DEPARTMENT OF AFRICAN LANGUAGES AND LINGUISTICS

PHONOLOGY OF BUBIA

A dissertation submitted in partial fulfilment of the requirements for the award of a Post-Graduate Diploma (MAITRISE) in Linguistics.

By

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Lecturer

October 1993
DEDICATION

In memory of my late aunt Mrs. Agnes Chiabi née NAMBU.
Mama, it is three years since you left us, but you will ever be green in our memories. May God keep you near him in his heavenly compound.

This work is also dedicated to all the disabled and abandoned children of the world, and to the children of divorced parents. May they find happiness in some way.
ACKNOWLEDGEMENTS

A work like this would not be successful without the help of many people. These people, to whom I am greatly indebted, helped to make this work successful materially, morally, or in some other way.

I am very grateful to Dr. Gerbault who started to direct this work despite her many occupations. Although she left without being able to see the last of it, her directions were very fruitful.

My greatest thanks to Dr. Bitjaa Kody and Dr. Mutaka who were so kind to continue what Dr. Gerbault left unfinished. Their kindness is very touching.

Many thanks to these teachers of the Linguistic Department for being helpful and always ready to give solutions to problems. Dr. Biloa, Dr. Chia, Mr. Tamanji, Mr. Ogwana and Mr. Mba.

I also extend my gratitude to some teachers of the English Department of the University of Yaounde I who went through the painful job of teaching me up to this level. These teachers are Dr. Lambo, Dr. Jua, Dr. Ebot, Dr. Eyoh, Dr. Taia, Dr. Ngwang, Dr. Amin, Dr. Njeuma, Mr. Tambi, and all those that I have not been able to mention due to lack of space.

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My gratitude also goes to my mother Theresah Ngo Mawoh and my grandmother, Mbombo Susanna. Many thanks to:
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- Mr. and Mrs Ngong Zacs
- Mrs Martha Salifu
- Mrs. Veronica Salifu
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- Mr. Tome Daniel
- Mr. Mapouna Mbogos
- Mr. and Mrs. Tang Joseph
- Mr. and Mrs. Mbouombouo Ousmanou
- Salifu Stella, Ngong Caroline, Patricia and Virginie Tang, Irène Agnoung, Irene Ntoko, Merow Awudu, Lucy Mbu, Nyamche Julie, and Nathalie Koume

Many thanks to Mrs. Tabifor Miranda and Glory Taboh for giving me the courage to start and complete this work.

I am not insensitive to the last minute information given by Mrs. Wuma Ekema David, Makolo Molungu Joseph and Duncan Molindo of Botaland (Wovea).

Many thanks to Prince Henry Mbain of the archives in Buea for letting me use their documents and library as long as I wanted.

Most of all, I very much appreciate the advice given to me by Dr. Owona Ndouguessa and Evelyne Chibaka.

I am very grateful and wish I could do to you all, what you have done to me. Thank you very much and God bless you.
# TABLE OF CONTENTS

- DEDICATION ................................................. i
- ACKNOWLEDGEMENTS ........................................ ii
- LIST OF ABBREVIATIONS ..................................... viii

CHAPTER ONE: General Information about the Wovea people. 1

1.1 Historical Situation ........................................ 1
1.1.2 Geographical Situation .................................. 2
1.1.3 Socio-Economic Situation ................................ 3
1.2 The Language ................................................ 4
1.2.1 Linguistic Situation ...................................... 4
1.2.2 Related languages ....................................... 10
1.3 Justification of Choice and Aim of Work ................. 10
1.4 Corpus and Informants ..................................... 11
1.4.1 Corpus .................................................. 11
1.4.2 Informants ............................................... 12
1.5 Methodology ................................................ 12
1.6 Outline of Work ............................................ 13
1.7 Inventory of Sounds and Tones ....................... 14
1.7.1 Vowels .................................................. 14
1.7.2 Consonants .............................................. 16
1.7.3 Tones ..................................................... 21
1.8 Phonetic Charts ............................................ 22
1.8.1 Tones ..................................................... 22
1.8.2 Vowels ................................................... 22
1.8.3 Consonants .............................................. 22
CHAPTER TWO: Segmental Phonology ........................................... 23
  2.1 Introduction ........................................................................ 23
  2.2 Consonants ................................................................. 23
    2.2.1 Phonetic inventory ................................................. 24
    2.2.2 Pairs of Similar Sounds ....................................... 25
    2.2.3 Phonological analysis ........................................... 25
    2.2.4 Definition and Classification of consonants .......... 38
    2.2.5 Phonemic Inventory .................................................. 39
  2.3 Vowels ............................................................................. 52
    2.3.1 Phonetic Inventory .................................................. 42
    2.3.2 Pairs of Similar Sounds ....................................... 42
    2.3.3 Phonemic Analysis .................................................. 43
    2.3.4 Definition and Classification of Vowel Phonemes ... 52
    2.3.5 Classification of Vowels .......................................... 52
    2.3.6 Phonemic Inventory .................................................. 53
    2.3.7 Vowel Length .......................................................... 53
    2.3.8 Vowel Harmony ....................................................... 54
    2.3.9 Vowel harmony Within Long Vowels ................... 57
    2.3.10 Vowel Harmony Between Roots and Affixes ........ 58

CHAPTER THREE: Interpretation Problems ................................... 61
  3.1 Vowel/Consonant .......................................................... 61
  3.2 Sound Sequences ............................................................ 62
    3.2.1 Vowel Sequences ................................................... 63
    3.2.2 Consonant Sequences ............................................. 64
  3.3 Homorganic Sequences ................................................. 64
  3.4 Heterorganic Sequences ................................................. 65
    3.4.1 Palatalized Consonants ........................................... 65
**LIST OF ABBREVIATIONS AND SYMBOLS**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>Vowel</td>
</tr>
<tr>
<td>C</td>
<td>Consonant</td>
</tr>
<tr>
<td>L</td>
<td>Low tone</td>
</tr>
<tr>
<td>H</td>
<td>High tone</td>
</tr>
<tr>
<td>VV</td>
<td>Vowel cluster</td>
</tr>
<tr>
<td>CC</td>
<td>Consonant cluster</td>
</tr>
<tr>
<td>ATR</td>
<td>Advanced tongue root</td>
</tr>
<tr>
<td>→</td>
<td>becomes or is realized as</td>
</tr>
<tr>
<td>/</td>
<td>slash</td>
</tr>
<tr>
<td>#</td>
<td>word boundary</td>
</tr>
<tr>
<td>C-C</td>
<td>between consonants</td>
</tr>
<tr>
<td>V-V</td>
<td>between vowels</td>
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<tr>
<td>Neu</td>
<td>neutral</td>
</tr>
<tr>
<td>/.../</td>
<td>phonemic data</td>
</tr>
<tr>
<td>[...]</td>
<td>phonetic data</td>
</tr>
<tr>
<td>con</td>
<td>consonantal</td>
</tr>
<tr>
<td>syll</td>
<td>syllabic</td>
</tr>
<tr>
<td>I.P.A.</td>
<td>International Phonetic Alphabet</td>
</tr>
<tr>
<td>I.A.I.</td>
<td>International African Institute</td>
</tr>
<tr>
<td>GACL</td>
<td>General Alphabet of Cameroon Languages</td>
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# LIST OF TABLES

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<td>Consonant phonetic chart in IPA</td>
<td>Chart 1</td>
</tr>
<tr>
<td>T.2.2.4</td>
<td>Classification of consonant phonemes</td>
<td>Chart 2</td>
</tr>
<tr>
<td></td>
<td>Consonant phonemic chart in IPA</td>
<td>Chart 3</td>
</tr>
<tr>
<td></td>
<td>Consonant phonemic distribution</td>
<td>Chart 4</td>
</tr>
<tr>
<td>T.2.3.1</td>
<td>Phonetic vowel chart</td>
<td>Chart 5</td>
</tr>
<tr>
<td>T.2.3.6</td>
<td>Phonemic inventory</td>
<td>Chart 6</td>
</tr>
<tr>
<td>T.2.3.7</td>
<td>Vowel length distribution</td>
<td>Chart 7</td>
</tr>
<tr>
<td>T.3.2.1</td>
<td>Vowel sequences</td>
<td>Chart 8</td>
</tr>
<tr>
<td>T.4.1</td>
<td>Syllable structure</td>
<td>Chart 9</td>
</tr>
<tr>
<td>T.5.3</td>
<td>The alphabet</td>
<td>Chart 10</td>
</tr>
</tbody>
</table>
CHAPTER I

GENERAL INFORMATION ABOUT THE WOVEA PEOPLE

1.1.1 Historical Situation

Bubia, commonly known as Wovea, is among the 248 languages or so spoken in Cameroon (Breton Roland and Fohtung Bikia, 1991). It is spoken by the people of Bota Island which is on the west coast of Limbe district formerly known as Victoria district, in the South West Province of Cameroon. According to documents in the archives in such, Bota was formerly made up of Bota Island and Botaland. Due to some recent natural disaster, and over-population, the people had to migrate to Botaland.

Ardener, Shirley and Edwin Arderner, (1958), say the people of Botaland are the relatives of the Bubis of Fernando Po, in Equatorial Guinea. From information got from some elders in Botaland, Bota Island was discovered by three fishermen from Fernando Po (Santa Isabel). These three men Ekánda, Ikóli, and Mówéli, were brothers. They decided to make Bota Island their fishing base when they realized that the catch they made around the Island was more important than what they made around Santa Isabel. They first used the island as a base for catching and smoking their catch during the week, and on weekends, they carried everything to their island to sell and rest, preparing for the coming week. This notwithstanding, they decided to
finally migrate with their families and settled in Botaland which was uninhabited.

Information got from the villagers says that when these three brothers and their families settled on Bota Island only the Bimbia people were their closest neighbours. The only other neighbours who were not very near were the Bojongo people and the Mokundas. For trade reasons, they started communicating with the Bojongo and Mokunda people. It is strongly believed that the Wovea people inter-married among themselves. They also inter-married with the Bojongo and the Mokunda people. Because of these inter-marriages, their language started taking a different turn. That is why they speak a Bakweri that is slightly different from the other Bakweris. The Wovea person perfectly understands when the Buea or Bimbia person speaks but these two do not understand what the Wovea person says at times. The change from Bubia to Wovea is a problem of pronunciation. If you listen well, b → w is midway between b and w. It is the same with the v sound in Wovea which when listened to carefully, we get an impression that Wovea is Wowea.

1.1.2 Geographical Situation.

Wovea today is situated on Boteland only because they had to leave the Island due to population growth and secondly because the Island started disintegrating. Botaland is on the extreme west coast of the Limbe district. It is bordered to the East and South by the sea, to the west by Bimbia and to the north by Buea.
1.1.3 Socio-Economic Situation.

The main occupation of these people is fishing, although they do some farming too. They are very hard-working as compared to the other Bakweri people. Their fish is either smoked or sold fresh to the surrounding villages from which they learnt how to farm. They farm cocoyams, cassava, plantains, yams and rear goats and pigs. Hunting is not their occupation although they do it from time to time. Other social activities outside work are games like canoe race, wrestling, game of seven stones which they call [mëtë], and a game they play with a hook, a rope, and plantain stems which they call [čëtë]. Hierarchy exists in Botaland (Wovea). At the head of the people is the chief, after the chief, there are the elders, the fathers, housewives and children. The children are answerable to their parents, especially their mothers who stay at home when their husbands go fishing. These men are in turn answerable to the elders who are answerable to the chief. Their staple food is timbà mbûsà - grated cocoyams which is wrapped in plantain leaves and cooked. It is accompanied with palm oil soup cooked with smoked fish. Timbà mbûsà means "go and come back". This is because it is alleged that the food is so delicious that anybody who eats it will come back for more.
1.2 THE LANGUAGE.

1.2.1 Linguistic Situation.

This language is classified under the Congo-Kordofanian family, and more precisely equatorial Bantu. Guthrie (1967) classifies it globally as Bakweri and under Duala.

A20 Groupe Duala

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>A21</td>
<td>mboko</td>
<td></td>
</tr>
<tr>
<td>A22</td>
<td>kpel (bakweri)</td>
<td></td>
</tr>
<tr>
<td>A23</td>
<td>Isu (Isubu)</td>
<td></td>
</tr>
<tr>
<td>A24</td>
<td>duala</td>
<td></td>
</tr>
<tr>
<td>A25</td>
<td>oli</td>
<td></td>
</tr>
<tr>
<td>A26</td>
<td>pongo</td>
<td></td>
</tr>
<tr>
<td>A27</td>
<td>malimba</td>
<td></td>
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</table>

ALCAM (1983) also gives the following classification.

**GROUPE_COTIER**

```
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<tbody>
<tr>
<td>A20</td>
<td>A30</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td>625</td>
<td>.bakolc</td>
<td>.batanga</td>
<td></td>
</tr>
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<td>622</td>
<td>.wumbuko</td>
<td>.batanga</td>
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<td>621</td>
<td>.mopkpwe</td>
<td>.banoo</td>
<td></td>
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<td>624</td>
<td>.Isu</td>
<td>.bapuku</td>
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<td>623</td>
<td>.bubia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>610</td>
<td>.duala</td>
<td></td>
<td>601</td>
</tr>
<tr>
<td></td>
<td>.bodiman</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.oli</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.pongo</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.muungo</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.duala</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.malimba</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```
The following classification is made of Bantu languages by Greenberg Joseph.
1. mboko
2. bpe-bubia
3. koles
4. mungo, pongo, duala
   malimba - Isu.
5. oli - bodiman
6. batanga, banoo, bapuku
7. yasa

Looking at these classifications, we realise that the language is an equatorial Bantu language. But for slight differences, these languages can be mutually understood by their various speakers. We can therefore classify Bubia as follows.

```
FAMILY       Congo - Kordofanian
             |                         
             Bantoide - Bantu
GROUP        |                         
             Narrow Bantu
             |                         
             Equatorial Bantu
SUB-GROUP    |                         
             Coastal
             |                         
LANGUAGE     Bubia
```
Langues nationales : Département du FAKO
Fako Division [S.W.]
1.2.2 Related Languages.

This language is related to nearly all narrow Bantu languages for the Bubia people understand at least what the other speakers of other narrow Bantu languages speak, even though these other speakers hardly understand them. We will take the example of two Coastal Bantu languages that are close neighbours of the Bubia people.

Mopkpwe  Isubu  Bubia  English gloss
nátí  nátí  ndiwà  "wild bush cow"
élóâlóà  élùálùà  iwè  "sun"

Despite these differences, there also exist many similarities between and among these languages.

Mopkpwe  Isubu  Bubia  English gloss
kò  kò  kò  "rat mole"
kò  kò  kò  "snail"

1.3 Justification of Choice and Aim of Work.

Cameroonian languages are of three types. The first type is the group of languages that have already been standardized like Duala, Lamso etc. The second type is the group of languages in the process of standardization like Féfé, Kom etc., and the third type is the group of unidentified languages. These languages are treated as unidentified because no scientific work has been done on
them. ALCAM (1983) shows clearly that Bubia falls under this third category.

Bubia is one of the many languages that exist in Cameroon, with the difference that, whereas some or rather most of Cameroonian languages have taken a step towards standardization, it has been left on its own. Language, being a social institution, it will not be erroneous to create a writing system and an alphabet for Bubia. This would serve not only for alphabetisation, Bubia people would maybe one day be able to read bibles in their churches, written in their own language. They could also be able to speak and write their own mother tongue in the same way they speak and write English and French.

Another purpose for the choice of this language which is rather personal is the fact that I think I am just giving this people what I owe them. I grew up in Limbe. Making one of their languages standardized is just giving to this people what they gave me, for my stay in Limbe has been memorable.

Finally, this work will contribute to the linguistic research department because no scientific work has been done so far on Bubia.

1.4 Corpus and Informants

1.4.1 Corpus

This work is done on an inventory of 2000 words collected, translated and transcribed in and around Wovea. Our phonological analysis is based solely on our corpus.
1.4.2 Informants.

Our informants are five in number, and they speak and understand Bubia as well as the English language. We had to get one informant for a language related to Bubia like Mopkpwe to see how closely the two languages are related.

<table>
<thead>
<tr>
<th>NAME</th>
<th>AGE</th>
<th>ORIGIN</th>
<th>OCCUPATION</th>
<th>PLACE OF RESIDENCE</th>
</tr>
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<tbody>
<tr>
<td>Mr EKOKE SIMON</td>
<td>45</td>
<td>WOVEA</td>
<td>Headmaster, Government Primary School, Bota - Limbe</td>
<td>WOVEA</td>
</tr>
<tr>
<td>Mr NGOUMBAH ANDREW WOLLOH</td>
<td>40</td>
<td>WOVEA</td>
<td>Longman Representative Limbe, Delegate for Central African Region</td>
<td>WOVEA</td>
</tr>
<tr>
<td>SASS FRIDA MOLOMBO</td>
<td>29</td>
<td>WOVEA</td>
<td>English Language Teacher, Lycée De Jeunes Filles</td>
<td>DOUALA</td>
</tr>
<tr>
<td>Miss EPOSI LINONGE</td>
<td>32</td>
<td>WOVEA</td>
<td>Typist</td>
<td>Limbe</td>
</tr>
<tr>
<td>Miss EPOSI LINONGE</td>
<td>30</td>
<td>BUEA</td>
<td>English, Language Teacher, Government Primary School Bota</td>
<td>Limbe</td>
</tr>
</tbody>
</table>

1.5 Methodology

The methodology used here is the structuralist approach. The generative approach is used at times to solve certain problems. The basic item of analysis will be the lexical unit for the phonological identification of sounds.

"A lexical representation must contain a distinctive feature matrix showing the representation of the 'segments' which make up the word. In addition, it must contain any idiosyncratic information concerning the association of phonological elements at
different phonological tiers. For instance, in a tone language, it must show any syllables which do not get assigned to tone by regular association principles”.

(KATAMBA, F. (1989:255)

Another linguist puts it this way:

"Le début de toute description phonologique consiste à découvrir les oppositions phoniques existant dans la langue en question et y différenciant des significations”

TROUBETZKOY (1976:45)

The goal of phonology is to study the sound systems that speakers must internalize in order to use their language for communicative purposes. Besides studying the phonology of Bubia, we will try to postulate an alphabet which will facilitate putting the language into writing.

Our concern here therefore is the sound system of Bubia, its combination into syllables, morphemes, and words. Supra-segmental phonemes will also be looked into. The word is our unit of description and the reference alphabet that we will use is the IPA(1) chart.

This work is not exhaustive due to the many problems encountered. Above other things, the intention of this dissertation is to ensure that our efforts help to open this area for further studies.

1.6 Outline of Work

The work consists of three parts. The first part is paradigmatic phonology. Part two deals with syntagmatic phonology, and the third part deals with a proposition of an alphabet for Bubia. Paradigmatic phonology covers part of
Chapter one and Chapter two. Syntagmatic phonology covers Chapters three, four and five. Chapter six deals with the alphabet.

Paradigmatic phonology unlike syntagmatic phonology studies phonic units on a horizontal plan, while syntagmatic phonology studies these same units on a vertical plan. Its goal is to study the different oppositions between sounds.

1.7 Inventory of Sounds and Tones

1.7.1 Vowels

[i̠]

1) [i̠wè] "sun"
2) [ndiwà] "wild bushcow" or "Buffalo"
3) [môkòli] "mountain"

[e̠]

1) [éyòndì] "island"
2) [èwûnè] "wave"
3) [litèkè] "mud"

[e̠]

1) [èsemblà] "idol"
2) [kémà] "monkey"
3) [linwè] "lightening"

[u̠]

1) [mbûa] "rain"
2) [ndʒəkʊ] "elephant"
3) [mëləŋə] "sheep"

[ə]
1) [ətələ] "rat"
2) [mbəlɪ] "goat"
3) [õjəmí] "why?"

[əl]
1) [wəsɪ] "horse"
2) [ŋəɜə] "Leopard"
3) [mbəmí] "boa"

[ɑl]
1) [ndʒílə] "Lion"
2) [ɛwəkɪ] "chimpanzee"
3) [átɛ] "swear"

[iɪl]
1) [iɪdʒá] "pus"
2) [liŋə] "to urinate"
3) [iɪŋö] "threat"

[ɛɛl]
1) [wɛ́ɛmbɛ́] "mammals"
2) [lɛɛjə] "to be shy"
3) [mɔkɛɛli] "shepherd"
1) [ččmč] “habit”
2) [ččmbč] “to blow one’s nose”
3) [mčěndi] “messages”

[uu]  
1) [lúútů] “rubbish”
2) [tůů] “room”
3) [ndjúůwě] “hyena”

[oo]  
1) [jǒömě] “thing”
2) [mǒʊŋgọ] “caterpillar”
3) [mǒʊŋɖọ] “tail”

[əə]  
1) [wəɔmbó] “sugar”
2) [ləɔwə] “to speak”
3) [ləɔtɔ] “to faint”

[aa]  
1) [ndəɑ] “macabo”
2) [liɔɑːlɛ] “to kindle fire”

1.7.2 Consonants

[bl]  
1) [bǔə] “vegetables”
2) [libɔ] “to rot”
<table>
<thead>
<tr>
<th></th>
<th>(3) [libalé]</th>
<th>“to lend”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) [túú]</td>
<td>“room”</td>
</tr>
<tr>
<td></td>
<td>(2) [litútú]</td>
<td>“hump of cow”</td>
</tr>
<tr>
<td></td>
<td>(3) [likatówá]</td>
<td>“to nibble”</td>
</tr>
<tr>
<td></td>
<td>(1) [lidàngéå]</td>
<td>“to scold”</td>
</tr>
<tr>
<td></td>
<td>(2) [lidúwìgé]</td>
<td>“to baptize”</td>
</tr>
<tr>
<td></td>
<td>(1) [kò]</td>
<td>“rat mole”</td>
</tr>
<tr>
<td></td>
<td>(2) [lòká]</td>
<td>“rabbit”</td>
</tr>
<tr>
<td></td>
<td>(3) [kótó]</td>
<td>“fence”</td>
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<tr>
<td></td>
<td>(1) [kpélí]</td>
<td>“death”</td>
</tr>
<tr>
<td></td>
<td>(2) [ikpå]</td>
<td>“salt”</td>
</tr>
<tr>
<td></td>
<td>(3) [måkpå]</td>
<td>“bags”</td>
</tr>
<tr>
<td></td>
<td>(1) [gbàjò]</td>
<td>“canoe”</td>
</tr>
<tr>
<td></td>
<td>(2) [ègbìjè]</td>
<td>“banana tree”</td>
</tr>
<tr>
<td></td>
<td>(3) [gbéá]</td>
<td>“Buea”</td>
</tr>
<tr>
<td></td>
<td>(1) [èé]</td>
<td>“viper”</td>
</tr>
</tbody>
</table>
2) [tíndí]  "gun powder"
3) [liśótà]  "to report"

[bl]
1) [liβé]  "to boil"
2) [máøðá]  "door"
3) [liβùβùá]  "to pluck chicken"

[sl]
1) [sòwè]  "dust"
2) [sáwá]  "beach"
3) [mòsò]  "lake"

[xl]
1) [mòjái]  "shrimp"
2) [ò3ò]  "parrot"
3) [è3ò]  "owl"

[tsl]
1) [tsòβí]  "speech"
2) [mútsà]  "palm oil"
3) [tsà]  "of"

[m]
1) [mákòñí]  "hill"
2) [mòsò]  "lake"
3) [òjámí]  "why"
<table>
<thead>
<tr>
<th>Root</th>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>[n]</td>
<td>1] [èwùnè]</td>
<td>&quot;wave&quot;</td>
</tr>
<tr>
<td></td>
<td>2] [liènì]</td>
<td>&quot;mirror&quot;</td>
</tr>
<tr>
<td></td>
<td>3] [nà]</td>
<td>&quot;and&quot;</td>
</tr>
<tr>
<td>[n]</td>
<td>1] [nàngàlù]</td>
<td>&quot;sand&quot;</td>
</tr>
<tr>
<td></td>
<td>2] [mònéá]</td>
<td>&quot;frog&quot;</td>
</tr>
<tr>
<td></td>
<td>3] [nàkà]</td>
<td>&quot;cow&quot;</td>
</tr>
<tr>
<td>[mb]</td>
<td>1] [mbàkà]</td>
<td>&quot;fog&quot;</td>
</tr>
<tr>
<td></td>
<td>2] [mbùá]</td>
<td>&quot;rain&quot;</td>
</tr>
<tr>
<td></td>
<td>3] [mbàmbá]</td>
<td>&quot;grandmother&quot;</td>
</tr>
<tr>
<td>[nd]</td>
<td>1] [èjòndì]</td>
<td>&quot;island&quot;</td>
</tr>
<tr>
<td></td>
<td>2] [lièndì]</td>
<td>&quot;hole&quot;</td>
</tr>
<tr>
<td></td>
<td>3] [ndíwà]</td>
<td>&quot;Buffalo&quot;</td>
</tr>
<tr>
<td>[ng]</td>
<td>1] [ngùlèndè]</td>
<td>&quot;rainbow&quot;</td>
</tr>
<tr>
<td></td>
<td>2] [èlìngì]</td>
<td>&quot;shade&quot;</td>
</tr>
<tr>
<td></td>
<td>3] [ngò]</td>
<td>&quot;wind&quot;</td>
</tr>
<tr>
<td>[bw]</td>
<td>1] [bwìtákà]</td>
<td>&quot;swelling&quot;</td>
</tr>
<tr>
<td></td>
<td>2] [bwàm]</td>
<td>&quot;fine&quot;</td>
</tr>
</tbody>
</table>
3) [ilibwàni] "key"

[ndj]
1) [ndjàndjà] "sea"
2) [lònwè] "to murder"
3) [nòwàntà] "child"

[w]
1) [wòsi] "horse"
2) [òwà] "you"
3) [wù] "them"

[y]
1) [lìjá] "hand"
2) [wèjònòndì] "islanders"
3) [jòtàngúlù] "lizard"

[ndjì]
1) [ndjùmá] "war"
2) [ndjèyà] "road"
3) [ndjàngà] "crayfish"

[l]
1) [lànà] "to fight"
2) [mòlì] "wealth"
3) [èjàlà] "word"
[dʒl]
1) [dʒaːt]  "no"
2) [dʒoŋgə]  "pan"
3) [dʒemə]  "tongue"

1.7.3 Tones
Tones occur on vowels and syllabic nasals. They consist of:
- Two punctual tones: The high (') and The low (\) tones.
- Two modular tones: The high-low ('') and The low-high (\) tones. Tones will be discussed more as we proceed.

**Punctual tones**
The high tone ['']
1) [ndokə]  "soup or pepper"
2) [lijə]  "palmtree"
3) [sawə]  "shore"

The low tone [']
1) [ngulɛndə]  "rainbow"
2) [mbəkə]  "road"
3) [litəkə]  "mud"

The high-low tone ['']
1) [wɔ]  "them"
2) [mɔ]  "him"
3) [ŋʊ]  "hipopotamus"
The low-high tone [\textsuperscript{\textdagger}]

1) [li3i\textepsilon] "termite"
2) [liw\textbar] "to slaughter"
3) [m\textbar k\textbar p\textbar \textbar a] "bags"

1.8 \textbf{Phonic Charts}

1.8.1 \textbf{Tones}

1.8.2 \textbf{Vowels}

\begin{tabular}{c|c|c|c|c|c}

<table>
<thead>
<tr>
<th>i</th>
<th>ii</th>
<th>u</th>
<th>uu</th>
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<tbody>
<tr>
<td>e</td>
<td>ee</td>
<td>o</td>
<td>oo</td>
</tr>
<tr>
<td>c</td>
<td>cc</td>
<td>o</td>
<td>oo</td>
</tr>
<tr>
<td>a</td>
<td>aa</td>
<td></td>
<td></td>
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</tbody>
</table>
\end{tabular}

1.8.3 \textbf{Consonants}

\begin{tabular}{c|c|c|c|c|c}

<table>
<thead>
<tr>
<th>b, bw</th>
<th>t</th>
<th>k</th>
<th>kp</th>
</tr>
</thead>
<tbody>
<tr>
<td>d</td>
<td></td>
<td></td>
<td>gb</td>
</tr>
</tbody>
</table>

\begin{tabular}{|c|c|c|c|c|c|c}

<table>
<thead>
<tr>
<th>f</th>
<th>s</th>
<th>t</th>
<th>tr</th>
</tr>
</thead>
<tbody>
<tr>
<td>\phi</td>
<td>s</td>
<td>t</td>
<td>tr</td>
</tr>
<tr>
<td>\beta</td>
<td>s</td>
<td>t</td>
<td>tr</td>
</tr>
<tr>
<td>m</td>
<td>n</td>
<td>nd</td>
<td>nd3</td>
</tr>
<tr>
<td>mb</td>
<td>nd</td>
<td>nd3</td>
<td>ng</td>
</tr>
<tr>
<td>l</td>
<td>j(y)</td>
<td>ng</td>
<td></td>
</tr>
<tr>
<td>w</td>
<td></td>
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</tbody>
</table>
\end{tabular}

\textbf{NOTE}

2.1 Introduction

Our main concern in this chapter is to bring out the distinctive sounds of Bubia. These distinctive sounds are those that have a phonemic status. We will use the minimal pair approach propounded by Pike (1947), and Wiesemann et al (1983). In this case, we will examine pairs or even trios of words that are similar in all respects but for one phonetic difference. This method of analysis will examine from these pairs of trios, pairs of similar sounds as they contrast in identical contexts(1). Where this proves inadequate to establish sounds as phonemes, we will examine their contrast in analogous contexts(2). In cases where these two including the theory of symmetry cannot spell out the sounds as distinctive units, we will examine their general distribution in the words in which they occur to see if they exist in complementary distribution to establish them as allophones of the same phoneme.

2.2 Consonants

Bubia has a system of twenty-four (24) consonant sounds. We will now proceed to the analysis of these consonant sounds to see if some of them constitute distinctive units in this language, or if they are allophones of other phonemes. We have come to this...
2.2.1 Phonetic Inventory

Chart 1 below contains all consonant sounds that exist in Bubia. These sounds that are classified according to place and manner of articulation were seen under inventory of sounds and tones in (Chapter 1:1.7.2). We have groups of suspicious pairs from the chart that show similarity in one way or the other. These suspicious pairs call for a close analysis in order to bring out the real nature of their similarities.

CONSONANT PHONETIC CHART IN I.P.A

<table>
<thead>
<tr>
<th>Place of Articulation</th>
<th>Bilabial/Labialized</th>
<th>Dental-Alveola</th>
<th>Palatal</th>
<th>Velar/Labialized</th>
<th>Labio-Velar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stops</td>
<td>VL</td>
<td>b</td>
<td>t</td>
<td>k</td>
<td>kp</td>
</tr>
<tr>
<td></td>
<td>VD</td>
<td>bw</td>
<td>d</td>
<td></td>
<td>gb</td>
</tr>
<tr>
<td>Fricatives</td>
<td>VL</td>
<td>φ</td>
<td>s</td>
<td></td>
<td>ʒ</td>
</tr>
<tr>
<td></td>
<td>VD</td>
<td>β</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affricates</td>
<td>VL</td>
<td></td>
<td>ʧ</td>
<td></td>
<td>dʒ</td>
</tr>
<tr>
<td></td>
<td>VD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasals</td>
<td>VD</td>
<td>m</td>
<td>n</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>Pre-nasalized Stops</td>
<td>VL</td>
<td>mb</td>
<td>nd</td>
<td>ndʒ</td>
<td>ow</td>
</tr>
<tr>
<td></td>
<td>VD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquids</td>
<td>VD</td>
<td>l</td>
<td>j(y)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glides</td>
<td>VD</td>
<td></td>
<td></td>
<td></td>
<td>w</td>
</tr>
</tbody>
</table>

Chart 1:

What criteria did you use to treat mb, nd, ndʒ as SWW or con of pre-nasalization? Were any consonants segments?
2.2.2 Pairs of Similar Sounds

Bilabials: (b,bw) (f,β) (b,m) (m,mb) (b,mb) (b,β) (m,n)

Alveolars: (t,d) (t,s) (d,n) (n,nd3) (d,nw) (d,nd) (d,l) (n,m)

Palatails: (n,nd3) (j,w) (nd3,ŋg) (n,j) (tʃ,dʒ) (n,ŋw) (ŋ,dʒ)

Velars: (k, kp)

Labio-velars: (kp, gb).

2.2.3 Phonological Analysis

BILABIALS

i) The sound [b]

This sound is realized as a voiced bilabial stop. The sound [b] gains its phonemic status in Bubia through its contrast in identical context with [mb] in:

<table>
<thead>
<tr>
<th>b/mb</th>
</tr>
</thead>
<tbody>
<tr>
<td>[bwà] &quot;vegetables&quot;</td>
</tr>
</tbody>
</table>

[b] also gains this phonemic status through its contrast in analogous context with [m] in:

<table>
<thead>
<tr>
<th>b/m</th>
</tr>
</thead>
<tbody>
<tr>
<td>[libó] &quot;seabed&quot;</td>
</tr>
</tbody>
</table>

and with [β] in:

<table>
<thead>
<tr>
<th>b/β</th>
</tr>
</thead>
<tbody>
<tr>
<td>[libálè] &quot;to lend&quot;</td>
</tr>
</tbody>
</table>

3) [libó] "seabed" [liβà] "to marry"
Looking at [b] and [bw], the examples [bʊà] "vegetables"/[bwà] "vegetables" illustrate glide formation. This will lead us to postulate the following rule:

\[ [b + u] \rightarrow [bw]/-V \]

The sound [b] is a phoneme in Bubia, thanks to its contrast in identical environment with the sound [mb], and in analogous environment with [m] and [b]. The phoneme /b/ has no allophonic variant in Bubia, though it participates in the glide formation process of w: [b+u] \( \rightarrow [bw]/-V \).

ii) The sound [f]

The sound [f] is realized as a voiceless bilabial fricative.

This sound gains its phonemic status through its contrast in analogous context with the sound [β] in the following examples:

\( f/\beta \)

5) [lifə्fə] "broom" [liβuβə] "to coagulate"

6) [lifǐtə] "hope" [lāβitə] "wish"

Following this contrast, /f/ becomes a distinct phoneme in Bubia.
iii) **The Sound [β]**

It is realized as a voiced bilabial fricative. [β] gains its phonemic status through its contrast in analogous environment with [φ]; see examples (5) and (6) on the preceding page above, but also:

β/φ

7) [liβɔngá] “to forget”   [liφàngá] “to destroy”

and from its contrast with [b]

β/b

8) [liβɔ] “to get lost”   [libõ] “seabed”

This contrast further confirms /β/, /φ/ and /b/ as being three distinct phonemes.

iv) **The Sound [m]**

This sound is realized as a voiced bilabial nasal. The sound [m] attains its phonemic status /m/ through its contrast in analogous context with [mb]; This contrast is analogous because the tones are different.

m/mb

9) [mɔli] “wealth”   [mbɔli] “goat”

and also in identical and analogous contexts with the sounds [n] and [b].
m/n
10) [litônà]  "to break"  [litônà]  "mistake"
11) [lénè]  "to swallow"  [lénè]  "to look"

m/b
12) [mìà]  "palmtress"  [bùà]  "vegetables"
13) [lìmà]  "to dig"  [libó]  "seabed"

Following this contrast, the sound [m] gains the status of the phoneme /m/.

v) The Sound [mb]
This sound is realized as the voiced prenasalized stop. [mb] gains its phonemic status through its contrast in identical contexts with the sounds [b] and [m].

mb/m
14) [mìá]  "palmnuts"  [mìà]  "palmtrees"

mb/b
15) [mbwà]  "rain"  [bùà]  "vegetables".
This contrast further confirms /mb/, /b/ and /m/ as three distinct phonemes.

ALVEOLARS
vi) The Consonant [t]
This sound is realized as a voiceless alveolar stop.
[t] gains its phonemic status through its contrast in identical context with the sound [s].

\[
\text{t/s}
\]

16) [mòtò] "man" [mòsò] "lake",

and from its contrast in analogous environment with the sound [d].

\[
\text{t/d}
\]

17) [litàngà] "to pay" [lidàngéá] "to scold"

These contrasts give the sound [t] the status of the phoneme /t/.

vii) The Sound [d]

This sound is realized as a voiced alveolar stop. [d] gains its phonemic status through its contrast in analogous environments with the sounds [t], [nd] [n] and [l].

\[
\text{d/t}
\]

See t/d (above: (vi:17).

\[
\text{d/n}
\]

18) [lidàngéá] "to scold" [linàngá] "sleep"

\[
\text{d/nd}
\]

19) [lidúwìjé] "to baptize" [lòndìzè] "to be full"
This contrast further confirms /t/, /d/, /nd/, /n/ and /l/ as five distinct phonemes.

viii) The Sound [s]

This sound is realized as a voiceless alveolar fricative. [s] gains its phonemic status from its contrast in analogous and identical environments with the sound [t].

s/t

21) [lisákà] "to dance" [litàmà] "doubt"
   [mòsò] "lake" [mòtò] "human being"

This contrast gives the sound [s] the status of the phoneme /s/.

xi) The Sound [n]

This sound is realized as an alveolar nasal. [n] gains its phonemic status through its contrast in identical and analogous contexts with the sounds [m] and [n].

n/m

22) [mànà] "names" [màmà] "ligaments"
23) [ndʒénè] "which" [ndʒêmè] "sperms"
n/n
24) [lānā] "to fight" [lānā] "to shave"

And also in analogous environment with the sounds [d] and [n̥w].

n/d
see d/n in (vi:18)

n/nw
25) [lēnē] "to work" [l̥nwē] "lightning"
26) [lānā] "to fight" [l̥nwâ] "murder"

These contrasts further confirm /n/, /n̥/, /m/, /d/ and /n̥w/ as distinct phonemes. When we look at the contrast between the phonemes /n/ and /n̥w/ we realize that what happens is glide formation. This makes us to postulate that the phoneme /n̥w/ is the phoneme /n/ plus the vowel [u];

\[ n + u \rightarrow [n̥w]/ \rightarrow v. \]

nw/ng
27) [lūnwâ] "to prick" [lūngâ] "thin"

This analogous contrast, further confirms the phonemic status of /n̥w/ and /ng/.

Most of your phonemes are established on the basis of analogous contrasts.
x) The Sound [nw]
This sound is realized as a labialized velar nasal. For its contrast, see n/nw (ix:25 and 26).

xi) The Sound [nd]
This sound is realized as a pre-nazalized alveolar stop.

\[ nd/d \]
See d/nd (vii:18).
This contrast showed /nd/ as a distinct phoneme, in its contrast in analogous environment with the phoneme /d/.

xii) The consonant [l]
This sound is realized as an alveolar liquid.

\[ l/d \]
See d/l in (vii:20)

In this contrast the sound [l] contrasted in analogous context with the sound [l], giving it the status of the phoneme /l/.

---

PALATALS

xiii) The Sound [ts]
This sound is realized as a voiceless palatal affricate.
\textbf{[tʃ]/dʒ}

28) [tʃá] "of" [dʒáč] "which?"
29) [tʃóbi] "speech" [dʒóngó] "pan"

[tʃ] and [dʒ] contrast in analogous contexts. This gives /tʃ/ the status of a phoneme and confirms /dʒ/ as a distinct phoneme.

\textbf{dʒ/ʒ}

30) [lídʒá] "to come" [láʒá] "to want"
31) [èdʒá] "matter" [èʒù] "wall"

These analogous contrasts further confirm the phonemic status of /dʒ/ and also give [ʒ] the status of the phoneme /ʒ/.

xiv) \textbf{The Sound [dʒ]}

This sound is realized as a voiced palatal affricate [dʒ] gains its status as a phoneme in its contrasts in analogous environments with [tʃ] and [n].

\textbf{dʒ/ʃ}

See tʃ/dʒ in (xiii:28 and 29).

\textbf{dʒ/n}

32) [lídʒá] "to come" [liíŋá] "to urinate"
This contrast gives the sound [dʒ] the status of the phoneme /dʒ/, and also confirms the phonemic status of /n/ and /tʃ/.

xv) The sound [ŋ]

This sound is realized as a palatal nasal. The sound [ŋ] gains its phonemic status in its contrast in identical context with [n], and [ndʒ]; and in analogous environment with the sound [dʒ].

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<tbody>
<tr>
<td>/n/</td>
<td></td>
</tr>
<tr>
<td>33) [linɔŋgɔ]</td>
<td>&quot;to breastfeed&quot;</td>
</tr>
<tr>
<td>34) [lina]</td>
<td>&quot;to lay eggs&quot;</td>
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<p>| | |</p>
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<th></th>
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<tbody>
<tr>
<td>/ndʒ/</td>
<td></td>
</tr>
<tr>
<td>35) [lɔŋɔ]</td>
<td>&quot;to groan&quot;</td>
</tr>
<tr>
<td>36) [nin]</td>
<td>&quot;fly&quot;</td>
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<tbody>
<tr>
<td>/dʒ/</td>
<td></td>
</tr>
<tr>
<td>37) [nɔ]</td>
<td>&quot;drink&quot;</td>
</tr>
<tr>
<td></td>
<td>[idʒ]</td>
</tr>
</tbody>
</table>

These contrasts give the sound [ŋ] the status of the phoneme /ŋ/, and also confirm the phonemic status of /n/, /ndʒ/ and /dʒ/.

xvi) The sound [ndʒ]

This sound is realized as a voiced pre-nasalized stop. [ndʒ], gains its phonemic status in its contrast in
identical and analogous environments with the sounds [n] and
[ŋ].

\( \text{nd}3/\text{n} \)

See No. (xv:32 and 33), and also these below
38) [nd3 그리] "leopard" [nɔ] "drink"

\( \text{nd}3/\text{ŋ} \)

39) [nd3 ꩃnd3 ꩃ] "mushroom" [dʒŋɡʊ] "gluttony"
40) [ŋwɔnd3 ꩃ] "sea" [māŋɡà] "air"

This shows the phonemic status of /nd3/ and also
confirms /n/ and /ŋ/ as distinct phonemes.

xvii) The Sound [j]

This sound is realized as a palatal glide.
[j] gains its phonemic status in its contrast in identical
environment; with the sound [w].

\( \text{i}/\text{w} \)

41) [lij ꩃ] "palm oil tree" [liw ꩃ] "to slaughter"
42) [lij ꩃ] "to smile" [liw ꩃ] "neck"

These contrasts clearly show the phonemic status of the
phoneme /j/, and also confirm [w] as the distinct phoneme
/w/.
VELARS

xviii) The Sound [k]
This sound is realized as a voiceless velar stop.
[k] gains its status as a phoneme from its contrast with the sound [kp].

\[k/kp\]
43) [likà] "to leave behind" [likpà] "to fail"
44) [litókà] "to draw water" [litákà] "to explain"
[k] does not only confirm itself as the phoneme /k/ but also confirms the phonemic status of /kp/.

xvix) The Sound [ŋ]
This sound is realized as a voiced velar prenasalized stop.
[ŋ] confirms its phonemic status in its contrast in analogous environments with the sound [ndʒ].

\[ŋ/ndʒ\]
See ndʒ/ŋ in (xvi:36 and 37), but also;
45) [ŋðndò] "peanut" [ndʒðndʒò] "mushroom"
46) [wàŋgà] "bush" [wàndʒà] "sea"
These contrasts confirm the phonemic status of /ŋ/.

LABIO-VELARS

xx) The Sound [kp]
This sound is realized as a voiceless labio-velar stop.
[kp] gains its phonemic status in its contrast in identical and analogous environments with the sounds [k] and [gb].

\[kp/k\]

47) [mákpà] "bags" [lákà] "to succeed"
48) [likpéà] "to enter" [likèkà] "to try"

\[kp/gb\]

49) [kpéli] "death" [gbéli] "vomit bile"
50) [likpà] "to fail" [liɪgbà] "to steal"

The sound [kp] can be considered the phoneme /kp/ after its contrasts with [k] and [gb].

xxi) The Sound [gb]

This sound is realized as a voiced labio-velar stop. It gains its phonemic status in its contrast in identical environment with the sound [kp].

\[gb/kp\]

See ((xx):46), but also;
51) [liɪgbéà] "to break" [likpéà] "to enter"

This contrast gives the sound [gb] the phonemic status of /gb/, and also confirms the phonemic status of /kp/.

xxii) The sound [w].

This sound is realized as a labio-velar glide. [w] confirms its phonemic status as a phoneme in its contrast with the sound [j].
w/ɪ

See j/w in (xvii:38 and 39), but also
52) [wōmā] "drunk" [jōmā] "abcess"
53) [wōwē] "badness" [jōwā] "ants"

These contrasts confirm the phonemic status of /w/ and /j/.

2.2.4 Definition and Classification of consonant phonemes

<table>
<thead>
<tr>
<th>Phoneme</th>
<th>Definition</th>
<th>Contrasts with</th>
</tr>
</thead>
<tbody>
<tr>
<td>/b/</td>
<td>Voiced bilabial stop</td>
<td>[mb, m, and β]</td>
</tr>
<tr>
<td>/β/</td>
<td>Voiced bilabial fricative</td>
<td>[f, and b]</td>
</tr>
<tr>
<td>/v/</td>
<td>Voiceless &quot;        &quot;</td>
<td>[β]</td>
</tr>
<tr>
<td>/m/</td>
<td>Voiced &quot;        nasal</td>
<td>[n, mb and b]</td>
</tr>
<tr>
<td>/t/</td>
<td>Voiceless alveolar stop</td>
<td>[d and s]</td>
</tr>
<tr>
<td>/d/</td>
<td>Voiced &quot;        &quot;</td>
<td>[t, l, n, nd]</td>
</tr>
<tr>
<td>/s/</td>
<td>Voiceless alveolar fricative</td>
<td>[t]</td>
</tr>
<tr>
<td>/n/</td>
<td>Voiced &quot;        nasal</td>
<td>[m, nw, n, d]</td>
</tr>
<tr>
<td>/nw/</td>
<td>Voiced velar labialized nasal</td>
<td>[n, ng]</td>
</tr>
<tr>
<td>/nd/</td>
<td>Voiced alveolar pre-nasalized stop</td>
<td>[n, and d]</td>
</tr>
<tr>
<td>/l/</td>
<td>Alveolar liquid</td>
<td>[d]</td>
</tr>
<tr>
<td>/ʒ/</td>
<td>Voiced palatal fricative</td>
<td>[dʒ]</td>
</tr>
<tr>
<td>/tʃ/</td>
<td>Voiceless palatal affricate</td>
<td>[dʒ]</td>
</tr>
<tr>
<td>/dʒ/</td>
<td>Voiced palatal affricate</td>
<td>[tʃ, n]</td>
</tr>
<tr>
<td>/n/</td>
<td>Palatal nasal</td>
<td>[n, ndʒ, dʒ]</td>
</tr>
<tr>
<td>/ndʒ/</td>
<td>Voiced palatal pre-nasalized stop</td>
<td>[n, ng]</td>
</tr>
<tr>
<td>/ʒ/</td>
<td>Palatal glide</td>
<td>[w]</td>
</tr>
</tbody>
</table>
The preceding classification of consonants in Bubia gives the following consonant phonemes chart.

<table>
<thead>
<tr>
<th>Place of Articulation</th>
<th>Bilabial/Labialized</th>
<th>Dental-Alveola</th>
<th>Palatal</th>
<th>Velar/Labialized</th>
<th>Labio-Velar</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stops</strong></td>
<td>VL</td>
<td>VD</td>
<td>t</td>
<td>k</td>
<td>kp</td>
</tr>
<tr>
<td></td>
<td>b</td>
<td>bw</td>
<td>d</td>
<td></td>
<td>gb</td>
</tr>
<tr>
<td><strong>Fricatives</strong></td>
<td>VL</td>
<td>VD</td>
<td>s</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f</td>
<td>β</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Affricates</strong></td>
<td>VL</td>
<td>VD</td>
<td>tʃ</td>
<td>dʒ</td>
<td></td>
</tr>
<tr>
<td><strong>Nasals</strong></td>
<td>VD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>m</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td></td>
<td>mb</td>
<td>nd</td>
<td>ndʒ</td>
<td>ng</td>
<td></td>
</tr>
<tr>
<td><strong>Pre-nasalized</strong></td>
<td>VD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Liquids</strong></td>
<td>VD</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Glides</strong></td>
<td>VD</td>
<td></td>
<td>j</td>
<td></td>
<td>w</td>
</tr>
</tbody>
</table>

2.2.5 **Phonemic Inventory**

All consonants in Bubia are distinct phonemes. These phonemes are grouped into stops, fricatives, affricates,
nasals, pre-nasalized stops, liquids, and glides. We used near minimal pairs in cases where these consonants could not contrast in identical environments to bring out their phonetic status. Chart 3 gives us the phonemic consonants in Bubia. It was rather unfortunate that we could not find many words with the /d/ sound during research. This was a great handicap to our phonetic inventory and phonemic analysis.

<table>
<thead>
<tr>
<th>Place of Articulation</th>
<th>Manner of articulation</th>
<th>Bilabial/Labialized</th>
<th>Labio-Dental</th>
<th>Palatal</th>
<th>Velar/Labialized</th>
<th>Labio-Velar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stops</td>
<td>VL</td>
<td>b</td>
<td>t</td>
<td>k</td>
<td>kp</td>
<td>gb</td>
</tr>
<tr>
<td></td>
<td>VD</td>
<td>bw</td>
<td>d</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fricatives</td>
<td>VL</td>
<td>s</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>VD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affricates</td>
<td>VL</td>
<td>tʃ</td>
<td>tʃ</td>
<td>dʒ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasals</td>
<td>VD</td>
<td>m</td>
<td>n</td>
<td>n</td>
<td>nmay</td>
<td></td>
</tr>
<tr>
<td>Pre-nasalized</td>
<td>VL</td>
<td>mb</td>
<td>nd</td>
<td>ndʒ</td>
<td>ng</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquids</td>
<td>VD</td>
<td>l</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glides</td>
<td>VD</td>
<td>j</td>
<td></td>
<td></td>
<td></td>
<td>w</td>
</tr>
</tbody>
</table>

Chart 3:
Consonant Phoneme Distribution

<table>
<thead>
<tr>
<th>CONSONANTS</th>
<th>#-</th>
<th>'V-V'</th>
<th>-#</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>bw</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Φ</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>β</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>m</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>mb</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>t</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>d</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>s</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>n</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>nw</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>nd</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>l</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>ts</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>d3</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>n</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>nd3</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>j</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>k</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>ng</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>kp</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>gb</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>w</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
</tbody>
</table>

Chart 5:
Column 1: - Consonants that occur initially
Column 2: - Consonants that occur medially
Column 3: - Consonants that occur finally
2.3 Vowels

A close examination of our data on chapter one shows that Bubia has 14 (fourteen) vowel sounds.

2.3.1 Phonetic Inventory

These fourteen vowel sounds that exist in Bubia are classified according to position of lips, height of the tongue, horizontal movement of the tongue, and passage of air. These vowel sounds can be seen on the chart below.

<table>
<thead>
<tr>
<th>Position of lips and tongue</th>
<th>Front unrounded</th>
<th>Central unrounded</th>
<th>Back rounded</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>i</td>
<td></td>
<td>u</td>
</tr>
<tr>
<td></td>
<td>ii</td>
<td></td>
<td>uu</td>
</tr>
<tr>
<td>Mid-high</td>
<td>e</td>
<td></td>
<td>o</td>
</tr>
<tr>
<td></td>
<td>ee</td>
<td></td>
<td>oo</td>
</tr>
<tr>
<td>Mid-low</td>
<td>e</td>
<td></td>
<td>c</td>
</tr>
<tr>
<td></td>
<td>ee</td>
<td></td>
<td>cc</td>
</tr>
<tr>
<td>Low</td>
<td></td>
<td>a</td>
<td>aa</td>
</tr>
</tbody>
</table>

The position of vowel sounds on this chart is not based on standard phonetic principles, but on approximate oral perception of acoustic distance between sounds.

2.3.2 Pairs of similar sounds

(i,e), (e,e), (e,ee), (a,aa), (u,uu) (o,oo), (o,oo)

(i,ii), (e,ee), (e,a) (u,o) (o,o)

(ii,ee), (ee,ee), (ee,aa) (uu,oo), (oo,oo)
2.3.3 Phonemic analysis

i) The sound [i]

This sound is realized as the front, high, unrounded vowel. [i] gains its phonemic status in its contrast in identical environment with the sound [e], and in analogous environment with [ii].

\[i/e\]

1) [lijà] "hand" [lèjà] "to cry"

\[i/ii\]

2) [liiñà] "to defecate" [liiñà] "to urinate"
3) [lidʒà] "to come" [iidʒà] "pus"

The sound [i] can be considered the phoneme /i/ through its contrast with the sounds [e] and [ii]. This contrast further confirms the phonemic status of the phonemes /e/ and /ii/.

ii) The sound [e]

This sound is realized as the mid-high front, unrounded vowel.
The sound [e] gains its status as a phoneme in its contrast in identical contexts with the sounds [i], [e] and [ee].

\[e/i\]

4) [lèwà] "to sharpen" [liwà] "to slaughter"
5) [likékà] “to prevent” [likékà] “to try”

e/ee

6) [lèjà] “to cry” [lèéjà] “to be shy”

These contrasts confirm the phonemic status of /e/, and also the phonemic status of /i/, /e/, and /ee/.

ii) The sound [e]

This sound is realized as the mid-low, front, unrounded vowel.

[e] gains its status as a phoneme in its contrast in identical environments with the sounds [a], [e], and [ee].

e/a

7) [lùtè] “to hide oneself” [lùtà] “to hide something”
8) [lèndè] “to go” [lànà] “to buy”

e/e

9) [litè] “to scream” [litè] “sweet”

e/ee

10) [lènè] “to look” [lèènè] “to shine”

These contrasts prove the phonemic status of /e/, and also confirm the phonemic status of /a/, /e/ and /ee/. 
iv) The sound [a]

This sound is realized as the low central unrounded vowel.

[a] gains its phonemic status in its contrast in identical context with [e], and in analogous environment with [aa]

\[a/e\]
11) [lānā] "to fight" [lēnē] "to look"
12) [līlōkā] "to row" [līlōkē] "respect"

\[a/aa\]
13) [lībālē] "toan" [lībālē] "to kindle fire"

These contrasts give [a] the status of the phoneme /a/ and confirm the phonemic status of /e/ and /aa/.

v) The sound [u]

This sound is realized as the back round vowel.

[u] gains its status as a phoneme in its contrasts in identical environments with the sounds [o] and [uu].

\[u/o\]
14) [mbūā] "rain" [mbōā] "town"
15) [ūwēlē] "ask" [ōwēlē] "question"
16) [ētūlū] "lamp" [ētōlō] "rat"

\[u/uu\]
17) [lūmbā] "to stink" [lū́mbā] "to close"
The sound [u] can be considered the phoneme /u/, due to its contrasts with the sounds [o] and [uu]. These contrasts further confirm the phonemic status of /o/, and /uu/.

vi) The sound [o]

This sound is realized as a back, mid-high, round vowel.

[o] gains its phonemic status as it contrasts in identical and analogous environments with the sounds [u], [ɔ], and [oo].

\[ \text{o/u} \]

18) [n̥ɔ] "bodies"  [n̥ʊ] "body".
19) [mɔlɔn̥i] "old age"  [mɔlʊn̥i] "to grow old"
20) [wɛtɔlɔ] "rats"  [wɛtʊlʊ] "lamps"

\[ \text{o/ɔ} \]

21) [nɔ] "bodies"  [nɔ] "drink"
22) [kɔ] "rat mole"  [kɔ] "snail"

\[ \text{o/ɔɔ} \]

23) [mɔlɪ] "wealth"  [mɔlɪ] "mountain"
24) [jɔmɔ] "abcess"  [jɔmɔ] "thing"

These contrasts prove the phonemic status of /o/ and further confirm the phonemic status of the phonemes /u/, /ɔ/, and /oo/.
vii) The sound [ɔ]

This sound is realized as a low back round vowel. The sound [ɔ] gains its phonemic status in its contrasts in identical and analogous environments with the sounds [o], and [ɔː].

ɔ/ɔ
25) [liwɔ] "neck" [liwɔ] "beach"
26) [lɔkɔ] "to wash" [lɔkɔ] "game"
27) [ŋɔndɔ] "peanut" [ŋɔndɔ] "big gown for women"
28) [mɔkɔkɔ] "branch" [mɔkɔkɔ] "sugarcane"

ɔ/ɔɔ
29) [lɔtɔ] "to be tired" [lɔstɔ] "to faint"

These contrasts prove the phonemic status of /ɔ/, and also confirm the phonemic status of /o/, and /ɔɔ/.

viii) The sound [iɪ]

This sound is realized as the front, high, long, unrounded vowel. Its contrasts with the sounds [i], and [ee], give it a phonemic status.

iɪ/i
See i/i in ((i):273)
ii/ee

30) [liiñà]  "to urinate"  [lèéyà]  "to be shy"

The sound [ii] gains its phonemic status through its contrasts with the sound [i] and [ee] in analogous environments. These contrasts give it the status of the phoneme /ii/, and also confirm the phonemic status of /ee/, and /i/.

ix) The sound [ee]

Realized as the front mid-high, long, unrounded vowel, this sound contrasts in identical environment with the sound [e], and in analogous environments with the sounds [ii], and [cc].

ee/e
See e/ee in ((ii):6)

ee/ii
See ii/ee in (viii:30)

ee/cc

31) [wèémbé]  "mammals"  [wèémcè]  "habits"

These contrasts no doubt give [ee] the status of the phoneme /ee/ and also confirm the phonemic status of the phonemes /ii/, /cc/ and /e/.
x) The sound [cc]

This sound is realized as the mid-low, front, long, unrounded vowel.

To confirm its phonemic status, the sound [cc] contrasts in identical environment with [c], and in analogous environments with [aa] and [ee].

c/c
See c/cc in (iii:10)

cc/aa

32) [êc] "yes" [ndâá] "different types of macabo"

cc/ee

33) [leémbé] "to blow one's nose" [wéémbé] "mammals"

These contrasts confirm the phonemic status of /cc/, not leaving out that of /ee/, /c/, and /aa/.

xi) The sound [aa]

Realized as the central, low, long, unrounded vowel, this sound contrasts in analogous environments with [a], and [aa].

aa/a

34) [ndâá] "types of macabo" [nà] "and"
35) [libâálé] "to kindle fire" [libálé] "to stink"
aa/ee
See ee/aa in (x:32)

These contrasts confirm the sound [aa] as the phoneme /aa/, and also confirm the phonemic status of /a/, and /ee/.

xii) The sound [uu]

This sound is realized as the high, back, long rounded vowel. It contrasts with the sounds [aa] and [u] in both identical and analogous environments.

uu/u
See u/uu in (v:17), but also:
36) [lúútû] "rubbish" [lùtá] "to preserve"

uu/oo
37) [likúuwà] "diarrhea" [likòówà] "to pull"
38) [lùungà] "abdomen" [tòóngà] "round"

The sound [uu], through these contrasts, become the phoneme /uu/. These contrasts also confirm /u/ and /oo/ as distinct phonemes.

xiii) The sound [oo]

This sound is realized as the back, long, mid-high rounded vowel.

It contrasts in identical environment with [o], and in analogous environment with [oo] and [uu].
oo/ọ
See ọ/oo in (vi:23 and 24)

oo/ọọ
39) [wọọlọ] "greatness" [wọọmbọ] "sugar"

oo/ụu
See ụu/oo in (xii:37 and 38), but also;
40) [tọọngạ] "round" [ụọọngạ] "abdomen"

These contrasts give the sound [oo] the phonemic status /oo/, and confirm /ọ/, /ọọ/, and /ụu/ as distinct phonemes.

xiv) The sound [ọọ]
This sound is realized as the back mid-low, long, rounded vowel.
It contrasts in identical and analogous environment with [ọ] and in analogous environment with the sound [oo].

ọọ/ọ
41) [wọọmbọ] "sugar" [wọọngọ] "fear"

ọọ/ọọ
See ọọ/ọọ in (xiii:39)

The sound [ọọ] becomes the phoneme /ọọ/ through its contrasts with [ọ] and [oo]. It also through the contrasts confirm /ọọ/ and /ọ/ as distinct phonemes.
2.3.4 **Definition and classification of Vowel Phonemes**

<table>
<thead>
<tr>
<th>Phonemes</th>
<th>Definition</th>
<th>Contrasts</th>
</tr>
</thead>
<tbody>
<tr>
<td>/i/</td>
<td>front, high, unrounded vowel</td>
<td>[e, ii]</td>
</tr>
<tr>
<td>/ii/</td>
<td>front, long, high, unrounded vowel</td>
<td>[i, ee]</td>
</tr>
<tr>
<td>/e/</td>
<td>front, mid-high unrounded vowel</td>
<td>[i, e, ee]</td>
</tr>
<tr>
<td>/ee/</td>
<td>front mid-high long unrounded vowel</td>
<td>[ii, e]</td>
</tr>
<tr>
<td>/a/</td>
<td>mid-low front unrounded vowel</td>
<td>[e, a, ee]</td>
</tr>
<tr>
<td>/aa/</td>
<td>mid-low, front, long, unrounded vowel</td>
<td>[e, a, ee]</td>
</tr>
<tr>
<td>/u/</td>
<td>central, low, unrounded vowel</td>
<td>[e, a, a]</td>
</tr>
<tr>
<td>/uu/</td>
<td>central, low, unrounded long vowel</td>
<td>[e, a, a]</td>
</tr>
<tr>
<td>/o/</td>
<td>back, high, round vowel</td>
<td>[o, uu]</td>
</tr>
<tr>
<td>/oo/</td>
<td>back, mid-high round vowel</td>
<td>[o, oo]</td>
</tr>
<tr>
<td>/o0/</td>
<td>back, mid-high long round vowel</td>
<td>[o, uu, oo]</td>
</tr>
<tr>
<td>/a/</td>
<td>back, mid-low round vowel</td>
<td>[o]</td>
</tr>
<tr>
<td>/aa/</td>
<td>back mid-low round long vowel</td>
<td>[a, aa]</td>
</tr>
</tbody>
</table>

2.3.5 **Classification of Vowels**

The vowel will be classified according to the height of the tongue, and its position in the mouth.

(a) **Height of the tongue**

**High vowels** - i, ii, u, uu.

**Mid-high vowels** - e, ee, o, oo.

**Mid-low vowels** - e, ee, o, oo.

**Low vowels** - a, aa.
(b) Position of the tongue
Front: i, ii, e, ee, e, ee
Central: a, aa
Back: u, uu, o, oo, o, oo

2.3.6 Phonemic Inventory
Vowel length in Bubia is phonemic. All the vowels we have seen so far are distinct phonemes. They occur only in open syllables because of the non-existence of closed syllables in Bubia. The vowel phonemes with their articulatory properties will be shown on Chart 5.

<table>
<thead>
<tr>
<th>Position of the tongue</th>
<th>Front unrounded</th>
<th>Central unrounded</th>
<th>Back unrounded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height of the tongue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>i, ii</td>
<td>u, uu</td>
<td></td>
</tr>
<tr>
<td>Mid-High</td>
<td>e, ee</td>
<td>o, oo</td>
<td></td>
</tr>
<tr>
<td>Mid-Low</td>
<td>e, ee</td>
<td>o, oo</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>a, aa</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chart 5:

2.3.7 Vowel Length
Vowel length is phonemic in Bubia. It is not compensatory. Long vowels occur initially, medially and finally, but not all of them appear in these positions anyway.
Chart 7:

<table>
<thead>
<tr>
<th>Vowels</th>
<th>#₁</th>
<th>C-C</th>
<th>#₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>ii</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>e</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>ee</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>o</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>uu</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>o</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>oo</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>o</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>oo</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>a</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>aa</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Column 1: Vowels that appear initially
Column 2: Vowels that occur between consonants
Column 3: Vowels that occur finally

2.3.8 Vowel harmony

The vowel system in Bubia is dominated by the phenomenon of vowel harmony. This feature is rampant in many African languages. This is the situation whereby vowels agree in certain features as backness, rounding etc. Vowels in Bubia can be classified into complete and incomplete systems. This is what Professor Chumbow (1982) postulates in vowel harmony. He says complete systems are
generally seen in those languages with a phonetic inventory of nine or ten vowels divided into parallel mutually exclusive sets distinguished by a phonetic feature, usually the feature advanced versus retracted tongue root. In incomplete vowel harmony systems, there is a generally reduced phonetic inventory of seven or fewer vowels and harmonic sets with two or more overlapping vowels that co-occur with vowels of either set. Although Bubia has an incomplete vowel system, it has some features of the complete vowel system, for the short vowels co-occur with themselves and vowels of either set.

\[
\begin{array}{ccc}
  i & ii & u \quad uu \\
  e & ee & o \quad oo \\
  a & aa & \\
\end{array}
\]

\[
\begin{array}{ccc}
  i & i \\
  u & u \\
  e & e \\
  o & o \\
  a & a \\
\end{array}
\]

In this incomplete vowel harmony system, that we find in Bubia, [i] [u] and [a] in sets A and B are neutral. This is because they co-occur with vowels of both sets. The vowels [e], [o] and [c] and [ο] are mutually exclusive.

**Illustration A**

A                   B
[wè-wàki] "chimpanzees"   [d3é-ŋú] "gluttony"
[mà-tòkà] "rabbits"       [l3-l3é] "luck"
[wè-tòlò] "rats"          [nd3é-mbù] "to limp"
In data A, we notice the behaviour of the mid-high vowels [e] and [o]. They co-occur with others and themselves, but they do not co-occur with the mid-low vowels [ɛ] and [ɔ]. The mid-low vowels [ɛ] and [ɔ] also almost behave in the same way, but, they co-occur with themselves and other vowels, except the back, mid-high rounded vowel [o]. This may tempt us to postulate a harmonic rule for short vowels in Bubia. Rule 1: mid-vowels hardly co-occur with themselves in Bubia and have the feature $\pm$ ATR(3). Another illustration like the one below will clarify this rule.

1

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>i</td>
<td>e</td>
</tr>
<tr>
<td>u</td>
<td>o</td>
</tr>
<tr>
<td>e</td>
<td>c</td>
</tr>
<tr>
<td>o</td>
<td>+ATR</td>
</tr>
<tr>
<td>a</td>
<td>NEU(4)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
</tr>
<tr>
<td>c</td>
</tr>
<tr>
<td>i</td>
</tr>
<tr>
<td>o</td>
</tr>
<tr>
<td>a</td>
</tr>
<tr>
<td>NEU(4)</td>
</tr>
</tbody>
</table>
Only the mid-vowels have the feature ± ATR. Whatever the case, we could claim that the vowels [i], [u] and [a] are ambivalent as far as vowel harmony is concerned.

2.3.9 Vowel Harmony within Long Vowels

To be able to postulate a second rule for vowel harmony, we have to look at the harmonic system of the long vowels. The long vowels never occur with themselves, but they do occur with short vowels of their kind and other vowels. If we divide them into sets, we will have these two sets of vowels:

Set A
- ii
- uu
- oo
- ee
- aa

Set B
- oo
- ee
- aa

Set A is made up of vowels that can co-occur with any short vowel while set B is made up of vowels that co-occur only with short vowels of their kind.

Illustration

<table>
<thead>
<tr>
<th>Set A</th>
<th>Set B</th>
</tr>
</thead>
<tbody>
<tr>
<td>[lii-kà] &quot;to put&quot;</td>
<td>[lëë-nè] &quot;to shine&quot;</td>
</tr>
<tr>
<td>[lii-dà] &quot;pus&quot;</td>
<td>[lòò-tò] &quot;to faint&quot;</td>
</tr>
<tr>
<td>[lùù-mbà] &quot;to close&quot;</td>
<td></td>
</tr>
</tbody>
</table>
This pushes us to postulate a second harmonic rule for vowel harmony in Bubia.

Rule 2: In Bubia, the mid-high long vowels co-occur only with short vowels of their kind while the other long vowels are ambivalent.

2.3.10 Vowel harmony between roots and affixes

Another important point we must look into concerning vowel harmony is the relationship between roots and affixes of nouns and verbs.

<table>
<thead>
<tr>
<th>Prefixes</th>
<th>Roots</th>
<th>Realization</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>li-</td>
<td>lālē</td>
<td>[lilālē]</td>
<td>“rock”</td>
</tr>
<tr>
<td>mò-</td>
<td>kōlī</td>
<td>[mōkōlī]</td>
<td>“mountain”</td>
</tr>
<tr>
<td>wè-</td>
<td>lingi</td>
<td>[wēlingi]</td>
<td>“shadows”</td>
</tr>
<tr>
<td>mù-</td>
<td>sō</td>
<td>[mōsō]</td>
<td>“lake”</td>
</tr>
<tr>
<td>i-</td>
<td>wē</td>
<td>[iwē]</td>
<td>“sun”</td>
</tr>
<tr>
<td>é-</td>
<td>kī</td>
<td>[ēkī]</td>
<td>“area”</td>
</tr>
<tr>
<td>mbà-</td>
<td>kā</td>
<td>[mbākā]</td>
<td>“fog”</td>
</tr>
<tr>
<td>mú-</td>
<td>nā</td>
<td>[mūnā]</td>
<td>“fire”</td>
</tr>
<tr>
<td>i-</td>
<td>tūtū</td>
<td>[ftūtū]</td>
<td>“smoke”</td>
</tr>
</tbody>
</table>
From this data, we still notice the first harmonic rule whereby if [e], [o] and [c] and [ɔ], occur in the prefix or root of a word, it immediately excludes the occurrence of the other pair. This means that each of the pair of vowels co-occur with each other. Our rule therefore stands.

This behaviour of the mid-vowels whereby the front mid vowels rarely co-occur with the back mid vowels is due to the feature ± ATR. We could not find any harmonic process that could show that certain vowels for example [i], [u], and [a] belong to a set, and another set of vowels [i], [u] and [a] belong to another set. This simply means that we could not find two kinds of vowels in the same vowel.

As to what concerns vowel length we suspect much has not yet been done because of the very few words that show length contrast. It is a very interesting area on which more should be done in future studies.
(1) Identical context would mean that these sounds occur in the same position and their sole phonetic difference leads to a difference in the meanings of the words in which they appear.

(2) Two sounds contrast in analogous context when they appear in the same context in words. In addition to this phonetic difference, these two words also bring out another phonetic difference which is not linked to the context.

(3) ± ATR - ± ADVANCED TONGUE ROOT.

(4) NEU - NEUTRAL.
CHAPTER III

INTERPRETATION PROBLEMS

In most languages of the world, there are a number of sounds that are open to diverse interpretations, following the structure of the language in question. While analysing language, one comes across ambiguous cases which can only be interpreted following the internal organisation of the language under study. Some of these ambiguous cases in Bubia are:

- Sounds open to syllabic or non-syllabic interpretation.
- Sounds which can be interpreted as constituting a single unit or a sequence of units.
- Those sounds that do not constitute a single unit or a sequence of units.
- Sounds that can be considered as consonants or vowels.

This chapter therefore, will treat these ambiguous cases. We will use Pike’s (1949) method.

3.1 Vowel/Consonant

Sounds that can be considered as vowels in some instances and consonants in others include those sounds that possess characteristics appropriate to vowels and consonants. This involves a case of using one symbol which can stand for two separate classes of sounds, depending on
the context of occurrence. The vowels i and u and the glides j and w have these features; i and u are similar to the palatal and velar glides j and w.

Since glides when compared with vowels can be considered higher than high vowels in language analysis, they can occupy both syllable onset and nuclei positions in some cases, and syllable coda in others.

Bubia has all these sounds. When we consider the less ambiguous data in Bubia, we realize that its structure permits a VV sequence. In this VV sequence, V₁ is of a different quality from V₂, and a non-syllabic element at syllabic onset in every instance which is not suspicious is a consonant.

Examples:
[wɒmə] “drunk”
[wɔwé] “various kinds of cures”
[jɔki] “ointment”
[jàli] “leaf”

These words by analogy have CVCV structures and not VVCV structures. This simply means that in words in which j or w occurs, where it is neither preceded nor followed by a consonant, it has the full qualities of a consonant.

3.2 Sound Sequences

Sound units which can be interpreted as single sound units or sequences of two or more sounds often exist in
languages. Such cases involve both vowels and consonants, where two sounds with different qualities are interpreted in some languages as single sound segments and in others as separate sound units.

3.2.1 Vowel Sequences

Two sets of vowels are attested in Bubia in which $V_1$ is often of a different quality from $V_2$. These sets of vowels which are attested both in nouns and verbs are a common phenomenon in this language. These sounds are: $\text{ai}$, $\text{ou}$, $\text{au}$, $\text{ea}$, $\text{io}$, $\text{oa}$, $\text{ai}$, $\text{ie}$, $\text{ua}$, $\text{ae}$. Their occurrence is as a result of collocating roots and affixes or compounding words as we find in other languages as in some cases in English. Although some of the words in which they occur cannot be broken into two parts and a meaning assigned to each part, some do behave thus. They cannot be considered diphthongs in anyway.

<table>
<thead>
<tr>
<th>Sounds</th>
<th>Illustration</th>
<th>English Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\text{ai}$</td>
<td>liwái</td>
<td>liver</td>
</tr>
<tr>
<td>$\text{eu}$</td>
<td>mèbù́</td>
<td>lip</td>
</tr>
<tr>
<td>$\text{au}$</td>
<td>màúngà</td>
<td>abdomens</td>
</tr>
<tr>
<td>$\text{ea}$</td>
<td>lìgbèá</td>
<td>to make</td>
</tr>
<tr>
<td>$\text{io}$</td>
<td>wòòlè</td>
<td>badluck</td>
</tr>
<tr>
<td>$\text{oa}$</td>
<td>liómòá</td>
<td>to awake</td>
</tr>
<tr>
<td>$\text{ao}$</td>
<td>màómbò</td>
<td>cold</td>
</tr>
<tr>
<td>$\text{oi}$</td>
<td>làíjè</td>
<td>luck</td>
</tr>
<tr>
<td>$\text{ie}$</td>
<td>lièmbá</td>
<td>witchcraft</td>
</tr>
<tr>
<td>$\text{ua}$</td>
<td>lé under mèndèngà</td>
<td>to discuss</td>
</tr>
<tr>
<td>$\text{ae}$</td>
<td>màémbà</td>
<td>witchcrafts</td>
</tr>
</tbody>
</table>

Chart 8
3.2.2 Consonant Sequences

Bubia does not allow consonant clusters. In cases where two consonants occur, they are considered as a single sound. These include the consonants ŋg, nd, mb, kp, ndʒ and gb.

3.3 Homorganic Nasalisation

It could happen in speech production that an oral sound is omitted when preceded by a nasal sound. As far as these sounds are concerned, it is often useful to determine whether they are single or separate sound units. This situation often varies with languages, for some people will consider that it is a case of prenasalisation of consonants and others, homorganic nasalisation. In the situation where such sounds are considered as separate sound units, the preceding nasal often carries a tone. Although Bubia has such sounds, they cannot be considered syllabic nasals, for there are no cases where the nasal sound precedes voiceless consonants. All the nasal consonants we have, precede voiced consonants.

Illustration

[ŋgə] "wind"
[mbùà] "rain"
[ndʒòkù] "elephant"
3.4 HETERORGANIC SEQUENCES

A heterorganic sound is the sound produced with the superimposition of a secondary articulation. It often involves consonants produced with an accompanying vowel articulation. Such cases include palatalisation, labialization and aspiration.

3.4.1 Palatalized consonants

These are consonants produced with the superimposition of the articulatory qualities of a high front vowel. These types of consonants exist in Bubia, and they involve glide formation. It is a situation where a consonant precedes a sequence of two vowels at the underlying representation, where \( V_i \) is the high front vowel \( i \), and at the surface level, this vowel is realized as the glide \( j \).

\[
[C+i] \rightarrow [Cj]/\_V
\]

Illustration

/\l\i\a/ \rightarrow [\l\i\ja] "hand"
/\l\a\z\i\o\w\a/ \rightarrow [\l\a\z\i\o\w\a] "to sigh"
/\l\i\e\m\b\a/ \rightarrow [\l\i\e\m\b\a] "witchcraft"

This leads us to postulate the following rule:
- 66 -

\[
R_i = [i] \rightarrow [j] / - \nu
\]

\[
\begin{array}{c}
-\text{cons} \\
+\text{syll} \\
-\text{back} \\
+\text{high}
\end{array} \rightarrow [+\text{cons}] / - +\text{syll}
\]

Looking at this illustration, we can represent [i\i-], [j\i-], as /li-/ and /3i-/. 

3.4.2 Labialized Consonants

Labialization in general involves the super-imposition of the vowel quality of lip-rounding on a consonant during emission. It appears that in Bubia, consonant sounds are labialized through the process of glide formation. The consonants that are labialized at surface level occur at the level of deep structure, where they precede two sequential vowels of different qualities, the \( V_i \) being the back high rounded vowel \( u \). In \( CV.V(C-) \) which is realized as \( C^*V(C-) \), \( V_i \) in the underlying representation is \( u \) which is realized at the surface level as the glide \( w \).

Illustration

/\text{èlùà}/ \rightarrow [\text{èlúà}] \quad \text{"marker"}

/\text{èzàgùàní}/ \rightarrow [\text{èzàgùàní}] \quad \text{"comb"}

/\text{liβùùùà}/ \rightarrow [\text{liβùùùà}] \quad \text{"to pluck chicken"}

This leads us to postulate the following rule:
R₁ = [u] → [w] / - V

[cons] [+syl] [+back] [+high] → [+cons] / - +syl

Analogically then, we can represent [iʷ-], [uʷ-] and [ʊʷ-] as /iʊ-/ /uʊ-/. [uʊ-] and [ʊʊ-].

3.4.3 Long Vowels

All vowels in Bubia are modified through lengthening. This can be seen in the examples below. It is rather unfortunate anyway that we could not have many examples with long vowels during research.

Illustration

[iɪŋó] "throat"
[mɛèmbà] "corpses"
[tɛmɛ] "habit"
[ndàà] "macabo"
[lùʊngá] "abdomen"
[tɔɔtɔ] "to faint"
[wɔɔlɔ] "greatness"

According to native speaker intuition, these long vowels cannot be considered as two vowels but single vowels affected by duration: We also realized that where a word is made up of a long vowel and another short vowel of the same
kind, sometimes, these vowels agree in tone height, and sometimes they do not.

Illustration

[wéémé] "habits"
[ôóôô] "to be distant"
[wóóló] "greatness"
[wóömbó] "sugar"

This chapter was out to interpret ambiguous sound segments in Bubia, and a lot of emphasis was laid on the fact that the structural pattern of Bubia neither permits consonant nor vowel clusters. The instances that could receive the interpretation of consonant clusters are cases of glide formation, notably, cases of palatalization and labialization. But consonants affected by these phenomena simply prove that Bubia shows cases of consonant plus glide; [C↓] and [C↑].
CHAPTER IV
SYLLABLE, MORPHEME, AND WORD STRUCTURE

The phonemes of this language having been established, we now move to the next step, which will be to examine the various syllable, morpheme, and word structures that exist in Bubia. Alongside this, we will examine the phonemes that occur in the various positions of the attested patterns. This is deemed necessary because a close analysis of the patterns and phoneme distribution will help us review and confirm the conclusions arrived at during the interpretation of ambiguous sound segments and the phonemic analysis, and will also give us a view of the tones in the language.

4.1 Syllable Structure


"The syllable is the heart of phonological representations. It is the unit in terms of which phonological systems are organised. It is a purely phonological entity. It cannot be identified with a grammatical or semantic unit."

Katamba (1989:153)

"Syllables are usually described as consisting of a centre which has little or no obstruction to airflow, and which sounds comparatively louder; before and after this centre, there
will be greater obstruction to airflow and(or) less loud sound”.

(Roach 1983:

"On peut définir la syllabe dans une langue par le noyau (qui peut être une voyelle ou une consonne syllabique).

On peut la définir par le ton qu'elle porte;

On peut la définir par la durée d'émission de la séquence de son”.

Wiesemann, Sadembouo, and Tadadjeu (1988:56)

Looking at these definitions and also at Bubia, we realize that syllables in this language have a nucleus V or VV, which obligatorily bears a tone.

Bubia, has an open syllable structure and it also has features that are rare in other languages. It accepts instances of two vowels of the same kind where V₁ and V₂ stand on their own yet are the same. In such cases, we consider that these are cases of vowel lengthening, thus VV → V.

Examples:

[wëːmč] → /wëːmc/ "habits"
[čč] → /č:/ "yes"
[wɔːmbó] → /wɔːmbó/ "sugar"
[wɔːló] → /wɔːló/ "greatness"

We do not consider these two vowels as separate sounds. We also find instances where vowels stand on their own and have meaning in such cases, they are not parts of words, but rather words on their own.
Examples:

[õ] "on", "from", "or", "to"

[ëë] "yes"

All these structures consist of an obligatory syllable peak and an optional marginal element which functions as onset or nucleus. This structure will be summarized as;

(C)V

This general formula includes the following syllables which are attested in both root words and affixes.

<table>
<thead>
<tr>
<th>Syllable Pattern</th>
<th>illustration</th>
<th>English Gloss</th>
<th>Word Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>õ</td>
<td>&quot;at, from, to&quot;</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td>ëë</td>
<td>&quot;yes&quot;</td>
<td>V</td>
</tr>
<tr>
<td>V-</td>
<td>ë-õënd3û</td>
<td>&quot;smell&quot;</td>
<td>V-CVCV</td>
</tr>
<tr>
<td></td>
<td>ý-ilii</td>
<td>&quot;mercy&quot;</td>
<td>V-VCV</td>
</tr>
<tr>
<td></td>
<td>â-të</td>
<td>&quot;swear&quot;</td>
<td>V-CV</td>
</tr>
<tr>
<td>CV</td>
<td>ëë</td>
<td>&quot;viper&quot;</td>
<td>CV</td>
</tr>
<tr>
<td></td>
<td>kô</td>
<td>&quot;rat mole&quot;</td>
<td>CV</td>
</tr>
<tr>
<td>CV+ CV</td>
<td>ë38â3âñi</td>
<td>&quot;comb&quot;</td>
<td>CV CV CV</td>
</tr>
<tr>
<td>Cj V</td>
<td>ljâ</td>
<td>&quot;hand&quot;</td>
<td>CjV</td>
</tr>
<tr>
<td></td>
<td>ljâmbâ</td>
<td>&quot;witchcraft&quot;</td>
<td>CjVVCV</td>
</tr>
</tbody>
</table>

This language does not have complex syllable patterns. Homorganic consonants are realized as single sound units, and not as separate consonants. The CV pattern which occurs in prefixes, noun roots and verb roots are predominant. All these syllable patterns are attested in verb and noun roots.
4.2 Morpheme Structure

A morpheme is described as a minimal distinctive unit that has meaning. We will look at definitions given by two linguists; Katamba (1989) and Sanford (1973).

"...Minimal meaningful or distributional unit in a language which may be a simple word like (dog) or a suffix like (-s) plural marker in (dogs) or the negative prefix (un-) in (undo)..."

Katamba (1989:81)

"The component parts of words are morphemes (e.g. boxes, stems, prefixes, suffixes, plural endings, past tense endings.)"

Sanford (1973:40)

Looking closely at the morpheme, we see some sort of similarity with the syllable with the simple difference that a syllable may not forcibly have a meaning, whereas a morpheme can contain more than one syllable. We will not go into extensive details here because much has been mentioned in the syllable structure section.

We will examine the distribution of vowel and consonant phonemes in the various morpheme structures. We will pay much attention only to roots and affixes. Compound words that stand alone will not be taken into consideration. The morpheme patterns that exist in Bubia are;

- V or VV
- CV
- CV CV

The CV pattern is made up of prefixes like [wê-] and [mà-] that function as plurals. At times, the V pattern is
a prefix that also denotes plurality—with a prefix like [i-]. The prefix [li-] is the infinitive marker. When we look at these prefixes, we could likely take just [w-], [m-] as plural markers and [l-] as the infinitive marker. Since Dubia has an open syllable pattern, on their own as plural markers, or infinitive marker we would be straying from our idea. The following vowels must accompany them.

<table>
<thead>
<tr>
<th>Word</th>
<th>Gloss</th>
<th>Prefix/root marker</th>
</tr>
</thead>
<tbody>
<tr>
<td>[mɔli]</td>
<td>&quot;wealth&quot;</td>
<td>CV CV</td>
</tr>
<tr>
<td>[wɔli]</td>
<td>&quot;riches&quot;</td>
<td>CV CV</td>
</tr>
<tr>
<td>[gbayɔ]</td>
<td>&quot;canoe&quot;</td>
<td>CV CV</td>
</tr>
<tr>
<td>[mɔyɔ]</td>
<td>&quot;canoes&quot;</td>
<td>CV CV</td>
</tr>
<tr>
<td>[lιnɔ]</td>
<td>&quot;to drink&quot;</td>
<td>CV CV</td>
</tr>
<tr>
<td>[nɔ]</td>
<td>&quot;drink&quot;</td>
<td>CV</td>
</tr>
<tr>
<td>[i-kɔ]</td>
<td>&quot;snails&quot;</td>
<td>V CV</td>
</tr>
<tr>
<td>[kɔ]</td>
<td>&quot;snail&quot;</td>
<td>CV</td>
</tr>
<tr>
<td>[mɔsakeli]</td>
<td>&quot;dancer&quot;</td>
<td>CV CV CV CV</td>
</tr>
</tbody>
</table>

Roots stand for the other part of the words that are neither the plural nor the infinitive markers. As we have seen above, there however exist cases where the li- prefix does not denote infinitive.

Illustration
[lιbaku] "hoe"
In some cases, the tone moves from low to high.

**Illustration**

- \[\text{[li\text{\textdeg}ndi]}\] "hole"
- \[\text{[li\text{\textdeg}l\text{\textdeg}\text{\textdeg}}\text{l\text{\textdeg}e]}\] "rock"

\[\text{x}\]

Apart from these, there also exist some irregular forms in Bubia, whereby there is no change in words to mark plurality.

**Illustration**

- \[\text{[li\text{\textdeg}l\text{\textdeg}it\text{\textdeg}i\text{\textdeg}]}\] "darkness"
- \[\text{[li\text{\textdeg}w\text{\textdeg}o]}\] "beach"
- \[\text{[li\text{\textdeg}j\text{\textdeg}i\text{\textdeg}j]}\] "termite"

4.3 **Word Structure**

A word is a "sound or combination of sounds (or the written or printed symbols) forming a unit of grammar or vocabulary of a language" Hornby (1974:991).

Looking at this definition of the word, the sole difference between the word and the morpheme is that the word has full lexical meaning, whereas a morpheme does not necessarily have full lexical meaning. Words are also usually larger than morphemes, and they consist of roots,
affixes, infixes, suffixes, and other morphological units unlike morphemes which can be made up only of one of these components. The following consonantal and vocalic patterns emerge from words of Bubia.

V
VV
CV
VCV
VVC
VCVCV
CVCCV
VCVCVCV
VCVCVCVCV
VCVCVCVCVCV

In this language, vowels can stand on their own and have full meaning. Because of this, we will discuss such cases with consonants rather than separating them. They will not pose any problems for they are very few. The patterns above show that Bubia has monosyllabic, disyllabic, trisyllabic and even up to four and five syllable words.

Monosyllabic Words

V

[0] "at", "for", "on", "at", "from" "by", "to".
VV or V
[ɛɛ]  "yes"

CV
[nà]  "and"
[wɔ]  "them"
[kò]  "mole"
[mbà]  "I"

Dissyllabic Words

CV.CV
[ndʒàò]  "hunger"
[mbúà]  "rain"
[tùú]  "room"

CVCV
[mòsò]  "lake"
[sɔwɔ]  "dust"
[sàwà]  "shore"
[lòkà]  "rabbit"

VCV
[i-kò]  "moles"
[èʒò]  "parrot"
[èʒù]  "owl"
Trisyllabic Words

CVCVCV

[likúuwà]  "diarrhea"
[lisàkà]  "to dance."
[lilàle]  "rock"

VCVCVCV

[èwunè]  "wave"
[èlingì]  "shadow"
[èwàki]  "chimpanzee"

Polysyllabic Words

CVCVCVV

[liposékíà]  "to swim"
[liwòtèéà]  "beginning"
[lidángééà]  "to scold"

VCVCVCV

[ègòelèndè]  "cricket"
[èjogóli]  "chameleon"
[ili∫bwàní]  "key"

CVCVCVCV

[li∫gòmià]  "to beseech"
[ngègèngègè]  "gravel"
Five Syllabled Words

CVVCVCVCVC

[liβʊŋgʊˈnɛlɛ]  "to mix"

VCVCVCVCVC

[ɛkɒlɔkɔlɔ]  "butterfly"

This syllable structure brings out the peculiarity of Bubia, for in many Bantu languages it is difficult to get three syllable structure words.

4.4 Phoneme Distribution in root Morphemes

The phonemes of a language often have a pattern of distribution in morphemes and words. In this section, as we did with syllables, we are going to examine the morpheme positions that each phoneme can occupy.

4.4.1 Vowels

In monosyllabic root morphemes of the form CV, there is a wide range of both consonants and vowels that can occupy the consonant and vowel positions (CV).

In the case of disyllabic roots of the form CV-CV, V2 position is occupied by any vowel of the language. There are no specific vowels that occur in specific environments. Vowels can also occur initially for this language has structures that start with a V or even structures that are just V or VV.
In some cases in Bubia, there is reduplication of vowel sounds. This simply means that there is repetition of the same vowel.

Illustration
[ɔzɔ] "parrot"
[ɛzɔ] "owl"
[kɔndi] "rice"
[mɛkɔ] "plantains"
[jali] "leaf"
[ninà] "louse"

Some structures begin with a V sound or are just V or VV.

Illustration
[mɔsɔ] "river"
[mɔsɔ] "python"
[ŋɔndɔ] "peanut"
[ŋɛʒɛŋɛʒɛ] "gravel"

[ɔ] "on"
[ɛɛ] "yes"
[ɔnì] "where"
[ɛkì] "area"
[ɔzɔ] "parrot"
[ɛjɔndì] "island"
4.4.2 Consonant Distribution

Bubia, having an open syllable, consonants occur only initially and medially. Apart from the [d] sound which occurs only two times in my data, the other consonants are mutually exclusive. As a matter of fact, this sound is almost inexistent, for in the neighbouring languages, it is represented by the [l] sound.
CHAPTER V
SUPRA-SEGMENTAL PHONOLOGY

In most African languages, prosodic features go along with sound segments for the transmission of messages. We will look at a definition of prosody by Wiesemann, Sadembouo and Tadajeu (1988:83), before we proceed. They define prosody as:

«L'ensemble des phénomènes de hauteur musicale, d'intensité, et de durée qui accompagnent des sous-systèmes indépendants, des systèmes segmentaux, et ils caractérisent des séquences de sons. C'est à dire des unités plus étendues que les segments minimaux.»

Prosodic features have distinctive and expressive functions in all languages of the world. These functions play an important role in the transmission of messages. We are going to limit ourselves in this discussion to the distinctive function of certain important features like vowel length and tones.

5.1 Vowel Length

As has been shown previously, the contrast between long and short vowels in Bubia is pertinent although there are very few words in this language that show contrast between long and short vowels. The few words that follow indicate
contrast. Among these few words, tone differences can be observed.

**Illustration**

- [lōtō] "weak"  [lōtō] "to faint"
- [čmē] "debt"  [čmē] "habit"
- [lēmbē] "to hold"  [lēmbē] "to blow one's nose"

5.2 Tones

Tone deals with distinction of pitch in the flow of speech. All languages have pitch phenomena. To native speakers of tone languages, tone is a basic part of their speech. In fact, it is as important as consonants and vowels.

Welmers (1973) describes a tone language as one in which both pitch and segmental phonemes enter into the composition of at least some morphemes.

The basic tones in Bubia which are two in number are register tones. In this type of system, tonal constructs consist of different levels of steady pitch height that is perceptually distinct. Tones in such systems neither rise nor fall in their production. The function of the height of the voice therefore is the fact that differences in pitch height may alone be responsible for differences in meaning. In Bubia, there are certain instances where the change of tone changes the meaning of words.
5.2.1 **Tone Classes**

The principal tones that exist in Bubia are the high tone, [\'] and the low tone [\"]. A language with this number of tones has the following logical tone structures:

**Monosyllabic Words**

- **L** - Low
  - [tɛ]  "if"
  - [nà]  "and"

- **H** - High
  - [kɛ]  "or"
  - [ndí]  "only"

**Disyllabic Words**

In disyllabic words, we have the following possibilities:

- **LL** - low low-
- **LH** - low high
- **HH** - high high
- **HL** - high low

**Illustration**

<table>
<thead>
<tr>
<th>Combination</th>
<th>Word</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>LL</td>
<td>[òwà]</td>
<td>&quot;you&quot;</td>
</tr>
<tr>
<td></td>
<td>[ndòkò]</td>
<td>&quot;potatoes&quot;</td>
</tr>
<tr>
<td></td>
<td>[mòsò]</td>
<td>&quot;lake&quot;</td>
</tr>
<tr>
<td></td>
<td>[sòwè]</td>
<td>&quot;dust&quot;</td>
</tr>
<tr>
<td></td>
<td>[iòwè]</td>
<td>&quot;sun&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>LH</td>
<td>[lökà]</td>
<td>&quot;rabbit&quot;</td>
</tr>
<tr>
<td></td>
<td>[ tàí]</td>
<td>&quot;squirrel&quot;</td>
</tr>
<tr>
<td></td>
<td>[jàlí]</td>
<td>&quot;leaf&quot;</td>
</tr>
<tr>
<td></td>
<td>[jònó]</td>
<td>&quot;yam&quot;</td>
</tr>
<tr>
<td></td>
<td>[wòwé]</td>
<td>&quot;tree&quot;</td>
</tr>
<tr>
<td>HH</td>
<td>[ndökó]</td>
<td>&quot;soup&quot;</td>
</tr>
<tr>
<td></td>
<td>[líjá]</td>
<td>&quot;palm tree&quot;</td>
</tr>
<tr>
<td></td>
<td>[óní]</td>
<td>&quot;where&quot;</td>
</tr>
<tr>
<td></td>
<td>[kpéli]</td>
<td>&quot;death&quot;</td>
</tr>
<tr>
<td></td>
<td>[jají]</td>
<td>&quot;paddle&quot;</td>
</tr>
<tr>
<td></td>
<td>[sàwå]</td>
<td>&quot;shore&quot;</td>
</tr>
<tr>
<td>HL</td>
<td>[gbájó]</td>
<td>&quot;canoe&quot;</td>
</tr>
<tr>
<td></td>
<td>[múta]</td>
<td>&quot;palm oil&quot;</td>
</tr>
<tr>
<td></td>
<td>[bwà]</td>
<td>&quot;vegetables&quot;</td>
</tr>
<tr>
<td></td>
<td>[éki]</td>
<td>&quot;area&quot;</td>
</tr>
<tr>
<td></td>
<td>[mángà]</td>
<td>&quot;air&quot;</td>
</tr>
<tr>
<td></td>
<td>[líwò]</td>
<td>&quot;beach&quot;</td>
</tr>
<tr>
<td></td>
<td>[múnà]</td>
<td>&quot;fire&quot;</td>
</tr>
</tbody>
</table>

Possible combinations in trisyllabic words

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LLL</td>
<td>Low low low</td>
</tr>
<tr>
<td>LHL</td>
<td>Low high low</td>
</tr>
<tr>
<td>LLH</td>
<td>Low low high</td>
</tr>
</tbody>
</table>
LHH  -  Low high high  
HHH  -  High high high  
HLH  -  High high low  
HLL  -  High low low

**Illustration**

<table>
<thead>
<tr>
<th>Combination</th>
<th>Word</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLL</td>
<td>[ëliŋi]</td>
<td>&quot;shadow&quot;</td>
</tr>
<tr>
<td></td>
<td>[lilàlè]</td>
<td>&quot;rock&quot;</td>
</tr>
<tr>
<td></td>
<td>[likàndi]</td>
<td>&quot;hole&quot;</td>
</tr>
<tr>
<td></td>
<td>[èwùnè]</td>
<td>&quot;wave&quot;</td>
</tr>
<tr>
<td></td>
<td>[iìtòtò]</td>
<td>&quot;pawpaws&quot;</td>
</tr>
<tr>
<td></td>
<td>[lièmbà]</td>
<td>&quot;witchcraft&quot;</td>
</tr>
<tr>
<td></td>
<td>[èwàngà]</td>
<td>&quot;forests&quot;</td>
</tr>
<tr>
<td></td>
<td>[mèşàmbò]</td>
<td>&quot;canoe race&quot;</td>
</tr>
<tr>
<td></td>
<td>[mèjòsò]</td>
<td>&quot;rivers&quot;</td>
</tr>
<tr>
<td></td>
<td>[lißàkù]</td>
<td>&quot;toe&quot;</td>
</tr>
<tr>
<td>LHL</td>
<td>[lisàkà]</td>
<td>&quot;to dance&quot;</td>
</tr>
<tr>
<td></td>
<td>[lilòkà]</td>
<td>&quot;to row&quot;</td>
</tr>
<tr>
<td></td>
<td>[lijàŋgà]</td>
<td>&quot;to read&quot;</td>
</tr>
<tr>
<td></td>
<td>[lièòtà]</td>
<td>&quot;to report&quot;</td>
</tr>
<tr>
<td></td>
<td>[èwàndè]</td>
<td>&quot;to couch&quot;</td>
</tr>
<tr>
<td></td>
<td>[linúkà]</td>
<td>&quot;to paddle cane&quot;</td>
</tr>
<tr>
<td>LLH</td>
<td>[èjòndí]</td>
<td>&quot;island&quot;</td>
</tr>
<tr>
<td></td>
<td>[mokòlì]</td>
<td>&quot;mountain&quot;</td>
</tr>
<tr>
<td></td>
<td>[màtòkà]</td>
<td>&quot;rabbits&quot;</td>
</tr>
</tbody>
</table>
[mòkòli] "hill"
[mòkòkō] "sugar cane"
[èwùlè] "grass"

LHH [mèōzó] "pimple"
[iídjá] "pus"
[lìmòá] "to awake"
[wòtàní] "cleanliness"
[lijálí] "birth or to bear"
[mòkélé] "vaccination"

HHH [tòngòngó] "corner"
[i-kótó] "fences"
[mákójí] "bows"
[léngòwá] "to exchange"
[ŋòkòwì] "needle"

HLH [i-ngòmbà] "porcupines"
[i-ngândó] "alligatoses"
[i-nòngá] "trades"

HHL [màlànà] "woman"
[mònànà] "man"
[mònàmì] "husband"
[wíólè] "ill luck"
HLL [éëûûà] "rainy season"
[lízôngô] "hunting"

This language possesses structures of more than three syllables and these syllables bear tones.

Illustration: Possible combinations.

LHHL - low high high low

<table>
<thead>
<tr>
<th>Word</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>[êsémbélà]</td>
<td>&quot;idol&quot;</td>
</tr>
<tr>
<td>[êsûngâûà]</td>
<td>&quot;cutlass&quot;</td>
</tr>
</tbody>
</table>

LHLLL - low high low low low

<table>
<thead>
<tr>
<th>Word</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>[êtângâûâûgà]</td>
<td>&quot;garden egg&quot;</td>
</tr>
</tbody>
</table>

These types of tone structures occur in Bubia in some cases.

Tonal Glide

There also exist in Bubia the rising and the falling tones, but their occurrence is not very frequent.

L-H - low-high-rising tone
H-L - high-low-falling tone
Illustration
L-H (rising tone)

<table>
<thead>
<tr>
<th>Word</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>[mbọ]</td>
<td>L H</td>
</tr>
<tr>
<td>[limà]</td>
<td>L HL</td>
</tr>
<tr>
<td>[liwà]</td>
<td>L LH</td>
</tr>
<tr>
<td>[lọngẹlé]</td>
<td>L LH L</td>
</tr>
<tr>
<td>[mọsákéli]</td>
<td>L HL H L</td>
</tr>
</tbody>
</table>

Falling tones can also be illustrated as follows:
HL (falling tone)

<table>
<thead>
<tr>
<th>Word</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>[mọ]</td>
<td>&quot;him&quot;</td>
</tr>
<tr>
<td>[wọ]</td>
<td>&quot;them&quot;</td>
</tr>
<tr>
<td>[ngọ]</td>
<td>&quot;hipopotamus&quot;</td>
</tr>
<tr>
<td>[ndjọ]</td>
<td>&quot;leopard&quot;</td>
</tr>
</tbody>
</table>

L HL (Low tone, falling tone)

<table>
<thead>
<tr>
<th>Word</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>[èrọ]</td>
<td>&quot;owl&quot;</td>
</tr>
<tr>
<td>[liṣà]</td>
<td>&quot;to marry&quot;</td>
</tr>
<tr>
<td>[linà]</td>
<td>&quot;to lay&quot;</td>
</tr>
<tr>
<td>[lilà]</td>
<td>&quot;to eat&quot;</td>
</tr>
</tbody>
</table>
5.2.2 Phonemic Tone Contrast

Tone plays an important role in the distinction of meaning. We will illustrate how tone changes meaning in Bubia.

**High Versus Low**

- [lijá] "palmoil"       vs       [lijá] "hand"
- [láté] "to sweep"      vs       [láté] "to swear"
- [létí] "fever"         vs       [létí] "hard"
- [múlú] "elder"         vs       [múlú] "breath"
- [ndókó] "soup"         vs       [ndókó] "sweet potatoes"
- [èèmbé] "domestic animal" vs [èèmbé] "corps"

**High-Low versus Low**

- [líwá] "neck"          vs       [lìwó] "market"
- [e3ú] "owl"           vs       [è3ú] "wall"
- [látó] "to be tired"   vs       [lótó] "weak"

**Low-High versus High**

- [lúlè] "to subtract"   vs       [lúlè] "to remove"

These various tone contrasts of tones in identical position on the same words, change the meanings of these words. This simply proves that these tones are tonemes.

5.2.3 Functions of lexical tones

Lexical tones in Bubia mark differences in meaning between words of the same class that are identical at the
segmental level. This has been illustrated under phonemic tone contrasts. It is worthwhile to mention that some of these words on which the lexical tone occurred were not of the same class, but they were identical at the segmental level.

5.3 DOWNDRIFT

This is a type of tone-lowering in which a sequence of homotones is affected. In Dubia, when two high tones are separated by a low tone, the second high tone is phonetically lower than the first. This phenomenon by the way is natural, for as one continues to speak, the tone descends. Although in writing we write with all the tones be they high or low, the natural phenomenon will be that as the sentence continues, the tones become lower. This being a natural phenomenon, we do not find it necessary to give any illustrations, for our illustrations may not warrant downdrift.

5.4 Affixes and Tones

Some languages exhibit instances where affixes bear tones, but some do not. In certain cases, when the affixes collocate with the root morphemes, the affixes especially those that bear no tone, derive their tones from those of the root morphemes by tone copying or polarization.
Illustration

[məkoli] "hill"
[litēke] "mud"
[ŋulenedē] "rainbow"
[liwēkə] "to create"

In Bubia, the nominal prefixes bear low tones even in cases where the root is monosyllabic.

Illustration

[làngà] "to fry"
[mòtò] "head"
[lòkə] "to wash"

What happens in the morphology of these examples above is that a consonant representing the prefix is followed by a low tone in front of a root beginning with a high tone vowel.

Examples:

[l'-āngà] "to fry"
[m'-ōtò] "head"
[l'-ōkə] "to wash"

We also realize that the nominal suffixes in this language carry low tones.
Illustration
Prefix | Root | Suffix | Gloss
--- | --- | --- | ---
mò | sákè | li | "dancer"
mò | kée | li | "herder"
mò | jónɡà | li | "builder"
mò | wèkè | li | "creator"

5.5 Syntactic Tone

Register tones in isolation usually undergo a modification of one kind or the other when they are put in sentences or phrasal constructions.

5.5.1 Tone On Nominal Constructions

When a noun bears a high tone on the penultimate syllable and a low tone on the last syllable of a word, the last tone of the word changes to a high tone when it is followed by a possessive article.

Illustration

[gbájó] "canoe"
[gbájó já3ú] "our canoe"
[bwá] "vegetables"
[bwá já3ú] "our vegetables"
[ndáwò] "house"
[ndáwò já3ú] "our house"

When nouns occur with adjectives, there is no tonal change on them (nouns). The presence of adjectives does not
influence the tones on nouns as in other Bantu languages. In Bubia, when an adjective is put in collocation with a noun, there is a concordial morpheme inserted before the adjective, which has its own inherent tone.

**Illustration**

<table>
<thead>
<tr>
<th>Adjectives</th>
<th>Nouns</th>
</tr>
</thead>
<tbody>
<tr>
<td>[l̞ɔŋɔ]</td>
<td>&quot;beautiful&quot;</td>
</tr>
<tr>
<td>[lit̞a]</td>
<td>&quot;heavy&quot;</td>
</tr>
<tr>
<td>[m̞an̞e̞a]</td>
<td>&quot;stubborn&quot;</td>
</tr>
<tr>
<td>[i nd̞a]</td>
<td>&quot;black&quot;</td>
</tr>
</tbody>
</table>

When these adjectives have to qualify these nouns, they become:

- [w̞al̞a n̞a m̞o l̞ɔŋɔ] "beautiful woman"
- [kp̞a m̞o l̞i t̞a] "heavy bag"
- [w̞a n̞a m̞o m̞a n̞e̞a] "stubborn children"
- [m̞o n̞a n̞a m̞o i nd̞a] "black man"

5.5.2 **Tone on verbs**

Imperative verbs with monosyllabic roots in Bubia usually bear the high-low tone (H-L).

Examples:

- [n̞o] "drink"
- [θa] "marry"
- [la] "eat"
When these imperative verbs appear before an object, the low tone disappears.

Examples:

[linyò màlißà] "to drink water"
[nyò màlißà] "drink the water!"
[limè mòlèli] "to swallow food"
[mè mòlèli!] "swallow the food!"
[likè màyè] "to cut trees"
[kè màyè] "cut the trees!"

Dissyllabic words bear either high low or low-high tones on their first syllables.

Illustration

[lùlù] "to eat"
[lìßà] "to marry"
[likè] "to cut"
[linò] "to drink"
[làtè] "to swear"
[làngà] "to count"
[lòmbò] "to beg"
[lùtà] "to hide"

Mostly, the fundamental structure of a verb comprises two syllables. By suffixation, we can derive a good number of verbs with three or more syllables from the original ones.
which can be made of one or two syllables. These suffixes generally bear a low tone.

The rules of the tonal changes in the language have not been quite exhaustive due to lack of time and means for research. This area needs to be looked into for further studies on this language.
CHAPTER VI

ALPHABET AND ORTHOGRAPHY

6.1 Alphabet and Orthography

The establishment of an alphabet and a writing system of any language is of prime importance to its development, and subsequent standardization. This chapter is dedicated to the establishment of a writing system for Bubia. We will use the working method of Pike (1947) and Wiesemann (1981). The establishment of the alphabet and orthographic principles will take into consideration the ease of teaching and learning of the postulated symbols, their availability on the typewriter keyboard, native speaker intuition, and simplicity.

6.2 Choice of Graphemes

6.2.1 Consonants

The consonant sounds that we will put forward present problems in the orthography because they are not directly available on common typewriters.

The consonants $\phi$ and $\beta$

These symbols, because of their absence on the typewriter keyboard, will be represented by the graphemes "p" and "b" which are already existing on the typewriter keyboard. This will not only facilitate their
pronunciation, but will also be convenient for future learners of Bubia.

The consonants p and ng

These sounds will be represented by the graphemes "ny" and "ng" respectively because of their familiarity.

The consonants ʒ and nw

These are represented by the graphemes "ʒ" and "nw". These sounds are frequently used in the language, and it would be inappropriate not to use already existing symbols.

The consonants tr and dʒ

These sounds are represented by the graphemes "c" and "j", which are already existing in English and can be found on the typewriter.

6.2.2 Vowels

These do not pose any problems in the establishment of an alphabet, for all the vowels in Bubia can be found in the already existing English vowel chart, and on the keyboard of the typewriting machine.

6.3 The Alphabet

Having already done the phonological analysis of the language, we can now come out with the sounds existing in Bubia. We will propose the following alphabet. The arrangements and order, but for slight differences, is
similar to that of the English language alphabet. We will first of all give an inventory of these phoneme symbols, their orthographic counterparts and illustrative words. After this, we will put forward the order in which these phonemes should occur in the alphabet:

<table>
<thead>
<tr>
<th>IPA</th>
<th>IAI</th>
<th>GAACL</th>
<th>BUBIA GRAPHEMES</th>
<th>BUBIA WORDS</th>
<th>ENGLISH GLOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>/n/</td>
<td>/n/</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>&quot;how&quot;</td>
</tr>
<tr>
<td>/nw/</td>
<td>/nw/</td>
<td>nw</td>
<td>nw</td>
<td>nw</td>
<td>&quot;child&quot;</td>
</tr>
<tr>
<td>/nd/</td>
<td>/nd/</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td>&quot;shark&quot;</td>
</tr>
<tr>
<td>/l/</td>
<td>/l/</td>
<td>l</td>
<td>l</td>
<td>l</td>
<td>&quot;voice&quot;</td>
</tr>
<tr>
<td>/s/</td>
<td>/s/</td>
<td>s</td>
<td>s</td>
<td>s</td>
<td>&quot;shore&quot;</td>
</tr>
<tr>
<td>/tʃ/</td>
<td>/tʃ/</td>
<td>c</td>
<td>c</td>
<td>c</td>
<td>&quot;speech&quot;</td>
</tr>
<tr>
<td>/dʒ/</td>
<td>/dʒ/</td>
<td>j</td>
<td>k</td>
<td>jacc</td>
<td>&quot;no&quot;</td>
</tr>
<tr>
<td>/ʒ/</td>
<td>/ʒ/</td>
<td>zh</td>
<td>zh</td>
<td>ezhelende</td>
<td>&quot;cricket&quot;</td>
</tr>
<tr>
<td>/ndʒ/</td>
<td>/nj/</td>
<td>nj</td>
<td>nj</td>
<td>njongji</td>
<td>&quot;whale&quot;</td>
</tr>
<tr>
<td>/ŋ/</td>
<td>/ŋ/</td>
<td>ny</td>
<td>ny</td>
<td>nyó</td>
<td>&quot;drink&quot;</td>
</tr>
<tr>
<td>/k/</td>
<td>/k/</td>
<td>k</td>
<td>k</td>
<td>kó</td>
<td>&quot;snail&quot;</td>
</tr>
<tr>
<td>/ŋŋ/</td>
<td>/ŋŋ/</td>
<td>ng</td>
<td>ng</td>
<td>nga</td>
<td>&quot;crab&quot;</td>
</tr>
</tbody>
</table>
The alphabet in Bubia will have the following order:
a, b, c, d, e, g, h, i, j, k, l, m, n, o, p, s, t, u, v, w, y, z. (23 letters)
6.4 Tones
The symbols for marking tones are:
  - high tone
  - low tone
  - rising tone
  - falling tone

Tones are marked as they are perceived but in writing, only the high and low tones will be used. This is done in order to avoid complications. This will be seen in the illustrative text that comes at the end of this chapter.

6.5 Word Division
Many problems are usually encountered in working out word division in languages. Bubia is one of those Bantu languages that have these problems. This is because many lexical and grammatical items in a language undergo varying modifications like deletion and insertion.

It is a normal phenomenon that phonemes be considered as separate words if these two can be separated by a word. Pike (1977). This phenomenon exists in Bubia.

Illustration
[wálánà mo-lõngå] "Beautiful woman"
[wánà mo-lõizë] "Lucky children"

The genetive - like prefix mo- comes in this position after the adjective. If it were not there, we would rather
say ["wàlànà lòn gà"] or ["wàn à lòì jè"], which would make no sense.

Another idea is that two morphemes cannot be considered separate words, for they cannot be separated such that each one can be collocated with quite a different morpheme, giving birth to a new meaning. These morphemes are prefixes marking the nominal classes to which the nouns belong. Having this in mind, the prefix e cannot be separated from the nouns they designate.

Illustration

[èn gà] "crab" not [è ngà]
[èkèmà] "monkey" not [è kèmà]
[èn wàn gà] "child" not [è ñwàn gà]

Consequently these nouns can be collocated with demonstratives, this and that, which in Bubia, are ónò and òngò respectively.

Illustration

[óñò ngà] "This crab"
[òngò ngà] "That crab"
[óñò kèmà] "This monkey"
[òngò kèmà] "That monkey"
[óñò ñwàn gà] "This child"
[òngò ñwàn gà] "That child"
[óñò wàn gà] "These children"
[òngò wàn gà] "Those children"
These demonstratives have full meanings in themselves, thus they cannot be linked to the nouns. They are very different from the nominal prefix e-.

6.6 **Illustrative Text**

The text below constitutes our illustration of some of the alphabet graphemes and orthographic principles that have been postulated in Bubia. The text is represented in four lines. The first line the phonetic transcription of the story; the second, the phonemic. The third line gives the orthographic form of the story, and the fourth, a word for word translation of the text in English. After this exercise, we will write out a free translation the story.

[wòkitò]
/wòkitò/
wòkitò  
Story

[wòkitò wò wòlì-òmè wá nwàndʒà]
/wòkitò wò wòlì-òmè wá 'nwàndʒà/
wòkitò wò wòli-nyàmè wá nwànjà  
Story of kingdom fish the sea.

1) [wóná wòkó ndʒòndʒà-òmè á mà sùngéjà]
/wóná wòkó ndʒòndʒà-òmè á mà sùngéjà/
wónyá wòkó njànjà-nyàmè á mà sùngéjà  
Day one whale animal he them told
2) [woli-nâmê élimâ wâ wênê ndôngâmëni sî â]
/woli-nâmê élimâ wâ wênê ndôngâmëni wî â/
woli-nyâci élimâ wâ wênê ndôngâmëni sî â
Kingdom animal that them have meeting but he

3) [wêni likpâ já liwâsûngëjâ éki èndôngâmëni jô wê]
/wêni likpâ já liwâsûngëjâ éki èndôngâmëni jô wê/
wêni likpâ yâ liwâsûngëyâ éki èndôngâmëni yô wê
Has to come there to inform them place meeting hold will

4) [éwûnâ wô mûkâ o wêjá wolnâmê]
/éwûnâ wô mûkâ o wêjá wolnâmê/
éwûnyâ wô mûkâ o wêyâ wolinyâmê
day of reached it asked kingdom fish

5) [élimâ wâ mûbijé. òwî ne â màwê liwâ]
/élimâ wâ mûbijé. òwî ne â màwê liwâ/
élimâ wâ mûbîyé. òwî ne â màwê liwâ
That him to follow. As how he was with them

6) [siwâ nà à libô sâji tsâ i-àmâ tsâ nwênà mûlâ ìêtâmêjâ o ngêjâ]
/siwâ nà o libô sâji tsâ i-àmâ tsâ nwênà mûlâ ìêtâmêjâ o ngêjâ/
siwâ nà o libô sâyi â i-nyamâ câ nwényà mûlá ìêtâmêyà o ngêyà.
Going deeper seabed, many of [plu-] fish of shallow water
they returned on the way.
7) [wəŋə i-nəmə tɔa liɓ bə sī i mə lija əŋgə ndɔŋə-mənĩ]
/wəŋə i-nəmə tɔa liɓ bə sī i mə lija əŋgə ndɔŋə-mənĩ/
wəŋə i-nəmə cə liɓ bə sī i mə lija əŋgə ndɔŋə-mənĩ
So [s-plural marker] fish of seabed there they hold that meeting.

8) /o tənĩ wɔ sī i-nəmə tɔa kpələ əlīmə wə lə i-nəmə tɔa nwənpə əlībə]/
/o tənĩ wɔ sī i-nəmə tɔa kpələ əlīmə wə lə i-nəmə tɔa nwənpə əlībə/
/o tənĩ wɔ sī i-nəmə cə liɓ bə cə kpələ əlīmə wə lə i-nəmə cə nwənyə əlībə/
There that [plu-] fish of seabed say that they [aux] eat [plu-] fish of shallow water.

9) /wɔ sī əŋgəli wəwia wə kpələ əlīmə]/
wɔ sī əŋgəli wəwia wə kpələ əlīmə
That is why Wovea people they say that.

10) [jəmĩ i-sùmë ikə o liɓ o ə-miə:nədʒə məsə wəli li əwɨjə]
/jəmĩ i-sùmë ikə o liːtə ə-miə:nədʒə məsə wəli li əwɨjə/
jəmĩ i-sùmë ikə o liɓ o ə-miə:njə məsə wəli li əwɨjə
what [plu-] grouper discuss on seabed [plu-] exocet never can know.
Free translation of the story

The story of the meeting in the fish kingdom

(1) One day, the whale came and told
(2) The fish kingdom that they would have a meeting, but he,
(3) has to come and inform them of the place of the meeting
(4) On the day of the meeting he asked the fish kingdom
(5) to follow him. As he was with them,
(6) going deeper towards the seabed, many shallow water
   fishes returned on the way.
(7) So the deepsea fishes held the meeting
(8) and they decided that the deep sea dwellers would feed
   on shallow water fishes.
(9) That is why the wavea people say that
(10) what is discussed on the seabed by groupers, the
   exocets can never know on shallow water.

Free Writing of the story

The story of the meeting in the fish Kingdom

Once upon a time, fishes decided to hold a meeting. The whale, the spokesman of the fishes informed all the fishes of this meeting and promised to come and inform them of the date and venue of this meeting. When the day was at hand, he told the fishes that the proposed meeting would take place on the seabed. This was an impossibility because the shallow water fishes could not swim to the seabed. They followed the whale anyway, but had to return on the way
because of the impossibility for them to swim at that depth. The whale finally arrived at the seabed alone.

Despite the absence of the shallow water fishes, the meeting took place, and the deepsea dwellers decided that they would feed on the shallow water fishes, since there was no food. When the shallow water fishes heard of this decision, they protested. Their protest was ignored by the deepsea fishes who asked them to come and present whatever grievances they have on the seabed. This of course was an impossibility.

That is why it goes without saying in Botaland (Movia) that what is discussed on the seabed, can never be known on shallow water. This is because some deepsea dwellers if not all of them can come up and swim on shallow water, but the shallow water dwellers can never swim to the seabed.
CONCLUSION

This work is a contribution to the description and development of the national languages of Cameroon.

The field work on which it is based was done mostly in Wovea, and around Limbe. Our objective was to study the sound system of this language, bringing out the distinctive sounds in order to put up a writing system for Bubia.

We had to trace and situate the Wovea people's history, their geographical location and their socio-economic activities. We also looked at the linguistic situation of the language, its relationship with other languages, and its review of literature. Since nothing linguistic has been written on it, we looked at what has been written on a neighbouring language. After this, we did an inventory of the sounds and tones that exist in Bubia.

Chapter two dealt with segmental phonology. We looked at suspicious pairs that exist in Bubia and realized that all the sounds could form suspicious pairs. We also discovered that the sound /d/ is very rare in the language.

Chapter three looked into interpretation problems. Here, we interpreted ambiguous sound segments in Bubia, and a lot of emphasis was laid on the fact that the structural pattern does not permit consonant clusters (CC), but does permit vowel clusters (VV) at morpheme boundary. In such cases, it permits a VV structure where V₁ is of a different quality from V₂. We also realized that all the vowels of Bubia could be lengthened.
Chapter four treated the syllable, morpheme and word structures. After the examination of the language, we noticed that the structure can permit a VV structure even if \( V_1 \) is different from \( V_2 \) at morpheme boundary. We also realized that we can have up to five syllable words. The first four chapters dealt with the Syntagmatic part of the work.

Chapters five and six dealt with Paradigmatic phonology. Here, we have been concerned with the Supra-Segmental analysis of tone and vowel length. We found out that Bubia has four tone markers (high, low, rising, falling). It was difficult for us to determine if vowel length was pertinent or not, despite the examples we got, illustrating vowel length. We dealt with lexical tones, an area on which we will like further studies to be carried on, for despite our work we did not come to a conclusion or give any authentic tonal rule. As a matter of fact, a lot of further studies has to be done on tones of this language.

Chapter six tried to establish an alphabet and a writing system of the language. This step is of prime importance to any language for it will lead to the subsequent standardization of the language. We also realized that in working out word division in a language, many problems are encountered. This is because many lexical and grammatical items in a language undergo various modifications like deletion, insertion of sound units or any other modification depending on the contexts in which they
are put. The illustrative text follows this part and concludes our work on the phonology of Bubia.

There remains anyway areas in this language that call for further studies. Good examples are tones and their placement, tone harmony, vowel harmony. Most of all it would be necessary to get a rule for tonal changes, for this was one of our handicaps. All these problems have arisen because so far, no scientific work had been done on Bubia. We hope this work will pave the way for further studies into various areas of Bubia. In any case, we hope we have contributed in one way or the other to the field of linguistics.
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