nine phonetic vowels, three level and three contour tones. From our phonemic analysis, we came out with twenty-four consonants, nine phonemic vowels and six tonemes.

In our choice of graphemes, we made some decisions in our choice. In all we proposed twenty-four consonant graphemes and nine vowel graphemes. From the six tonemes, we have decided to suppress the low tone because it is most recurrent. The low and the low falling will remain unmarked while the high, the mid, the high-low (falling) and the low high (rising) will be marked. We think that the Băŋgulaŋ language could be written with thirty three letters of the alphabet, two level and two contour tones.

We have decided not to include the word list we used, as appendix of this work because it is already published as a lexicon in the Băŋgulaŋ language. (See Njeck, Mathaus. 2004. Băŋgulaŋ-English lexicon. CALED series Nº 13. NACALCO, Yaounde)

While hoping that we have, in our own meagre manner, contributed to research in Băŋgulaŋ in particular and Linguistic in general, we take this chance to invite researcher and would be researcher to carry further research in the language. It is our hope that the orthography proposal will be a significant first step in allowing people to start reading and writing in the language.

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