ASPECTS OF BIRFOR PHONOLOGY

BY

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DECLARATION

I, **MARK GANDAA DUNDAA** HEREBY DECLARE THAT, EXCEPT FOR THE REFERENCES WHICH HAVE BEEN DUELY ACKNOWLEDGED, THIS THESIS IS ENTIRELY MY OWN WORK AND THAT NO PART OF IT HAS BEEN PRESENTED FOR ANOTHER DEGREE ELSEWHERE.

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DR.GEORGE AKANLIG-PARE   DATE

SUPERVISOR

DEDICATION

THIS THESIS IS DEDICATED TO MY DEAR WIFE COMFORT, OUR CHILDREN

DIANA

JORDAN

PROVIDENCE

OBED AND FAVOUR

MY MOTHER CHOMA AND TO THE MEMORY OF THE LATE SAMSON

DUNDAA

ABSTRACT

Bɩrfʊɔr remains one of the least studied languages in the Gur family. This thesis therefore, takes a detailed look at some Aspects of the phonology of the language. Data for this study is derived from both primary and secondary sources. Primary data was gathered using the Summer Institute of Linguistics (SIL) Africa Area Word List 2 (SILCAWL 2) compiled by Douglas Boon (see wordlist in the appendix). Secondary sources include data from existing literature such as the literacy materials and books that have been developed by the Ghana Institute of Linguistics, Literacy and Bible Translation (GILLBT) for their mother tongue literacy programme. The study which is descriptive in approach, begins with a description of the phonemic inventory of the language. Bɩrfʊɔr has nine oral vowels which in turn have their nasal and long counterparts. Vowel length and nasality are phonemic in Bɩrfʊɔr. The language has also been analyzed to have twenty-seven consonants including four glottalized (implosive) consonants, a phenomenon which is peculiar to Dagara and Busilu-Sissala in Ghana. Syllable structure and assimilatory processes have also been discussed . The study shows that, the unmarked syllable pattern is the CV whilst ATR vowel harmony, homorganic nasal assimilation and ATR spreading constitute some of the phonological processes discussed in the study. Since Bɩrfʊɔr is a tonal language, any linguistic analysis that does not include the phenomenon of tone will be considered inadequate. As a result, the final chapter of this thesis is devoted to tonal matter. Bɩrfʊɔr has three level tones, high, low and mid which perform both lexical and grammatical functions in the language.

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LIST OF ABBREVIATIONS

1PL	First Person Plural
1SG	First Person Singular
3PL	Third Person Plural
3SG	Third Person Singular
ATR	Advanced Tongue Root
CHVH	Cross-Height Vowel Harmony
DEF	Definitive
DET	Determiner
FACT.	Factitive
FIG	Figure
FM	Frequency Modulation
FUT	Future
H	High Tone
HAB	Habitual
IMP	Imperfective
L	Low Tone
M	Mid Tone

NEG	Negative
Per	Person
PL	Plural
P-Rule	Phonological Rule
PST	Past Tense
QP	Question Particle
SG	Singular
Subj	Subjunctive
Tab	Table
TBU	Tone Bearing Unit

SYMBOLS

.	syllable break
$\longrightarrow$	is realized as
/ /	encloses symetric phonemes
[ ]	systematic phonetic representation
/	in the environment of

Map of Ghana Showing Bɪrfʋɔr Speaking Area
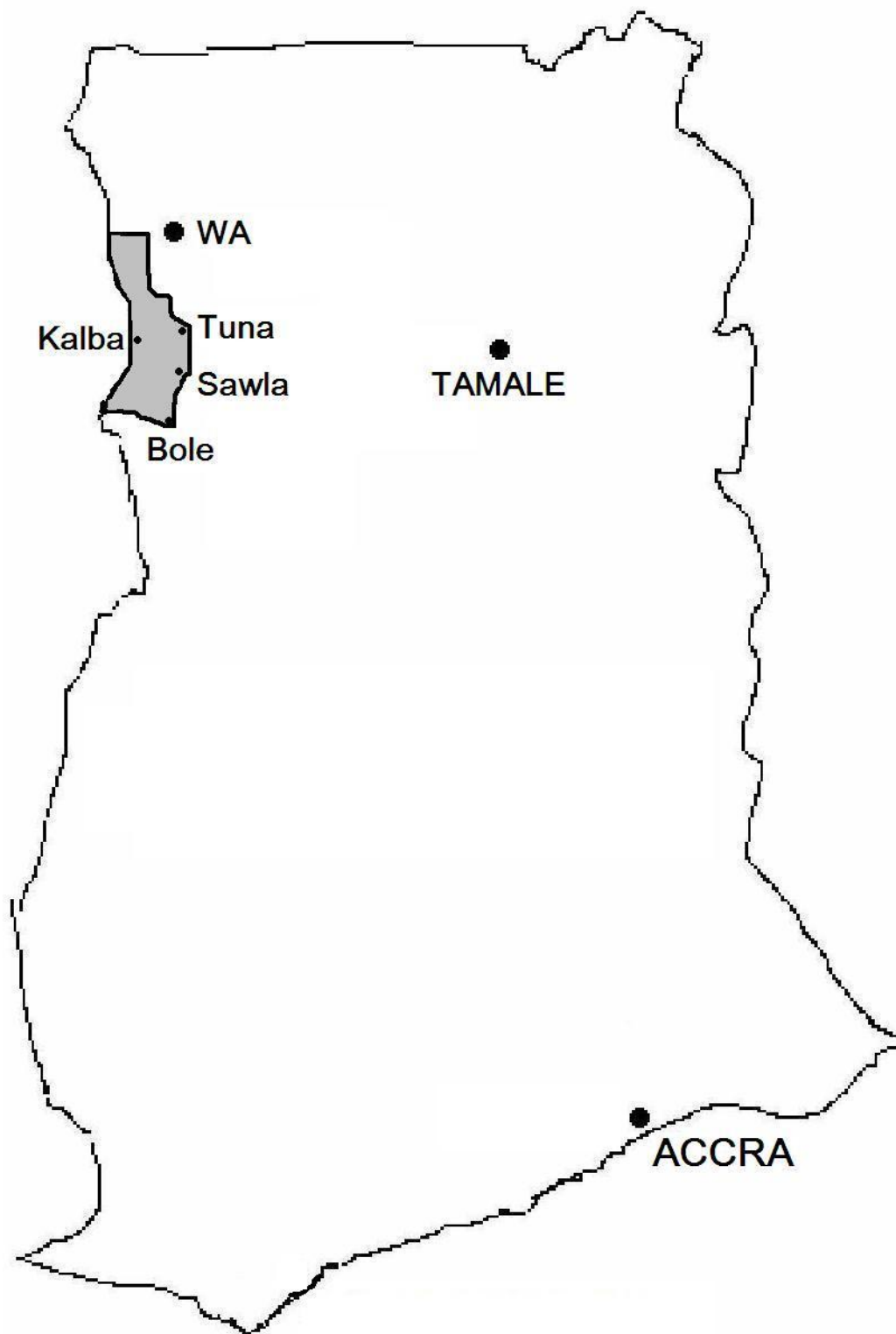
LIST OF PHONOLOGICAL RULES

P-Rule 1

$$\left[+\text{Nasal} \right] \longrightarrow \left[\alpha\text{place} \right] \Big/ \underline{\quad\quad} \left[\alpha\text{place} \right]$$

95

P-Rule 2

$$\left[\begin{array}{c} +\text{Cons} \\ -\text{Nas} \end{array} \right] \longrightarrow \left[+\text{Nas} \right] \Big/ \underline{\quad\quad} \left[\begin{array}{c} +\text{Cons} \\ +\text{Nas} \end{array} \right]$$

97

P-Rule 3

(a)

$$V \longrightarrow \left[+\text{Nas} \right] \Big/ \underline{\quad\quad} \left[\begin{array}{c} +\text{Cons} \\ +\text{Nas} \end{array} \right]$$

99

(b)

$$V \longrightarrow \begin{bmatrix} +Nasal \end{bmatrix} \bigg/ \begin{bmatrix} +Cons \\ \\ +Nasal \end{bmatrix} \underline{\quad\quad}$$

P-Rule 4

$$\begin{bmatrix} +cons \\ \\ +round \end{bmatrix} \longrightarrow \begin{bmatrix} +round \end{bmatrix} \bigg/ \underline{\quad} \begin{bmatrix} +High \\ +syll \\ \\ +round \end{bmatrix} \qquad 102$$

P-Rule 5
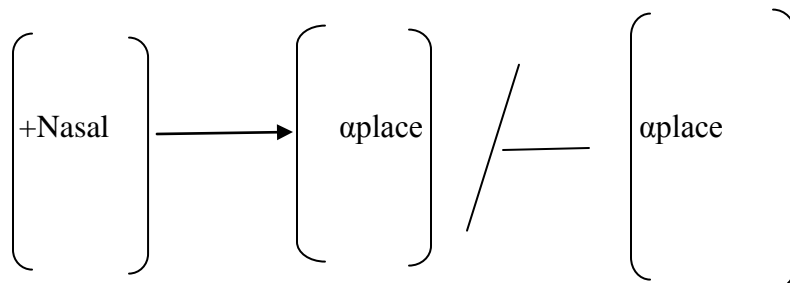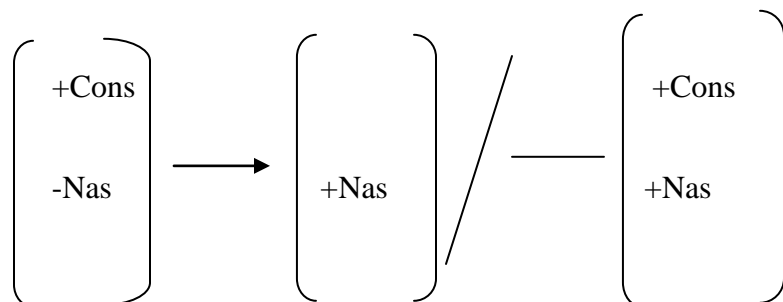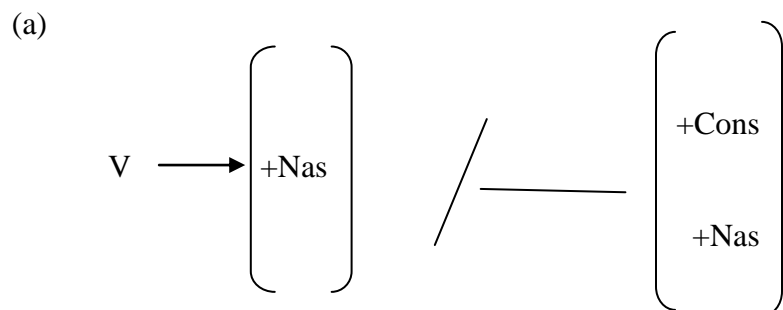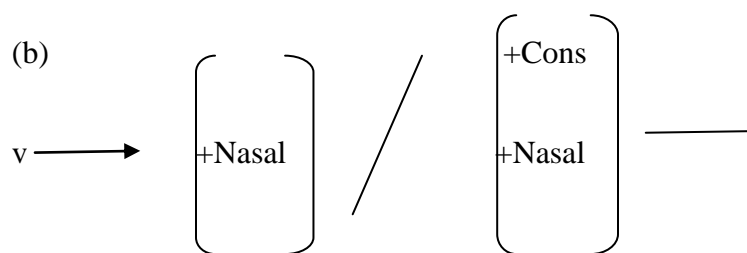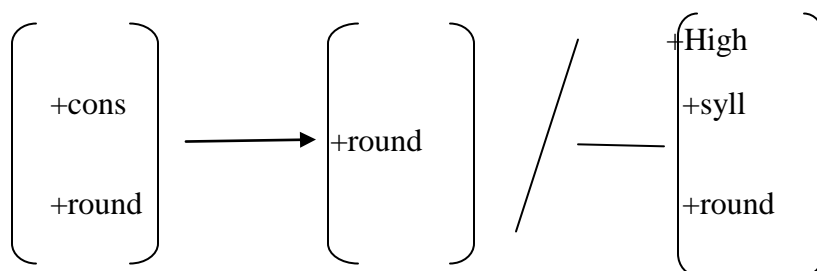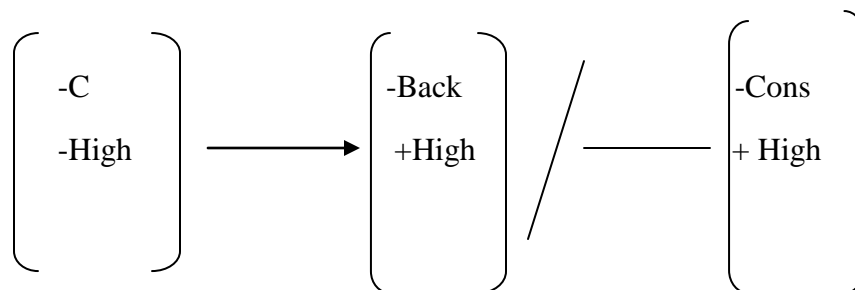
$$\begin{bmatrix} -C \\ -High \end{bmatrix} \longrightarrow \begin{bmatrix} -Back \\ +High \end{bmatrix} \bigg/ \underline{\quad} \begin{bmatrix} -Cons \\ + High \end{bmatrix} \qquad 103$$

CHAPTER ONE

GENERAL INTRODUCTION

1.0 Introduction

The purpose of this chapter is to give a brief description of the socio-linguistic background of the peoples group under consideration-Birfor (henceforth *Bɪrfʋɔr* as the people call themselves). Bɪrfʋɔr is used to refer to the language as well as the people who speak it. However, researchers over the years have used other names such as Lobi, Lowiili (Goody, 1956:21) and Southern Birfor (Lewis et al, Ethnologue) to refer to the Bɪrfʋɔr people. The chapter begins with a socio-cultural background of the Bɪrfʋɔr people, the etymology of the name, socio-economic life of the speakers and the domains in which the language is used. The chapter also takes a look at the problem the study seeks to address, the relevance and objectives of the study as well as the methodology that is employed in carrying out the study. Finally, the chapter concludes with a critical discussion of previous studies that are relevant to the core of the present study.

1.1 Background to the Study

A substantial number of languages spoken in the world today are threatened by extinction and Ghanaian languages are no exception. For instance, investigations conducted over the years by the Ghana Institute of Linguistics, Literacy and Bible Translation (GILLBT) indicate that, languages such as Chala and Animere located in the northern part of the Volta Region are on the verge of extinction. These languages have very few people who speak them as their L1. Language death is a

gradual process which actually starts long before the death of the last speaker. Thomason (2001), as cited in Mufwene (2006), argues that, the process of language death starts when the structures that support the language begin to erode. Mufwene (2006) again contends that, languages cannot be issued with birth certificates so no one can tell when they were born. Likewise it is not possible to issue death certificates either. According to him, the assertion that a language dies when the last speaker dies is not a total truth. More so, when languages die out, it becomes difficult to check data with native speakers or to collect additional data. A detailed analysis of the language will therefore, help arrest this situation since Language documentation is not only a resource of knowledge for scientific enquiries, but also an important resource for supporting language maintenance.

This study therefore derives its legitimacy from the concerns raised above. The study takes a look at the sound system of Bʋrfʋɔr, a relatively less studied and less known language spoken in the North-Western corridor of Ghana. A good phonological analysis of Bʋrfʋɔr will constitute one of the bedrocks for the development of literature to sustain and invigorate its usage. The dialect treated in this study is the Lɛnkaal dialect spoken by about 40% of the Bʋrfʋɔr speakers. It is spoken around Kalba and its environs. It is also the dialect that has been used by the Ghana Institute of Linguistics literacy and Bible Translation (GILLBT) in its literacy and translation programme

1.2 Ethnographic Background of the Bɪrfʋɔr People

The exact date of the presence of the Bɪrfʋɔr people in Ghana continues to be shrouded in mystery. However, Dah (2005), as cited in Dah (2011), reports of the migration of the Bɪrfʋɔr who hithertoo lived in Tyar near Wa in several waves into Burkina Faso in the 1800s as a result of insecurity and the lack of fertile lands. The Bɪrfʋɔr lived in the Upper Volta until the arrival of the French colonial authority in the era around 1898. Kambou-Ferrand (1990) as cited in Dah (2011), reports that, the part of land occupied by the Bɪrfʋɔr was very fertile and endowed with lots of mineral resources including gold. This apparently caught the eye of the colonial administration which was prepared to use every available means including force to bring that part of the country under their jurisdiction. This attempt was fiercely resisted by the Bɪrfʋɔr until the 15th of December 1929 when Dameoten, a key Bɪrfʋɔr community was attacked and totally annihilated by the colonial authority. This development saw a greater population of the Bɪrfʋɔr people moving back into the Gold Coast (Ghana) to settle along the north western corner of the country. If this assertion is anything to go by, then it is possible that Bɪrfʋɔr presence in Ghana predates the 18th century.

Dah (2011), citing Labouret (1931), lends credence to what was asserted by Dah (2005). Labouret argues that the Bɪrfʋɔr are ancient Lobi people who once lived around Tyar and Wa on the western corridor of the Black Volta. They interacted with the Wala, the Dagara, Oule and Mossi from whom they borrowed some idioms. In a personal conversation with Pastor Tampuor[1], he also asserts that, the Bɪrfʋɔr were the first occupants of Wa before the arrival of the Wala and Mossi

people. Since the Bɩrfʋɔr are generally peaceful, they left Wa to avoid any conflicts with their new neighbours. He asserts that, a suburb called Sukpeyiri (Suurkpe's village) in present day Wa is originally a Bɩrfʋɔr community founded by a Bɩrfʋɔr man called Suurkpɛ.

According to Dah (2011), another version of the oral traditions traces the origin of the Bɩrfʋɔr to the etymology of the name. In her narration, a marriage between a Lobi man and a Wiile woman resulted in the birth of two children. Unfortunately, the Lobi man died and since his relatives were unable to provide adequate food to feed the children, the woman will go back to her family members to ask for food to feed these children. She would ask permission to greet every funeral in her father's village during which she took advantage to ask for more food. As the tradition recounts, the people in her father's village nicknamed her and her children *biir fʋɔrɛ daara*, meaning 'those who greet funerals'. This is the origin of the word **Bɩrfʋɔr** which means 'greeters of funerals'. This tradition concludes that the son of this woman grew up and married a Lobi woman and from their offspring came the Bɩrfʋɔr people. Although this tradition does not mention the specific names of the Wiile and Lobi communities involved, its plausibility lies in the fact that, the Bɩrfʋɔr and the Lobis share many cultural practices, especially in the areas of marriage, the use of the xylophone and architecture which are strong signs of a common ancestral heritage. This assertion has also been corroborated by Pastor Daniel Tampuor in a personal conversation. Although the two languages are not mutually intelligible, the two ethnic groups always consider each other as the same people and inter-marriage is very common amongst them. Indeed, until

recent times, the Bʋrfʋɔr have always been referred to as Lobis or Loor. Goody (1956:21) commenting on the social organization of the Lowiili asserts that the Bʋrfʋɔr have a similar system of inheritance with the Lowiili. He also argues that the Bʋrfʋɔr speak a Mossi language which is unintelligible to the Lobi speaking Lowiili. Commenting on this, Tampuor again asserts that, Lobi gained popularity over Birirfor because the Lobis were very brave and warlike people who always wanted their presence felt where ever they went. The Bʋrfʋɔr on the other hand, are peace loving and shy, who did not want to be exposed and so are always willing to hide under the umbrella of other tribes such as the Lobi and the Dagaaba.

1.2.1 Geographical Location

Geographically, the Bʋrfʋɔr People live in the North Western part of Ghana along the border with La Côte d'Ivoire. Before the partition of Africa, they lived along the Black Volta in the then Gold Coast (now Ghana) stretching from Bamboi to the Upper Volta (now Burkina-Faso). In Ghana, they are located between latitudes 9° and 10° N and longitudes 2° and 3° west of the Equator. The total population of speakers is estimated to be 125,000 in Ghana (Ethnologue 2003). Majority of the Bʋrfʋɔr people live in small towns and villages scattered along the north western part of the Bole and Sawla-Tuna-Kalba Districts in the Northern Region and the Wa west District in the Upper West region. Major Bʋrfʋɔr speaking communities in the Upper West Region include: Laasɩɛ, Dɔɔnyɛ, Chɛbar, Dalantee, Jɛnbɔb, and Mɛtɛɛ. There is also a remnant Bʋrfʋɔr community in the Lawra District in the Upper West Region.

In the Northern Region, the Bɪrfʊɔr speakers are located in towns such as Kalba, Saaru, Gbeneyir, Yerkoi, Gonsi, Pinvʊrɔ, Bobalanyuro, Tampoi, Goyiri, and Nakpal, Nasolyir all within the Sawla-Tuna Kalba District. In the Bole District, Bɪrfʊɔr speaking communities include Gbordaar, Sʊkpa, and several dotted villages along the Bole-Bamboi road. Sizeable Bɪrfʊɔr speaking communities can also be found in towns that traditionally belong to other language groups such as Tuna, Yipala, Tinga, Sawla just to mention but a few.

There is also a strong Bɪrfʊɔr presence in the Western Region especially in the cocoa farming areas of the Enchi and Sefwi-Wiaso Districts. In 1997, the Ghana Institute of Linguistics Literacy and Bible Translation (GILLBT) realizing the density of the Bɪrfʊɔr population in the Western Region, extended the Bɪrfʊɔr mother-tongue literacy programme to these parts of the Region especially Kordjourkrom. Since the Bɪrfʊɔr are an agrarian society, they are easily attracted by fertile farmlands and this explains their presence in the Brong-Ahafo, Ashanti and Western Regions.

1.2.2 Socio-Cultural Background

The Bɪrfʊɔr system of inheritance is similar to the Akan matrilineal system whereby the properties of a deceased person are inherited by the members of the matriclan, (Sanortey 2011). It should however be pointed out that, whilst the Akan system of inheritance is fully matrilineal, same cannot be said of the Bɪrfʊɔr system which appears to be 'dual' in practice. For instance, the eldest son of the

deceased inherits the house, gods, bow and arrows and the farmland of his late father but not his cattle, sheep, goats and money .

Throwing more light on the rationale behind the adoption of the matrilineal system of inheritance, Pastor Tampuor again explains that, it was to safeguard the security of fathers from possible abuse by their children. If children were allowed to inherit their fathers, then the tendency to fast track the death of their fathers so that they could have access to their (parents) property through any fowl means would be high. Under the current arrangement, children usually have unlimited access to their father's property once they (fathers) are alive.

The Bʋrfʋɔr celebrate the **Bɔɔrsʋɔ̃** (good festival) and the **Kɔntɔmbɔɔr** (festival of the Kɔntɔmɔ deity) as their main traditional festivals. The Kɔntɔmbɔɔr is a festival celebrated to pacify the **Kɔntɔmɔ** deity by persons possessed by it. It can therefore be celebrated by both old and young persons who get possessed. The **Bɔɔrsʋɔ̃** (good festival) on the other hand is an ancestral festival celebrated in memory of the ancestral spirits and is celebrated usually by very elderly persons. The celebrations of the festival usually last for a period of three days marked by dancing and merry making. There is always so much to eat and drink during these celebration. The period is also used to perform special initiation rites for the core participants known as **Bɔɔrbil**. The Bɔɔr festivals are celebrated between the months of March and May.

1.2.3 Socio-Political Organization

The Bʋrfʋɔr are an acephalous society without a structured central authority. They are not a chiefly tribe and so have no territorial organization. This notwithstanding, the Bʋrfʋɔr have been able to build a command structure that revolves around the family and clan heads. Issues of disagreement are resolved under the auspices of the family head-**Yir sʋɔ**. Writing on the sociol life of the Bʋrfʋɔr of Burkina Faso, Dah (2011) makes reference to Labouret (1931) who asserts that, the father occupies the highest position in the Bʋrfʋɔr parternal family. He is the bread winner of the family and carries the sole responsibility of getting wives for his children who in return must respect and appreciate his authority.

Politically, Evans (1983:174) describes the LoBirifor (Bʋrfʋɔr) social organization as "Highly decentralized and dispersive of political authority". In his opinion, the LoBirifor society has no central structure around which a strong political tradition can be built upon. He was however quick to add that, "the absence of government, by which is meant centralized authority, administrative machinery and judicial institutions does not however correspond to the absence of politics" Evans (1983:4). Indeed, over the years, the Bʋrfʋɔr have played active roles in the national politics of this country both in the Executive and Legislative arms of government. Hon. Joseph Yiele Chire the immediate past Minister of Health in the Mills/Mahama administration and Member of Parliament for Wa West constituency in the Upper West region is a Bʋrfʋɔr. The Sawla-Kalba constituency has always been represented by a Bʋrfʋɔr since Ghana returned to constitutional democracy in 1992.

1.2.4 Economic Life

The Bɪrfʊɔr are peasant farmers who cultivate cereal crops and keep livestock for a living, and this explains why they choose to settle in the hinterlands where ever they find themselves. The Bɪrfʊɔr women assist their husbands on the farms and engage in shea-nut picking and pito brewing at their leisure times. Poverty levels remain high among the Bɪrfʊɔrs due to unfavourable climatic conditions which has resulted in the mass exodus of their young men and women to the Southern parts of the country to explore alternative sources of living. Added to this, the Bɪrfʊɔr cultural practice which mandates a son to work for the father until the age of about forty is yet another cause for the migration of the vibrant population to other parts of the country in search of greener pastures. This cultural arrangement does not permit the sons to benefit from the farm produce so the only way they can sustain themselves financially, is to escape to other areas and work for themselves.

In recent times, the influx of Fulani herdsmen with large herds of cattle into the Bɪrfʊɔr area has further compounded the plight of the people. Farm crops are destroyed by these herds of cattle on a daily basis with no adequate compensations. This condition makes farming unattractive hence the movement of the young men and women to the south in search of greener pastures. This in no doubt has contributed to the problem of this research.

Illiteracy rates are also high since most parents cannot afford the cost of formal education. Although some good progress has been made over the years in this direction with the introduction of the Free Compulsory Universal Basic Education

(FCUBE) programme, and the establishment of the Mother tongue literacy programme by the Ghana Institute of Linguistics Literacy and Bible Translation (GILLBT) in most Bʋrfʋɔr speaking communities, sending the girl child to school still remains a challenge.

1.3   Linguistic Affinity of Bʋrfʋɔr

Over the years Anthropologists and researchers have always referred to the Bʋrfʋɔr as Lobis even though the two languages are not mutually intelligible. Ratray (1932) asserts that, the Bʋrfʋɔr and Dagara are Lobis based probably on their homogeneous cultural practices. However, linguistically, Lobi is an isolated descendant of Proto-Gur with Kulango and Senufo as its neighbours (Naden 1988: 16). It is spoken in south western Burkina Faso, the eastern corridor of La Côte D'ivoire and some few villages in north-western Ghana. Bʋrfʋɔr belongs to the Oti-Volta group of the Gur branch of the Niger-Congo family with Dagaare and Waali as its closest neighbours (Naden 1989). Saanchi (2006) is of the view that, although Waali and Bʋrfʋɔr have often been seen as separate languages, linguistically, Central Dagaare, Northern Dagaare (Dagara) Southern Dagaare (Waali) and Western Dagaare (Bʋrfʋɔr) are all seen as varieties of the same language. His assertion is corroborated by the fact that these languages share a chunk of their vocabulary. Dakubu (2005:2) also asserts that, "several of the special features of the Dagaare spoken around Lawra that some refer to as "Lobi" are apparently derived from Bʋrfʋɔr after a migration from the southwest."

Bʋrfʋɔr is classified in Fig.1 below by Naden (1989) under the Mabia (Western Oti-Volta) sub group of Central Gur and is closely related to Dagaare.

Fig.1.1 Linguistic affinity of Bʋrfʋɔr.

NIGER-CONGO

(Other branches)

GUR   KWA   MANDE

CENTRAL GUR

(Other branches)   Grusi

OTI VOLTA

(other branches) **MABIA** (Western Oti-Volta) Buli/Kɔnnʋ   Guang

NORTH WESTERN   South eastern

SafalibaWaaliFarefare Moore Dagaare **Bʋrfʋɔr** Dagbani Kamara Buli KɔnnʋVagla Siti Gonja Choruba Akan Jula Ligbi
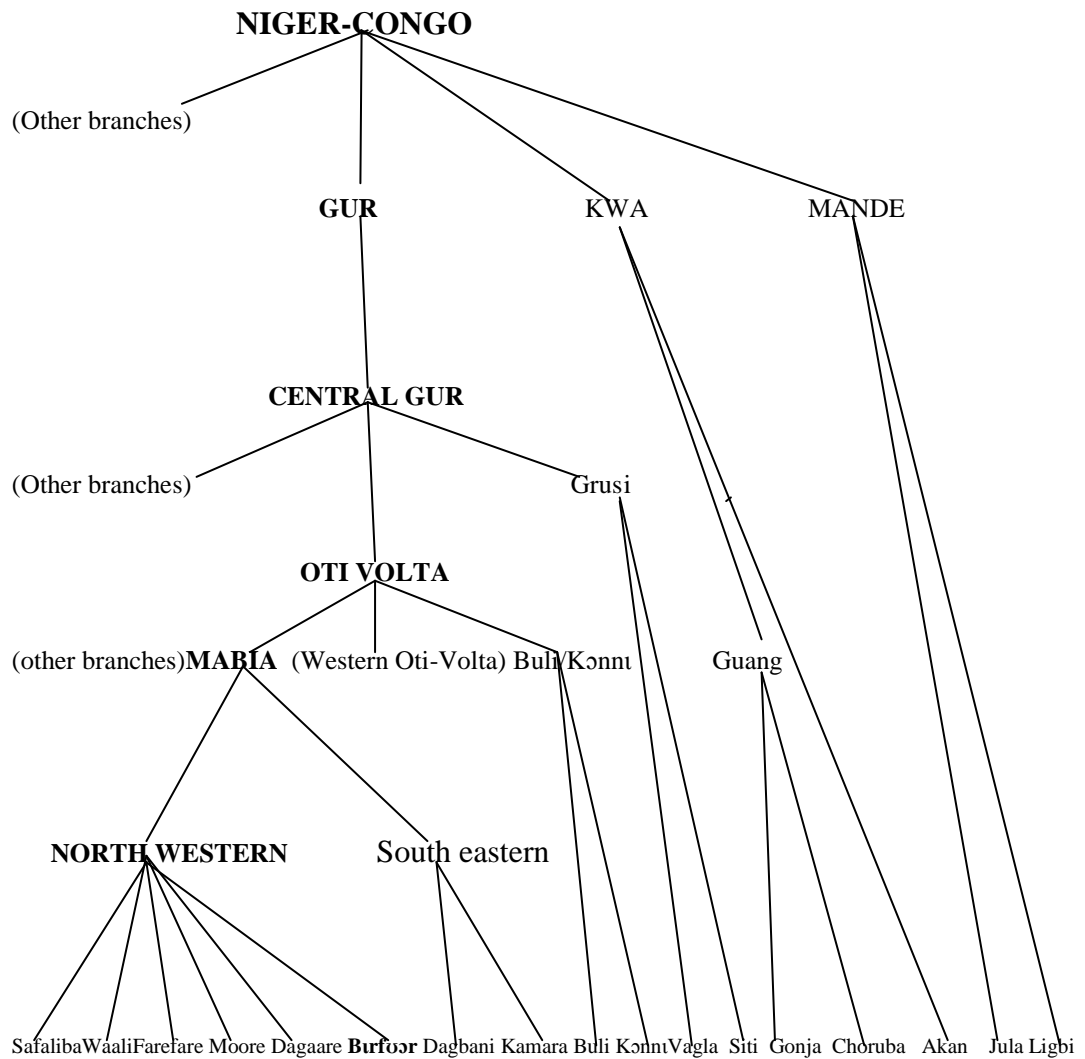
1.3.1 Dialects of Bʊrfʊɔr

Bʊrfʊɔr dialects can be broadly classified into four based on language features. They are Pɔnaal, Ŋmalba/Malba, Bachiel and Lɛnkaal. All four dialects have their sub-dialects. Although there is no known previous study on the dialectology of Bʊrfʊɔr, this present study identifies some phonological features that distinguish them as different dialects. For instance, whilst the Bachiel dialect has the voiced fricative /z/ non of the other dialects has it. Likewise where the Pɔnaal dialect has a diphthong the other dialects have a long monophthongs. The Ŋmalba dialect with majority of its speakers in Burkina Faso exhibits certain linguistic features that the others do not. The table below shows some dialectical variations at the segmental level.

Table 1.1 Bʊrfʊɔr and its dialects

Pɔnaal	Bachiel	Ŋmalba (Malba)	Lɛnkaal	Gloss
bʊn	bãa	bo	bo	what
jɪn	nɪn	ɲɪmɪ	jɪn	you (PL)
kpĩɛ̃	kpĩɛ	kpɛ̃:	kpɛ̃ɛ̃	big
tɪn	tɪn	sɪmɪ	sɪn	we/us
tau	tɔɔ	tɔɔ	tɔɔ	pull
dʑãã	zããm	dʑã̃ãmɪ	dʑãã	yesterday

1.3.2 Uses of Bɪrfʋɔr

Bɪrfʋɔr remains the language of everyday communication amongst its speakers in their various communities and so children born in such environments grow up speaking it as their L1. Since the Bɪrfʋɔr live mostly in the hinterlands, their primary contacts with people from diverse linguistic backgrounds are in the markets where they meet to transact business. In this situation, Waali which is the lingua-franca, is used as the medium of interaction except in markets that are located in Bɪrfʋɔr communities. Bɪrfʋɔr remains a viable language in the churches where the Bɪrfʋɔr New Testament is used. Pastors who are not Bɪrfʋɔr but want to reach out onto them learn how to speak the language to ease evangelistic work among the Bɪrfʋɔr people. The entire process of worship is done in Bɪrfʋɔr except the Roman Catholic Church where the liturgy is read in Dagaare.

Bɪrfʋɔr is also used in radio broadcast in the networks of Radio Progress in Wa, Radio for Peace and Development (Radio PAD) in Damango and the GBC Unique FM sister station in Osei-Kojo Krom in the Bia District in the Western region.

Although the Bɪrfʋɔr people interact very much with the other tribes in the area such as the Gonja, Vagla, Waali and Dagaaba, lexical borrowing is very minimal. As stated earlier, Waali remains the language of business and many Bɪrfʋɔr will use it in that domain to communicate. Bɪrfʋɔr speakers who are muslims will aspire to attain native speaker competence in Waali since it is seen as the langauge of the religion in that part of the country. However, the influence of Gonja and

Vagla on Bʊrfʊɔr is very insignificant as most Bʊrfʊɔr speakers do not even desire to speak these languages.

In the domain of traditional rites and sacrifices, Bʊrfʊɔr remains the language of communication. It is one of the contexts within which the language is expected to be used devoid of adulteration (code-mixing/switching).

1.4   Problem Statement

Language documentation has gained grounds in current linguistic activities due primarily to the fact that many languages are faced with extinction as a result of a combination of factors. Brenzinger et al (1991:19) contend that several languages on the African continent have come under serious threat of marginalization and subsequent extinction since many people have begun to abandon the less popular languages in favour of those that are thought to have a higher social status. This emerging threat to the very survival of many languages around the globe forms the core of Language documentation.

The situation in Bʊrfʊɔr mirrors what has been described above. Bʊrfʊɔr remains one of the least studied languages in the North-Western corridor of Ghana. Apart from the literacy materials that were developed by the Ghana Institute of Linguistics Literacy and Bible Translation (GILLBT), and a Dictionary compiled by Woodford (1964) on the Malba dialect of Burkina Faso, and the Phonology of Birfor by Kuch (1993) under the Language Notes Series published by IAS, no extensive studies have been done or published in the language. Despite its huge population of over a 125,000 speakers in Ghana, Bʊrfʊɔr is seen as a minority

language that is not widely used in social functions like Waali, Dagaare and Gonja. As a result of this condition, over the years, many Bʋrfʋɔr people have and continue to identify themselves as Dagabas when they travel out of their Bʋrfʋɔr speaking communities. This trend of events does not auger well for the growth and future viability of the language.

Another compelling reason is the mass exodus of the young men and women from Bʋrfʋɔr communities to the Western, Ashanti, Brong-Ahafo and Central regions in search of virgin lands to farm cocoa. Historically, the Bʋrfʋɔr constituted a huge chunk of labourers who migrated from the Northern part of the country to work on the cocoa plantations and usually returned home after a period of two to three years. However, the last two decades saw a shift from being just labourers on cocoa plantations to being owners of cocoa plantations. With this drive, majority of the virile young men and women have remained in these parts of the country and only visit home during funerals and festivals. Added to this, many of them have started acquiring properties in Kumasi, Sunyani and Techiman where they settle their families so their children can access formal education. A direct consequence of this situation is that the use of Bʋrfʋɔr is limited to their homes whilst children communicate with their peers in Twi.

According to Woodbury (2006), mass language shift is not a conscious event. It is a gradual process that may not appear to be disastrous until the havoc has been done. The shift becomes permanent through a sequence of events where the relevant language is not used. This shift becomes permanent when there are no more occasions to speak the language due to lack of practice. If all the speakers

find themselves in such a situation which implies that their children can no longer speak the language, then that language is classified as dead. It is for these reasons that the relevance of the present study cannot be disputed.

1.5   Objective of the Study

Bʋrfʋɔr remains one of the least studied languages in the Gur family. Perhaps its tagging as a minority language and the high rate of illiteracy among its speakers are contributory factors to this situation. This study therefore derives its legitimacy from the concern raised above. The primary objective of this thesis is to describe some aspects of the phonology of Bʋrfʋɔr. This takes the form of a description of the sound system of Bʋrfʋɔr (consonant and vowel inventories), a discussion of the syllable and syllable structure processes, a discussion of some phonological processes that occur in the language and finally, a discussion of Tone as it operates in the language.

Although this thesis does not cover every aspect of the phonology of the language, a good phonological description of Bʋrfʋɔr is in no doubt the foundation for the development of literature to sustain and invigorate its usage. It is also my objective that this study will serve as the catalyst which will propel the teaching and use of Bʋrfʋɔr at the basic level in schools located in its catchment areas in the near future.The study concludes with some findings and recommendations that will serve as pointers to future research.

1.6   Relevance of the study

Apart from the story books on Bʋrfʋɔr folklore and functional literacy books on health and civic education developed by the GILLBT, the only available technical publication in the area of lingustics is a sketch of the *Phonology of Birfor* by (Kuch 1993) and published by the Institute of African Studies (IAS) under its Collected Language Notes series.

The utmost relevance of this work therefore, lies in the fact that, in contrast to Kuch (1993), it offers a more detailed phonological description of the sound system of a language that has not been well developed. A detailed analysis of the language will therefore, help arrest this situation. A comprehensive phonological description of the language will draw the attention of future researchers to delve into the other aspects of the language which are equally important. This information does not only add to the literature of the language, but also serves as a rallying point for its speakers to discover their linguistic identity and heritage. The study also serves as a platform on which future research into the language can be premised.

1.7 Theoretical Approach

The approach to this study is descriptive. This notwithstanding, doing a description in a theoretical vacuity is problematic since descriptions usually entail some degree of analysis, and analysis cannot be carried out apart from some minimal set of theoretical assumption (Casali 1995). Therefore, whilst not adhering strictly to any formal Linguistic Theory, I have decided to situate my

discussion in a manner that is acceptable in the Generative Phonological tradition as espoused by Chomsky and Halle (1968), and Kenstowicz and Kisseberth (1979).The theory has gained so much popularity in current linguistic trends. The theory favors the use of distinctive features as a more vibrant way of describing the sounds of a language.

1.8   Sources of Data and Methodology

Data for this study is derived from both primary and secondary sources. Primary data for this study was gathered using the Summer Institute of Linguistics (SIL) Africa Area Word List 2 (SILCAWL 2) compiled by Douglas Boon. A recording of the Bʊrfʊɔr equivalents of this list of words was done with Pastor Daniel Tampuor[1] a retired mother tongue translator with the Bʊrfʊɔr New Testament Translation Project using a voice recorder. The transcribed data was cross-checked with four different native speakers for accuracy and consistency. Maal Chile[2] a visually impaired xylophonist and an expert in many Bʊrfʊɔr cultural issues was among those who made very invaluable input into the processing of the data used in this study.

Secondary sources include data from existing literature such as the literacy materials and books that have been developed by the GILLBT for their mother tongue literacy programme. The New Testament Bible in Bʊrfʊɔr (A Naaŋmɪn Nɛtɪr Palaa Gãn) also constitutes another invaluable source of data. Finally, my native speaker's intuition has also been brought to bear on the derivation and analysis of the data used in this study.

1.9   Literature Review

As stated above, Bʊrfʊɔr is one of the least studied languages among its neighbours in the North-Western corridor of the country.Unlike its neighbours such as Dagaare which has been extensively studied and is being taught in the University of Ghana, the University of Education- Winneba and the various Colleges of Education in the three Northern regions, same cannot be said of Bʊrfʊɔr. The only known published linguistic analysis of Birirfor is the ***Phonology of Birifor*** by Kuch (1993) published by the Institute of African Studies (IAS) under its Collected Languages Notes series. This analysis paved the way for the development of an orthography to formalize the writing system for the language.

Kuch (1993) discusses the segmental phonemes of the langauge. He notes that Bʊrfʊɔr has nine phonemic oral vowels and that each has a contrastive long counterpart. This is shown in the chart below.

Fig.1.2   Chart of vocalic phonemes
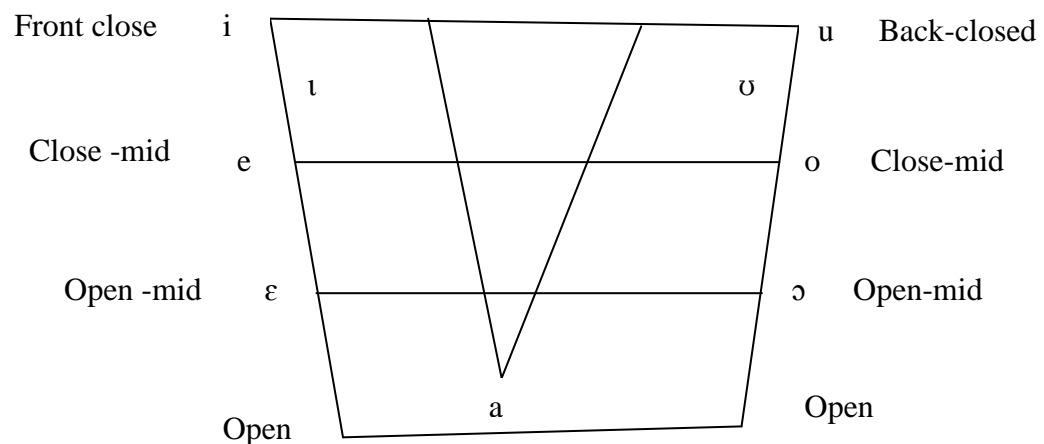
The nine oral vowels in the chart above also have their contrastive nasal counterparts which in turn also have their long counterparts. He contends that, oral and nasal vowels may contrast when preceded by nasal as well as oral consonants. The occurrence of /ẽ:/ is however very rare.

Again, in his analysis, Bʊrfʊɔr has a total of twenty-five consonantal phonemes; twenty-one plain consonants and four glottalized consonants. I reproduce the consonantal chart of Kuch (1993:2) below:

Fig.1.3   Chart of Consonantal Phonemes

	Labial	alveolar	palatal	velar	lab-velar	glottal
vl stops	p	t	c (ch)	k	kp	
vd stops	b	d	j	g	gb	
vl fricatives	f	s				h
vd fricatives	v					
nasals	m	n	ɲ(ny)		ŋm	
vd continuants		l	y		w	
glotaalized						
consonants	'b	'l	'y		'w	

According to him, glottalized consonants are a phenomenon that is unique to Bɪrfʊɔr, Dagaare and Busillu-Sissala. Although there is no handy evidence from other Ghanaian languages to dislodge this assertion, I strongly believe that such a claim is contestible. Also, apart from the phonemic inventory and a good wordlist, Kuch (1993) does not represent an in-depth analysis of the Bɪrfʊɔr language. Important phonological phenomena such as syllable structure processes, phonological processes and tone are not captured in his description of the phonology of Bɪrfʊɔr. However, eventhough his work is not a detailed analysis of the Bɪrfʊɔr sound system as already pointed out, it nonetheless provides a good foundation for this present study which is aimed at doing a more indepth phonological analysis of the language.

A set of traditional primers, *A se jan Berfʊɔr karfo*, *jandɔɔ* 1,2 and 3 (Lets learn Bɪrfʊɔr 1,2,3) were published in 1992 by (GILLBT) to teach the people to read and write Bɪrfʊɔr. This was followed by *A se jan Nasaal 'yɛr* (Lets learn English) a type of transitional primer which teaches learners who have attained some level of literacy in the mother tongue to bridge into English. A series of story books were published under a variety of titles to educate the learners as well as sustain their interest in the programme. Stories in this category include; *Bɪrfʊɔr fuolsi Book 1 and 2*-Bɪrfʊɔr stories 1&2 (Sibiti 1997) and also *Dʊn fuolsi*- Animal stories (Sibiti 2005) published in 1997 and 2005 respectively by GILLBT. Other publications include; *Gaanaa Paal Yelbinsi* (an abridged version of the Constitution of Ghana) published in 2001 by GILLBT in collaboration with the National Commission for Civic Education (NCCE), *Daba nɪ pɔɔ ɪn bʊ 'yen-*

Men and women are equal (Nyondib 2005). *A Nãaŋmɪn Nɛtɪr Palaa Gan* (The Bɪrfʊɔr New Testatment) was published Wycliffe Bible Translators and dedicated in 2006 by GILLBT. The information provided in these materials has been very useful and form part of the data for this study.

Bodomo (1997) describes Dagaare, a language that is closely related to Bɪrfʊɔr, as having nine oral vowels with cross-height vowel harmony. In his analysis, these nine oral vowels /i,ɪ,e,ɛ,a,ɔ,o,ʊ,u/ have their long counterparts except /ɛ/. Vowel nasalization occurs when oral vowels precede nasal consonants. With the exception of /e:/ all the long vowels have their nasal counterparts a condition which implies that, Dagaare has both nasal and nasalized vowels.

In his analysis, Dagaare has twenty-five consonants and two glides in underlying representation. The consonants /r/ and /ɣ/ occur as allophones of /d/ and /g/ at initial positions and intervocalically respectively at the surface level whilst the glottalized counterparts of /h/, /l/ and /m/ occur only in the Northern dialect (Dagara) spoken mostly in Burkina Faso. Although Bodomo (1997) touches on almost all the key areas expected in a phonological description, the work lacks detail in all the thematic areas addressed. For instance, his phonemic inventory is not elaborate enough to give the reader the opportunity to ascertain the claims being made in the study and neither did he provide a generous wordlist to buttress his conclusions. However, the relevance of this work to the present study cannot be downplayed as Bɪrfʊɔr and Dagaare share similar characteristics in their sound system.

Schaefer & Schaefer (2003) in their study of Safaliba, another related Mabia language, analyzed Salifaba to have nine phonemic oral vowels /i,ɪ,e,ɛ,a,ɔ,o,ʊ,u/ with a very active vowel harmony system. In their analysis, all the nine oral vowels have their phonemically long counterparts. These vowels, except /e:/ and /o:/ also have their long nasal counterparts. Oral vowels are also nasalized when they occur in the environment of nasal consonants. The /ʔ/ is phonemic in Safaliba. Schaefer & Schaefer (2003) give a detailed phonemic inventory of the Safaliba language but same cannot be said of their discussion of the syllable structure and the tonology of the language.

Studies in other related languages such as Buli and Kusaal are worth consideration. Akanlig-Pare (1994) takes a look at aspects of the phonology of Buli, a Gur language spoken in the Upper East Region, from a Generative phonological perspective. This study discusses the nature of the Buli syllable and the various syllable structure processes that occur in the language. Akanlig-Pare (2005) is a more in-depth study of the phenomenon of Buli tonal system situated within the Autosegmental framework. The study critically examines the role of tone in the morphosyntactic structures of Buli.

Agoswin (2010) in his work on Kusaal phonology makes a detailed description of the phonological processes that operate in the language. Kusaal tone is described using Autosegmental theory. These works are relevant to the current study since Bɪrfʊɔr is also a tonal language.

In a similar study, Olawsky (1996) describes the sound system of Dagbani, another Gur language spoken around Tamale and Yendi as having 20 consonantal phonemes and 2 glides /ʊ/ and /j/. The study reveals that, all the plosives and fricatives in the language have their voiced counterparts, a phenomenon that has been widely attested in the Gur language family. The discussion on the labial-velar consonants /kp,gb,ŋm/ and the glotal stop /ʔ/ is of interest to the present study since they appear to share some common grounds in their bahaviour in these two languages. Dagbani exhibits both lexical and grammatical tones although the former is said not to be very frequent.

In his article *Nawuri ATR Harmony in typological Perspective*, Casali (2002) also gives a detailed description of how ATR behaves in Nawuri and makes a comparison with what has been reported in other African languages. Nawuri has a nine vowel system with Cross-Height Vowel Harmony, which is a common feature of the Guang languages and even among the other languages outside the Guang family such as Bʊrfʊɔr. The low open vowel /a/ is neutral since it can co-occur with words from both [-ATR] and [+ATR] sets. He notes that, the [+ATR] vowel /e/ and /o/ are not frequent as their [-ATR] counterparts.

Another observation by the author which is relevant to the present study is the fact that, languages with Cross Height Vowel Harmony exhibit a clear difference in voice quality between the [+ATR] and [-ATR] vowels. The [+ATR] vowels have been described as 'deep' 'hollow' and 'breathy' whilst the [-ATR] vowels have been described as being 'bright' 'choked' and 'creaky'. This has been reported in many Niger-Congo languages such as Nzema and Ahanta. (Berry 1955) as cited in

Casali (2002). The articulatory quality is as a result of the advancement of the Tongue Root. The author contends that, a distinction in [+/-ATR] harmony in African languages is different from the Lax vrs Tense distinctions found in English and other European languages.

The studies that I have interacted with are relevant to the current study in diverse ways. In the first place, these languages by virtue of their genetic ties, share certain characteristics in their consonant and vowel inventories. For instance, labial-velar consonants are prevalent in the Gur language family to which Bʋrfʋɔr belongs. Added to this, since these languages are tonal languages, studying them will give an insight and hints on certain behaviors to expect in the present study.

1.10   Organization of the Study

The thesis is organized into five chapters. Chapter   one takes a look at the ethnographic and linguistic background of the people and the aims and relevance of the study as well as previous and related studies. Chapter two constitues a discussion of the phonemic inventories of the language whilst chapter three looks at the syllable structure of the language and the various phonological processess that occur in the language. Tone occupies center stage in chapter four whilst chapter five contains some reflections, summary and conclusion.

1.11 Conclusion

This chapter examines the socio-cultural background of the Bʊrfʊɔr people, taking into account their origins and geographical location. It observed that, the socio-economic challenges of the people have contributed in no small way to the very problem that this tudy seeks to address. Although Bʊrfʊɔr remains a viable language in terms of its usage, the fact that its future survival is under threat for lack of detailed linguistic description vis-a-vis its siblings in the Mabia group of languages cannot be over emphasised. Other issues addressed in this chapter include the objective of the study, relevance of the study and the method used in the study. The chapter concludes with a review of previous literature that is relevant to the present study.

END NOTES

1. Pastor Daniel Tampuor is a Bʊrfʊɔr Mother Tongue Translator with the Bʊrfʊɔr New Testament Project located in Tuna in the Northern Region.

2. Maal Chile is a visually impaired xylophonist and an expert on Bʊrfʊɔr cultural issues.

CHAPTER TWO

THE BɪRFʊɔR SOUND SYSTEM

2.0   Introduction

Phonology is the aspect of linguistics that deals with the organization and usage of sounds in languages. It takes into account the inventory of sounds as well as rules that specify how the sounds interact with each other.The purpose of this chapter is to discuss the phonemic inventory of Bɪrfʊɔr. Section 2.1 begins with a description of the vowel inventory taking into account their distribution and any co-occurrence restrictions. Section 2.2 begins with the consonantal chart of Bɪrfʊɔr, the distribution of these consonants and concludes with a description of the sounds based on their distinctive features.

2.1   The Vowel System

Speech sounds are classified into two main categories; vowels and consonants. According to Crystal (1992:376) vowels can be defined from both phonetic and phonological dimensions. Phonetically, vowels are "sounds articulated without a complete closure in the mouth or a degree of narrowing which will produce audible friction; the air escapes evenly over the centre of the tongue". From a phonological perspective, he classifies vowels as those elements that are at the center of the syllable. Oral vowels are produced when the air escapes solely through the mouth whilst nasal vowels are produced with a concurrent release of air through the mouth and nose.

Like many other languages in the Mabia family, Bʊrfʊɔr has nine phonemic oral vowels as indicated in Fig 2.1 below. Each vowel has a contrastive long counterpart. All the nine oral vowels also have their contrastive nasal counterparts. The nine vowels are represented in the chart below showing their tongue root positions.

Fig. 2.1

The Bʊrfʊɔr Vowel Chart
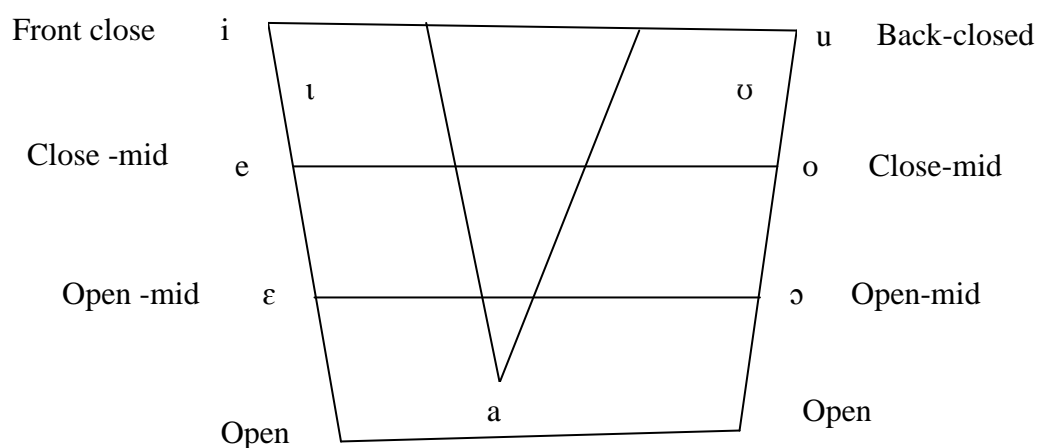
2.1.1 Oral Vowels

This group of vowels are produced with a raised velum which enables the air to pass through the oral cavity without any obstruction. The air from the larynx passes through only the oral cavity.

2.1.2 Formational Statements of vowels

/i/: Closed, Front, Advanced Tongue Root(+ATR) vowel (cf 2.1.6). It has a good distribution in word-medial and word final positions. It is one of the few vowels that can occur in word-initial positions (cf 3.2.1).

Example 2.1

/i/	<u>**Word**</u>	<u>**Gloss**</u>
	kpì	'die'
	dì	'eat'
	tì	'throw out'
	lìbír	'money'
	ʤìl	'xylophone'
	bìré	'sand'
	ìrè	'deer'

/ɪ/: High, Closed, Unadvanced Tongue Root –ATR vowel. It also has a good distribution in word-medial and word-final positions. It also occurs in isolation as a copular.

Example 2.2

	Word	**Gloss**
/ɪ/	sì	'take of skin of animal'
	tì	'and/went'
	tìr	'sneeze'
	fɪ̀r	'to force'
	ɪ	'is'

/e/: Closed, Mid Front, Advanced Tongue Root (+ATR) vowel. Has a good distribution in word-medial and word-final positions.

Example 2.3

	Word	**Gloss**
/e/	dé	'take'
	ŋmè	'beat'
	pèlé	'small basket'
	tēl	'take someone by surprise'
	bén	'to doubt'
	gèl	'get mad'

/ɛ/: Open, Mid, Front Unadvanced Tongue Root (−ATR) vowel. It is well distributed in word-medial and word-final positions.

Example 2.4

	Word	**Gloss**
/ɛ/	sɛ́	'to dance'
	sɛ̀bɛ̀	'air'
	sɛ̄b	'write'
	sɛ̀l	'transplant'
	tɛ́b	'to kick'

/a/: Open, Back, Unadvanced Tongue Root (−ATR) vowel. It is well distributed in all positions in a word. It is one of the vowels that occurs in word-initial positions in Bʊrfʊɔr. It also occurs in isolation as a definite article

Example 2.5

	Word	**Gloss**
/a/	dà	'buy'
	là	'lough'
	bálá	'clan'
	bádábá	'friend'

dàʨārā	'forkstick'
gbám	'gamble'
atá	'three'
áyí	'two'
à	'definite article'

/u/: Closed, Back, Rounded Advanced Tongue Root (+ATR) vowel. Is well distributed in word-medial and word-final positions.

Example 2.6

	Word	**Gloss**
/u/	tù	'to follow'
	gù	'wait for'
	tùlɯ̋	'pestle'
	búl	'to germinate'
	kúr	'metal'
	ʥùl	'driver ants'

/ʊ/: Closed, Back, Rounded Unadvanced Tongue Root (–ATR) vowel. Has good distribution in word-medial and word-final positions.

Example 2.7

	Word	**Gloss**
/ʊ/	bʊ̀	'to hold conversation'
	kʊ̀	'to kill'
	bʊ̀r	'to sow'
	bʊ́l	'to whisper'
	mʊ̀r	'to sink'

/o/: Closed, Mid, Back, Rounded Advanced Tongue Root (+ATR) vowel. Has a good distribution in word-medial and word-final positions.

Example 2.8

	Word	**Gloss**
/o/	dó	'to climb'
	bòlò	'type of grass'
	dòba:	'a pig'
	ból	'to smear'
	fõr	'untie'
	dól	'type of tree'

/ɔ/: Open, Mid, Back, Unadvanced Tongue Root (-ATR) vowel. It is also has good distribution in word-medial and word-final positions.

Example 2.9

	Word	**Gloss**
/ɔ/	kɔ́	'to weed'
	bɔ́	'to find'
	ʤɔ̀kɔ̀l	'fallow land'
	kɔ̀kɔ́r	'voice/langauge'
	kɔ̀r	'to cough/cough'

2.1.3   Contrast in Vowel Length.

All the nine vowel phonemes in Bʊrfʊɔr have their long counterparts. All long vowels occur in open and closed syllable positions. No long vowel occurs in in word-initial position.Vowel length is phonemic in Bʊrfʊɔr which implies that, a change in vowel length denotes a change in meaning.

Example 2.10

Vowel	**Word**	**Gloss**
/i/	bír	'seed'
/i:/	bí:r	'type of insect/weevil'
/ɪ/	sì	'take off skin'
/ɪ:/	sì:r	'touch'

/e/	dèr	'feel cold'
/e/	dé:r	'to embarrass'
/ɛ/	tɛ̀	'shoot with arrow'
/ɛ:/	tɛ̀:	'exchange'
/a/	bà	'to erect a stick'
/a:/	bà:	'valley'
/u/	kúr	'metal'
/u:/	kù:r	'hoe'
/ʊ/	bʊ̀r	'to sowk'
/ʊ:/	bʊ̀:r	'conversation'
/o/	tór	'be straight'
/o:/	tò:r	'ear'
/ɔ/	kɔ́	'weed'
/ɔ:/	kɔ́:	'mahogany tree'

2.1.4   Nasal Vowels

These vowels are produced with a lowered velum, thus allowing air to flow through the nasal cavity as well. The nasal quality exhibited by these vowels does not arise as a result of the presence or influence of any adjacent nasal consonants.

All the nine oral vowels in Bʋrfʋɔr have their contrastive nasal counterparts **/ĩ/, /ɪ̃/,**

/ẽ/, /ɛ̃/, /ũ/, /ʊ̃/, /õ/, /ɔ̃/, /ã/. Nasality is therefore phonemic in Bʋrfʋɔr.

Example: 2.11

<u>Vowel</u>	<u>Word</u>	<u>Gloss</u>
/ĩ/	vĩ̀	'shame'
/i/	ví	'pull down roof'
/ɪ̃/	tɪ̃́	'to become sweet'
/ɪ/	tɪ́	'but'
/ẽ/	pẽ́pélā:	'butterfly'
/e/	pèlè	'small basket'
/ɛ̃/	sɛ̃̀	'roast'
/ɛ/	sɛ̀	'dance'
/ã/	gã́	'sleep'
/a/	gá	'dig out from the ground'
/ũ/	tũ̀	'to thread something'
/u/	tù	'follow'
/õ/	tõ̀	'send someone'
/ʊ/	tʊ́	'insult'

/õ/	kõ̀	'cry/weep'
/o/	kò	'dry (v)'
/ɔ̃/	kɔ̃́	'hunger''
/ɔ/	kɔ́	'weed'

According to Clements (2000), phonemic nasality is a widespread feature in many Niger-Congo languages outside the Bantu family. It is also well attested in the Khoisan family. The data provided above show that Bɪrfʊɔr is among the few languages in Ghana that have a full complement of nasal vowels.

Although all the nine vowels have their nasal counterparts, same cannot be said of their frequency of occurrence. For instance the mid vowel /ɛ̃/ only occurs in a few words (cf 2.13).

2.1.5   Nasalized Vowels

These are vowels that assume the feature [+nasal] as a result of the presence of a nasal consonant in their environment. Describing the phenomenon in Sɛlɛ, Allen (1974: 83) contends that, "As the velum is lowered in anticipation of the nasal consonant, a little of the air expelled during the articulation of the vowel passes out through the nose". Boyd (1997:47) argues that, "in most cases nasalization of the vowel is completely predictable in the environment of a nasal consonant". See section (3.5.2.2) for detail discussion.

2.1.6   Advanced Tongue Root (ATR) Harmony in Bɪrfʊɔr

Vowel harmony is a common feature in languages with more than three tongue height systems. Many African languages especially those in the Niger-Congo and Nilo-Saharan groups are examples of languages that exhibit vowel harmony. Perhaps a few definitions will throw more light on the concept.

Kenstowicz (1994) defines vowel harmony as " a phonological state in which the vowels in a given domain share or harmonize for a particular feature". The implication of this definition is that, virtually, any of the common features used to distinguish vowels are seen to be at play in a harmonic system including height, backness and nasality.

In the opinion of Katamba (1989:210) "vowel harmony is a process whereby within a certain designated domain usually the word, all vowels are required to share one or more phonological properties. The vowels of a language are divided into two mutually exclusive   sets and all vowels within a stipulated domain must be, say either front, back, high or low rounded or unrounded etc".

The final definition worth consideration is the one given by Essien (1990). In his view, vowel harmony is a process by which the vowels of a language usually a single word are so constrained that all of them must have some property or properties in common as determined by the phonological environment

Taking a cue from the definitions above, the concept of ATR Vowel Harmony therefore presupposes that the vowels in a language can be grouped into two sets: Advanced Tongue Root (+ATR) and Unadvanced Tongue Root (-ATR).   The vowel harmony found in Bʊrfʊɔr is of the kind found in many Ghanaian languages including Akan (Dolpyne 1988), Nawuri (Casali 2002), Dagaare (Bodomo 1997), Kaakye (Dundaa, 2000), Kɔnnɪ (Cahill 1996) and Chumburung (Hansford 1988, Snider 1989). The vowels of Bʊrfʊɔr therefore fall into two separate sets: those pronounced with an expanded pharynx. **/i,u,e,o/** and those pronounced with a retracted pharynx, namely **/ɪ,ʊ,ɛ,ɔ/.**

 The two sets of vowels are shown in the figure below.

Fig 2.2 Sets of Bʊrfʊɔr Vowels

Set(1) +ATR   **Set(2)   -ATR**

i   **u**   **ɪ**   **ʊ**

e   **o**   **ɛ**   **ɔ**

                                                a

There is therefore a restriction in the distribution which does not allow the vowels of set   (1) to occur in the same word with vowels in set (2). So in a simple word in Bʊrfʊɔr only the vowels from one set can occur (cf.example 2.1.6).

2.1.6.1   Cross-Height Vowel Harmony (CHVH)

Another feature of the type of harmony found in Bʊrfʊɔr is Cross-Height Vowel Harmony (CHVH). According to Steward and Van Leynseele (1979) as cited in Bodomo (1997), a language exhibits Cross-Height Vowel Harmony based on [ATR] if the feature [ATR] is distinctive at more than one of the tongue heights and that the harmony operates across sequences of vowels which differ in tongue height.

The ensuing examples from Bʊrfʊɔr indicate that the vowels involved differ in tongue height. Fom the data below, /i,u,o/ are [+ATR] vowels whilst /ɪ,ʊ,ɛ/ are [−ATR] vowels. The difference in meaning among these minimal pairs is due to the fact that, they are produced at differrent tongue positions.

Example 2.12

[+ATR]		**[-ATR]**	
tììr	'slip'	tììr	'trees'
pó	'pass over'	pɔ́	'to swear'
sú:r	'anger'	sʊ̀:r	'ask'

The second feature which stipulates that, the feature [ATR] must operate across sequences of vowels which differ in tongue heights has also been attested in Bʊrfʊɔr. From the data below, there is harmony between the [+ATR] high vowel /i/ and its mid counterpart /e/ as in dìè 'room'. Similarly, there is also [ATR]

harmony between the [–ATR] high vowel /ʊ/ and its mid counterpart /ɔ/ in the word k<u>ʊ̀ɔ̀r</u> 'scratch'.

Example 2.13

[+ATR]		**[-ATR]**	
tʊ̀ò	'carry'	tʊ̀ɔ̀	'baobab tree'
kʊ̀òr	'funeral'	kʊ̀ɔ̀r	'scratch'
die	'room'	pìɛ̀	'basket'
pìè	'rock'	vìɛ̀	'branch off' (v)

Disyllabic words

[+ATR]		**[-ATR]**	
tɕíné	'guineafowls'	dʑìnɛ̀	'mark'
bìré	'sand'	bìrɛ́	'breasts'
dʑìlé	'vein'	dʑínɛ́	'a mark'
búló	'well'	bʊ́lɔ́	'whispering'

As far as a word is not a compound word, vowels in set (1) cannot occur in the same   word with vowels in set (2).

2.1.6.2   Exceptions to Vowel Harmony

There are many instances in the language where the principle of vowel harmonization does not apply. These situations are discussed below.

2.1.6.2.1   The Neutral Vowel /a/

In many four height languages that have nine vowels, the low vowel /a/ sometimes plays a neutral role. This is to say that since the vowel /a/ has no [+ATR] counterpart in nine vowel languages that exhibit vowel harmony, it tends to associate itself with both [+ATR] and [−ATR] sets. It can therefore co- occur with both [+ATR] and [−ATR] vowels in a simple word. Eventhough /a/ is produced with retracted pharynx, it occurs with vowels from each set. This is evidenced by the Bʊrfʊɔr data below.

Example 2.14

[+ATR]		[-ATR]	
nàɲìbè	'thief'	daɲ ıbɛ	'roots'
dàʨíné	'walls'	dầʨìnὲ	'type of mouse'
dàkpóló	'ruined house'	ʥānkpʊlā	'sitting room for men'

This does not however apply to all languages. For instance, Casali (1995) reports that, "the allophone /a/ that occurs before [+ATR] in [Nawuri] vowels is articulated with a more advanced tongue root than the variant that occurs before [-ATR] vowels.

2.1.6.2.2   Compound Words

Another exception to vowel harmony that is worth discussing is compound words. Tongue root harmony fails to hold in these words because they have two roots. So in such situations one finds both [+ATR] and [-ATR] vowels co-occurring in the same word as shown below. However, it should be noted that [ATR] harmony is still respected within each root of the compound.

Example 2.15

[+ATR]		**[-ATR]**	
sà-ʤùlṏʣùùr	'cloud'	fɔ̀-ʣārmā	'rag'
bʊ́n-díír	'food'	ʤ̀ɪl-kʊ́ɔ́r	'gourd of a xylophone'
náà-ʣèlbìr	'type of veg.'	mà̃-kʊ́mɑ̃́	'grandmother'

2.1.6.2.3   The agentive suffix /-fʊ/

The agentive suffix -fʊ is another suffix which does not harmonize in [ATR] with the stems of the roots to which it is attached. This revelation contradicts what has been reported in Nawuri (Casali,1995:28) where "affixes in Nawuri harmonize with the nearest vowel of the stem to which they are attached". Again, the failure of the agentive suffix /fʊ/ to harmonize in [ATR] and rounding with vowels of the roots it is attached constitutes an exception to what has been reported in Bʊrfʊɔr (see 3.4.1.1) where progressive suffixes harmonize in [ATR] and rounding with vowels of the roots they are attached to. Below are some examples:

Example 2.16

[+ATR]

bìn   +   fʊ   ⟶   bīnfʊ

'put down'   'putting'

dé   +   fʊ   ⟶   défʊ̀

'take'   'taking'

bè   +   fʊ   ⟶   bēfʊ

'be/look like'   'nature'

ŋmè   +   fʊ   ⟶   ŋmēfʊ

'beat'   'beating'

[-ATR]

pɛ̀n   +   fʊ   ⟶   pɛ̄nfʊ

'rest'   'resting'

dɛ̀n   +   fʊ̄   ⟶   dɛ̄nfʊ̄

'straighten'   straightening'

ʥàn   +   fʊ̄   ⟶   ʥānfʊ̄

'learn'   'learning'

mīr   +   fɔ̄   ⟶   mírfʊ́

'tremble'   'trembling'

2.1.6.2.4   The Plural suffix /-sɩ/

The plural suffix −sɩ is also invariably [-ATR] regardless of the [ATR] value of the vowels of the closest stem. The class of words that take this suffix is quite marginal.

Example 2.17

SG   **PL**

bùlò   ⟶   bùlsí

'kid'   'kids'

kùlò   ⟶   kùlsí

'small hoe'   'small hoes'

gbɔ̀kò   ⟶   gbɔ̀kòsí

'baboon'   'baboons'

dàjɔ̃̀   ⟶   dàjɔ̃́sí

'rat'   'rats'

dèlè   ⟶   dèlsí

'small stick'   'small sticks'

tɕɔ̀r   ⟶   tɕɔ̀rsī

'mole'   'moles'

mɔ̀lɔ̀   ⟶   mɔ̀lsī

'antelope'   'antelopes'

2.1.6.2.5   The locative suffix /-pɔ/

This suffix denotes the location of a person or an item. It is also inherently [-ATR] irrespective of the vowel quality of the stems it is attached to.

Example 2.18

[+ATR] Stem

dìè   +   pɔ̄   ⟶   dìèpɔ̄

'room'   'in'   'in the room'

púó   +   pɔ̄   ⟶   púópɔ̄

'farm'   'in'   'on the farm'

líbé   +   pɔ̄   ⟶   líbépɔ̄

'darkness'   'in'   'in darkness'

[-ATR] Stems

pìɛ̀   +   pɔ̄ ⟶   pìɛ̀pɔ̄

'basket'   in   'in the basket'

pōɔ̄   +   pɔ̄ ⟶ pōɔ̄pɔ̄

'stomach'   in   'in the stomach'

dà: +   pɔ̄ ⟶ dà:pɔ̄

'market'   'in the market'

2.1.6.2.6   The locative suffix /-dʑu/

The suffix -dʑu 'head/top' also denotes the location of a person or object on top of another object or on the surface of another object. It is invariably +ATR irrespective of the ATR quality of the vowels of the stem it is attached to.

Example: 2.19

[+ATR] stem

pìè   +   dʑú ⟶ pìèdʑú

'rock'   'head'   'on the rock'

dʑíré   +   dʑú ⟶ dʑírédʑú

'gravel'   'head'   'on the gravel'

[-ATR] stem

tìɛ̀   +   dʑú ⟶ tìɛ̀dʑú

tree   'head'   'on the tree'

tʊ̀ɔ̀   +   dʑú ⟶ tʊ̀ɔ̀dʑú

baobab tree   'head'   'on the baobab tree'

níέr   +   ʤú   ⟶   níέrʤú

mill   'head'   'on the mill'

2.1.6.3

tìὲ   +   ʤú   ⟶   tìὲʤú

tree   'head'   'on the tree'

 tὺɔ̀   +   ʤú   ⟶   tὺɔ̀ʤú

baobab tree   'head'   'on the baobab tree'

The examples on the behaviour of the [+ATR] dominant suffixes **bir** 'seed' and **bile** 'small' (cf 3.5.6.3) are clear cases of leftward [+ATR] spreading in Bʋrfʋɔr words. Other instances of leftward spreading of [+ATR] can be seen when [−ATR] roots are juxtaposed with their [+ATR] counterparts. In Bʋrfʋɔr, when a [+ATR] root is placed to the right of a [-ATR] root, the [+ATR] stem spreads its [ATR] value to the left causing the [−ATR] stem to become [+ATR]. Instances of [-ATR] spreading to [+ATR] have not been attested. Below are some examples:

Example 2.20

[−ATR]

bʋɔ̄   +   kṹ: ⟶   būkṹ̄:

'goat'   'death'   'dead goat'

nɔ́n	+	kɔ́:	⟶	nűkɔ́:
'meat'		'dry'		'smoked meat'

nɛ́:	+	bíér	⟶	nébíér
'mouth'		'bad'		'curse'

kɔ̀ɔ̀	+	mìrè	⟶	kɔ̀mìrè
'water'		'be sour'		'sour water'

2.1.7   Diphthongs

The phenomenon of diphthongs arise when two different vowel sounds that differ in tongue height occur next to each other in a continues glide. They are composed of two distinct parts refered to as the nucleus and the off glide. The nucleus constitutes the center of the most stressed vowel whilst the off-glide is the vowel at the periphery. Diphthongs do not have syllable breaks.

Example 2.21

/ie/	dìè	'room'
	pìè	'rock'
/io/	bíó	'tomorrow'
	bíbíò	'morning'
/oi/	kòì	'funerals'

/ɪɛ/	tìɛ̀	'tree'
	vìɛ̀	'to branch'
/aɪ/	váɪ́	'leaves'
	sáɪ́	'brooms'
/ue/	kùè	'hoes'
	lūē	'fork sticks'
/uo/	tùò	'carry'
	púó	'farm'
/ʊɔ/	sʊ̀ɔ̀	'knife'
	bʊ́ɔ́	'goat'
/oe/	póé	'stomachs'
	kòè	funerals
/ɔɪ/	kɔ́ɪ́	'guards'
	sɔ́ɪ́	paths
/ɛʊ/	tɛ̀ʊ̀	'change'
/aʊ/	tàʊ̀	'pull'

The table below shows the possible and permissible diphthongs that can occur in

Bɪrfʊɔr.

Fig. 2.1 Diphthongs in Bɪrfʊɔr

	i	ɪ	e	ɛ	a	ɔ	o	ʊ	u
i	-	-	ie	-	-	-	io	-	-
ɪ	-	-	-	ɪɛ	-	-	-	-	-
e	-	-	-	-	-	-	eo	-	-
ɛ	-	-	-	-	-	-	-	-	-
a	-	aɪ	-	-	-	-	-	-	-
ɔ	-	ɔɪ	-	-	-	-	-	-	-
o	oi	-	oe	-	-	-	-	-	-
ʊ	-	-	-	-	-	ʊɔ	-	-	-
u	-	-	ue	-	-	-	uo	-	-

2.2   The Consonant System

Consonants can be described from both phonetic and phonological perspectives. From the phonetic view point, Crystal (1992) defines consonants as "sounds made by a closure or narrowing of the vocal tract so that the air flow is either completely blocked, or so restricted that audible friction is produced". Consonants are often described in terms of the place and manner in which they are articulated and the mode of vibration of the vocal cord during their articulation. Phonologically, Crystal (ibid) sees consonants as those sounds that occupy the periphery of the syllable. They could either be single sounds or a cluster of sounds.

2.2.1 Phoneme Inventory

The Bɩrfʊɔr sound system contains 27 consonantal phonemes. This number consists of labial, labio-dental, alveolar, palatal, velar and labio-velar consonants. These are displayed in the Table 2.2 below.

Table. 2.2   Consonant Phonemes

	Bilabial	Labio-dental	Alveolar	Palatal	Velar	Labio-velar	Glottal
stops (voiceless) (voiced)	p b		t d		k g	kp gb	ʔ
Fricative (voiceless) (voiced)		f v	s				h
Affricates(v'celess) (voiced)				tɕ dʑ			
Nasals	m		n	ɲ		ŋm	
Laterals			l				
Glides			r	j		w	
Glottalized consonants	ɓ		'l	'j		'w	

2.2.2   Distribution of Bʊrfʊɔr Consonants

/b/: Is a Voiced Bilabial Stop. It has a good distribution in word-initial, word-medial and word-final positions.

/p/: Voiceless Bilabial stop. It has good distribution in word-initial and word-medial positions.

/ɓ/: A Voiceless Bilabial implosive. Is well distributed in word-initial and word-medial positions.

/d/: Voiced Alveolar Stop. Occurs in word-initial and word-final positions[1].

/t/: Voiceless alveolar stop. Occurs in word-initial and word-medial positions.

/k/: Voiceless velar stop. Is well distributed in Word-initial and medial positions only.

/g/: Voiced velar stop. It occurs in word-initial and word-medial positions like its voiceless counterpart.

kp/: Voiceless labio-velar stop[2]. It is well distrubuted in word-initial and word-medial positions[2].

/gb/: Voiced labio-velar stop. Never occurs in word-final positions.

dz/: Voiced palatal affricate. Occurs in word-initial and medial positions but never in word-final position.

/tɕ/: Voiceless palatal affricate. Occurs in word-initial as well as word-medial positions in Bʊrfʊɔr. Like its voiced counterpart, it does not occur in word-final position.

/f/: Voiceless labio-dental fricative. Occurs only in word-initial and word-medial positions.

/v/: Voiced labio-dental fricative. Does not occur in word-final position.

/s/: Voiceless alveolar fricative. Does not occur in word-final position

/h/: Voiceless glottal fricative. Has good distribution in word-initial and word-medial positions. It never occurs in word-final position in the language.

/n/: Voiced alveolar nasal. Ocurs in all three positions in a word in Birifor[3].

/ɲ/: Voiced palatal nasal. It has good distribution in in word-initial and word-medial position but never occurs in word final positions.

/m/: Voiced bilabial nasal. It occurs in all three positions in a word.

/ŋm/: Voiced labial-velar nasal. It never occcurs in word final positions.

/l/: Voiced alveolar lateral. It is one of the consonants that occurs in word-initial, word-medial and word final positions.

/r/: Voiced alveolar flap[1]. It never occurs in word-initial position.

/w/: Voiced bilabial approximant. Occurs more frequently in word-initial position than in word-medial position. It never occurs in word-final position.

/'w/: Voiceless glottalized labiovelar glide[4].

/'l/: Voiceless glottalized lateral. Occurs only in word-initial and word-medial positions.

/'j/: Voiceless glottaliced palatal glide. Never occurs in word final positions.

/j/: Voiced palatal glide. Has good distribution in word-initial and word-medial positions.

/ʔ/ Voiceless glottal stop. Occurs in word-initial and word-medial positions in a few words[5].

2.2.3   A summary chart of the distribution of Bʊrfʊɔr consonants.

The chart below summarises the distribution of the various conconants within the

word in Bʊrfʊɔr.

Tabe 2.3 Distribution of Bʊrfʊɔr consonants

Consonant	Word-initial	Word-medial	Word-final
b	bādābā 'friend'	daba 'man'	wɔ́b 'elephant'
p	pān 'door'	pòpɛ̀l happiness'	-----
ɓ	ɓɔ̀r 'type of lizard'	váɓêl 'leaflet'	-----
d	dà: 'market'	bŏdí:r 'food'	-----
t	tɔ̀ 'to pound'	nātūr 'wound'	------
k	kɔ́ 'kill'	dàkòɔr 'bachelor'	
g	gòbá 'left hand'	gã̀gà: 'drum'	-----
kp	kpɛ̀ 'enter'	dàkpúr 'stump'	-----
gb	gbɛ́r 'leg'	dã̀gbàl 'walking stick'	-----
dʑ	dʑɛ̃lbir 'tongue'	dʑã̀:dʑúl 'worm'	-----
tɕ	tɕìbè 'louse'	dàtɕīn 'wall'	
f	fɔ̀l 'cheat'	dɛ̃́féré 'not heavy'	-----`
v	vɔ́bà: 'type of okro'	ɲɛ̀vɔ́r 'life'	-----
s	sán 'debt'	sɛ̀sɛ̀bɛ̀ 'wind'	-----
h	há: 'open mouth'	nàhìèr 'nose cancer'	-----
n	nã̀: 'chief'	bīnɛ̃̄ 'dance' (n)	tàn 'shout'
ɲ	ɲú:r 'yam'	nàɲìbè 'thief'	-----

m	mὲ 'build'	ʥímέ 'fish'	ŋmám 'dove'
ŋm	ŋmì:n 'squize'	Nààŋmín 'God'	-----
l	lò 'falĺ	bέlέ 'type of bird'	bōl 'smear'
r	-----	dìrè 'eating'	jír 'house'
w	wób 'weave'	bawono	-----
'w	'wɔ̀b 'chew'	ɲà'wólò 'pussy cat'	-----
'l	'là 'crack'	'lέ'lέrέ 'shallow'	-----
'j	'jὲr 'say'	vá'jɔ́lɔ́ 'fresh leaves'	-----
j	jɛ̃ 'wisdom'	jɛ̃jɛ̃ 'near'	-----
ʔ	ʔî:l 'horn'	bàʔà 'unconcerned'	-----

2.3   Phonetic Description of Bʋrfʋɔr Sounds

Most generative phonological theories have assumed that consonants are made up
of phonological features or distinctive features. These features are generally
assumed to be binary which implies that every feature has both [+] and [-] values.
Flowing from this, the underpinning concept of the distinctive feature theory is
that, sounds are either specified for a particular feature or not.The Bʋrfʋɔr sound
system is described using the non-hierachical feature system outlined in Chomsky
and Halle (1968), Kenstowicz and Kiseberth (1983) and later Katamba (1989).

Generally, distincitive features have been classified in to three broad categories;

i.   Major class features

ii.   Cavity features

iii.   Manner features

2.3.1   Major Class Features:

Bʊrfʊɔr sounds can be distinguished under the features [+/-syllabic], [+/- consonantal] and [+/- sonorant].

2.3.1.1   [+/-Syllabic]

Syllabicity connotes the role played by a sound in the structure of the syllable. In many languages including Bʊrfʊɔr, vowels constitute the nucleus of the syllable and are thus said to be [+syllabic]. All the nine oral vowels /i, ɪ, e, ɛ, a, ɔ, o, ʊ, u/ and their nasal counterparts / ĩ, ɪ̃, ẽ, ɛ̃, ã, ɔ̃, ò, ʊ̀, ù / in Bʊrfʊɔrr are therefore, [+syllabic].

2.3.1.2   [+/-Consonantal]

Burquest and Payne (1993) refer to consonantal sounds as those produced with a significant stricture in the oral cavity. Katamba (1989:43) refers to the type of stricture involved in the production of consonantal sounds as " a drastic stricture along the center line of the vocal tract". Any other sounds produced without this kind of stricture are non-consonantal. Flowing from this, [+ consonantal] sounds in Bʊrfʊɔr include the liquids /l, 'l,r/, the nasals/m,n,ŋm ɲ/ and obstruents / p,b, ɓ, t, d, k, g, kp, gb, tɕ, dʑ,f, v, s, w,j,'w,'j/.

2.3.1.3   [+/- Sonorant.]

Crystal (1992:320) defines sonorant sounds in articulatory terms as "those produced with a relatively free airflow and a vocal cord position such that spontaneous voicing is possible". The group of sounds that fall within this

category in Bʋrfʋɔr include; the oral vowels /i, ɪ, e, ɛ, a, ɔ, o, ʋ, u/, their nasal counterparts /ĩ, ɪ̃, ẽ, ɛ̃, ã, ɔ̃, õ, ʋ̃, ũ/, the nasals /m.n.ŋm.ɲ/ liquids /l, 'l, r/, and the glides /w, 'w, j, 'j/.

2.3.2   Cavity Features

Cavity features refer to specific areas in the vocal tract where modifications of the airstream occurs in the production of certain sounds. They therefore refer to the place   where   these   sounds   are   articulated   in   the   vocal   tract (Katamba 1989). Following (Katamba ibid 44), sounds have been classified as having   the   features[+/-anterior],[+/-coronal],[+/-labial],   [+/-round]   [+/-back], [+/- high],[+/-low] and [+/-ATR]

2.3.2.1   [+/-Anterior]

Anterior sounds are produced at or in front of the alveolar ridge. The labials, /p, b, ɓ, m / labial-dentals /f, v/ and alveolars /t, d, s, n, l, r, 'l/ are examples of sounds in Bʋrfʋɔr. All other sounds not found in this category are [-anterior].

2.3.2.2   [+/- Coronal]

"Coronal sounds are produced with the blade of the tongue raised [towards the hard palate] from its neutral position"(Chomsky & Halle 1968). In Bʋrfʋɔr, coronal sounds include the dental and alveolar sounds /t, d, s, n, l, r, 'l/ the palatals /tɕ, dʑ, ɲ, j 'j/ and the vowels /i, ɪ, ʋ, u/.

2.3.2.3   [+/-Labial]

Lip posture plays a very critical role in the production of labial sounds. Rounding of the lips is characteristic of sounds that are described as labial. However, Akrofi Ansah(2002) taking a cue from Ladefoged (1982:263) cautions that, the feature round and labial cannot be used interchangeably since [+round] specifies the horizontal distance between the centers of the lips whilst [labial] specifies the vertical distance between the lips. The back vowels /ɔ, o, ʊ, u/ are round whilst the consonants /p, b, ɓ, m, kp, gb, f, v, ŋm, w/ are labial sounds in Bʊrfʊɔr.

2.3.3   Tongue Body Features

According to Chomsky and Halle (1968), the neutral position of the tongue is the default position it assumes in the production of mid vowels. In their opinion any other posture wich differs from this, is a deviation from the norm. Based on this sounds in Bʊrfʊɔr can be described under the following categories: High/non-high, Low/non-low, Back/non-back and Advanced tongue root/non-advanced tongue root.

2.3.3.1   [+/-High]

High sounds are produced by raising the body of the tongue from its neutral position. All other sounds that are produced without raising the body of the tongue are non-high. In Bʊrfʊɔr, the vowels /i, ɪ, u, ʊ/ and their nasal counterparts /ĩ, ɪ̃, ũ, ʊ̃/ are [+high]. Likewise, the glides /j, 'j, w/ the palatals /tɕ, dʑ, ɲ/ and velar consonants /k, g, kp, gb, w,/. All other sounds not classified under these categories are [-high].

2.3.3.2   [+/-Low]

Katamba (ibid:45) describes low sounds as   those "produced with the tongue depressed and lying at a level below that which it occupies when at rest in neutral position…". Any other sounds that are produced without any depressing of the tongue as described above are non-low.

2.3.3.3   [+/-Back]

Back sounds are produced with the back part of the tongue. They include the velar sounds and any other sounds produced further back. Central and back vowels also fall under this category (Burquest and Payne 1993). The consonant sounds /k, g, kp, gb, ŋm, w, 'w/ and the vowel sounds /u, ʊ, o, ɔ, a/ in Bʊrfʊɔr can be described as [+back] any other sound is [-back].

2.3.4   Manner Features

Manner of articulation features are critical determiners in describing sounds within the domains of phonetics and phonology. For instance, vowels and consonants are distinguished mainly by the manner in which they are articulated. The type of constriction in the vocal tract determines the type of sounds produced.

2.3.4.1   [+/-Continuant]

Continuants according to Katamba (1989) are sounds produced by partially impeding the flow of air through the glottis. Non-continuants on the other hand, are produced with a complete closure of the vocal tract. Continuants in Bʊrfʊɔr, include; /f, v, s,/ and all nine vowels/ i, ɪ, e, ɛ, a, ɔ, o, ʊ, u/.

2.3.4.2   [+/-Lateral]

Lateral sounds involve "an articulation in which the airstream flows over the sides of the tongue" Ladefoged (1993:294). Lateral sounds in Bʊrfʊɔr include /l, 'l, r/.

2.3.4.3   [+/-Nasal]

Nasal sounds are produced with a lowered velum which allows the air to flow through the nasal cavity. Oral sounds on the other hand are produced with a raised velum which allows the air to flow through the oral cavity. Nasal sounds in Bʊrfʊɔr include the stops /m n,ŋm, ɲ/ and all the nine nasal vowels /ĩ,ɪ̃,ẽ,ɛ̃,ã,ɔ̃,õ,ʊ̃,ũ/.

2.3.4.4   [+/-Strident]

Strident sounds according to Crystal (1992) are those produced with a relatively complex stricture and marked by a relatively high frequency and intensity whilst non-strident sounds are produced with a relatively low frequency and intensity. The fricatives /f, v, s, h/ and affricates /tɕ, dʑ/ in Bʊrfʊɔr are [+Strident] whilst all the other sounds are [-Strident].

2.3.4.5   [+/-Delayed release]

This feature according to Katamba (ibid), is only peculiar to sounds produced in the mouth cavity. The feature makes a distinction between stops and affricates. The release in the closure when producing stops is abrupt whilst the release in the closure which involves affricates is gradual or delayed. Sounds in Bʊrfʊɔr which can be classified into this category include the affricates /tɕ, dʑ /.

2.4   Conclusion

The preoccupation of this chapter has been the description of the consonant and vowel inventory in Bʊrfʊɔr. It has established that, Bʊrfʊɔr just like many of its siblings in the Mabia group of languages has nine oral vowels with an active vowel harmony system based on ATR. These nine oral vowels in turn have their contrastive nasal and long counterparts. All nine vowels occur in open and closed syllable positions. Nasal /ẽ/ and /ũ/ are very rare. The twenty six consonants are well distributed in word-initial and word-final positions except /r/ which does not occur in word-initial position. Only /b,l,m,n,r/ can occur in word-final position.

END NOTES:

1. The voice alveolar stop /d/ and the voiced alveolar flap /r/ are seen to be in complementary distribution. Kuch (1993:4) is of the opinion that, /d/ usually "surfaces as the voiced alveolar flap /ɾ/ following a vowel in non-morpheme-initial positions". Schaefer and Schaefer (2003) report of a similar occurrence in Safaliba where the voiced alveolar stop /d/ occurs word-initially whilst the alveolar flap /r/ occurs in intervocalic positions The alveolar flap /ɾ/ never occurs in word-initial position in Bʊrfʊɔr except in loan words. Interestingly, in most of the loan words that /ɾ/ occurs in word-initial position, it is substituted with the velar approximant /w/. This assertion is in line with what has been observed in Dagbani by Olawsky (1996) where /l/ is even preferred as an alternative pronunciation of initial /ɾ/ in loan words.

2. Labial-velars (kp, gb, ŋm) are complex sounds with more than one component but several behavioral patterns that depict them as phonologically one unit. They occur extensively in West and Central Africa and in a few languages of Papua New Guinea. The phenomenon has also been reported to occur marginally, in at least two Caribbean Creole languages which have an African substratum (Cahill 1999). Labial-velar stops are produced "with overlapping near simultaneous closures at the lips and velum (Cornell 1994a) as cited in Clements (2000). Clements (ibid) further claims that these sounds occur in a good number of Sub-Saharan African languages accross major genetic borders. /gb/ and /kp/ are

voiced and voiceless labial-velar stops respectively and are well distrubuted in word-initial and word-medial positions in Bʊrfʊɔr. According to Naden (1989), labial-velar consonants /gb, kp,ŋm/ are typical of Gur languages of which Bʊrfʊɔr is no exception. He notes that it is extremely rare to find labial-velars at word or syllable final positions.

3. Bʊrfʊɔr has four nasal consonants /n, m, ŋm, ɲ/ which are well distributed in in word-initial and word-medial positions. Although the velar nasal /ŋ/ exists phonetically in the language, it has no phonemic status. The occurrence of /n/ and /m/ in word-final position is well attested in varying degrees but same cannot be said of /ŋm/ and /ɲ/ which never occur in word-final positions.

4. One unique feature of the Bʊrfʊɔr consonant system is the presence of glottalized consonants /ˈj,ˈw,ˈl/.These sounds are articulated with secondary glottal constriction and are rare in many Ghanaian languages. According to Kuch (1993) glottalized consonants are a phenomenon that is unique to Bʊrfʊɔr, Dagara and Busillu-Sissala in Ghana. They contrast with their non-glottalized counterparts.

5. According to Ladefoged (1983:52) "a glottal stop is the sound (or to be more exact, the lack of sound) that occurs when the vocal cords are held tightly together". Though its occurence in the language is much limited and cannot therefore be classified as a full phoneme, it is important to discuss it in passing as it is been found to be phonetically present in a few words.

CHAPTER THREE

THE SYLLABLE AND PHONOLOGICAL PROCESSES

3.0   Introduction

This chapter is the subject matter of two important phonological phenomena in Bʋrfʋɔr. The first part takes a look at the syllable in Bʋrfʋɔr as well as some syllable structure processes that occur in the language whilst the second part takes a look at some assimilatory processes in the language.

 Akanlig-Pare (1994), explains that, the syllable is very crucial in explaining many phonological processes that occur in a language. In his opinion, syllable structure processes for instance "are often motivated by the need to preserve preferred syllables or to readjust those that are unpreferred" (Akanlig-Pare,1994:53). Drawing examples from Buli, Akanlig-Pare (ibid) demonstrates that, vowel insertion is required to break up a CCV cluster into CVCV since the former is alien to the syllable structure of Buli.

The second part of this chapter considers some assimilatory processes in the language. Burquest and Payne (1993) identify three sources of phonological processes. These are articulatory, acoustic and cognition. It is very difficult if not impossible to produce sounds in disconnected units. Therefore in the production of sounds they tend to affect other sounds in their environment. Phonological processes discussed in this chapter include, harmonizing affixes, homorganic nasal assimilation, nasalization, just to mention but a few. A formal representation of

these processes will be done using linear phonological rules (P-Rule) where applicable.

3.1   The Syllable

Despite its crucial role in understanding the structures around which many languages are spoken, the syllable remains difficult to conceptualize because it is an abstract unit that is not directly connected to phonetics. Kenstowicz (1994) sees the syllable as central in the description of any language because it is an "essential concept for understanding phonological structure" (Kenstowicz, ibid: 250). According to him, the syllable constitutes a pivot around which phonological rules and the limitations on the sequence of occurrence of sounds in a phonological word can be adequately described.

With regards to the structural composition of the syllable, Kenstowicz (1994:252) posits the syllable as "containing an obligatory nucleus preceded by an optional consonantal onset and followed by an optional consonantal coda". To him, the nucleus which is usually made up of a vowel is the most fundamental part of the syllable because it is the only element that is obligatory in that position. The nucleus also constitutes the domain for the assignment of tone and stress. Flowing from this, the loss or absence of the consonantal onset or coda does not result in a distortion in syllable count or the location of accent or tone.

The role of the syllable in phonological theory remains the subject matter of unending controversy. Kenstowciz (1994:259) refers to it as a "conceptual bagage from traditional grammar" . The controversy further sterms from the fact that, the

syllable is not a sound but an abstract unit through which the phonology of a language is expressed.

3.1.1   Traditional Views of the Syllable

Divergent views have been held with regards to the exact nature of the syllable. The first view as espoused in Goldsmith (1990), and popularly referred to as the Sonority view, focuses on the degree of the openness of the vocal tract in the production of sonorous sounds which constitute the syllable.

"The sonority of a sound is determined primarily by the size

of the   resonance chamber through which the air stream flows.

Thus, a low vowel is more plainly audible than a higher vowel

uttered with the same force,   and any vowel is more sonorous

than any consonant" Trager (1942:22) as cited in Goldsmith (1990:110).

This is illustrated in the figure below.

Fig 3.1 The Sonority Hierarchy (adopted and modified from Burquest and Payne (1993:101)

weakest consonantality	low (open) vowels
(most Sonorous)	mid vowels
	high (close) vowels
	glides
	liquids
	nasals
	voiced fricatives
	voiceless fricatives
	voiced plosives
strongest consonantality	voiceless plosives
(least sonorous)	complex plosives
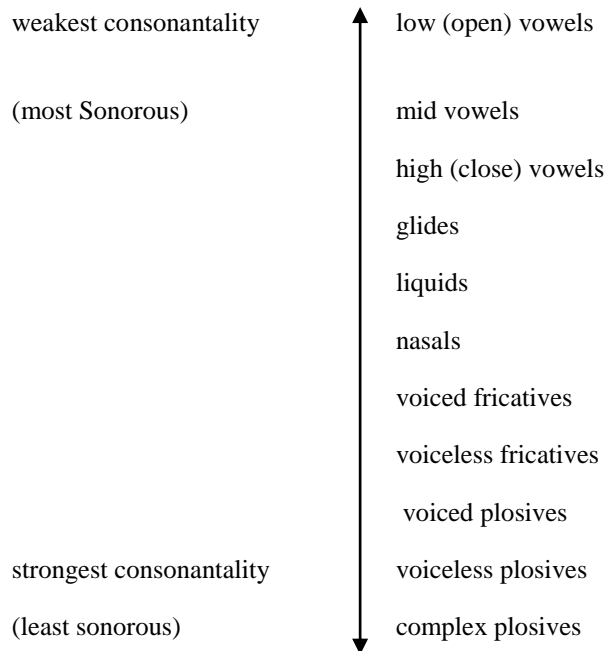
The underlying tenet of this view is that, the number of syllables in a word is determined by the number of sonorous peaks which are usually vowels found in the word in question. This inherently places the vowels at the peak of the syllable whilst the consonants are relegated to the periphery (Adonae,2005). The implication of such a view which places sonority as the key determiner of syllables is that, tone which plays an important role in the meaning of words such as minimal pairs in African languages is left out. Dolphyne (1988) argues that, the syllable in Akan is determined by the number of tones that may occur in a string of segments. Tone is phonemic in most African languages but seems not to be well accounted for in the sonority hierarchy principle.

3.1.2   The Structural View of the Syllable

The second traditional view of the syllable is also referred to as the structural view. Goldsmith (1990:105), citing Haris (1951) and Haugen (1956a), admits that the syllable is   "a constituent definable in familiar phrase-structure terms, quite like the sentence". In their opinion, the syllable contains a certain number of syntagmatic positions that allow certain subsets of a phonological segment of a given language to occur in a well formed utterance. The structural hierarchy is based on binary branching and dominance principle as comparable to the syntactic phrase structure of Generative grammar.

3.1.3   The internal Structure of the Syllable

The general consensus on the internal composition of the syllable (Hayes 2005, Kenstowicz (1994), Goldsmith (1990), is that, the syllable is typically composed of an Onset (O) which refers to the consonant or sequence of consonants that occur at the beginning of the syllable, a Nucleus (N) which refers to the vowel or diphthong which constitutes the core and functions as the sonority peak of the syllable and finally, a Coda (cd) which refers to the consonant or sequence of consonants at the end of the syllable (cf Fig.3.2). Languages exhibit differences in terms of syllable structure. Whilst languages such as English have the coda, same cannot be said about languages such as Sɛkpele one of the Ghana Togo Mountain languages spoken in the northern part of the Volta Region (Tornu 2009). The nucleus is obligatory in the structure of the syllable, whilst the Coda and Onset positions are optional in some languages.

The figure below illustrates the structure of the syllable.

Fig.3.2 The Structure of the Syllable
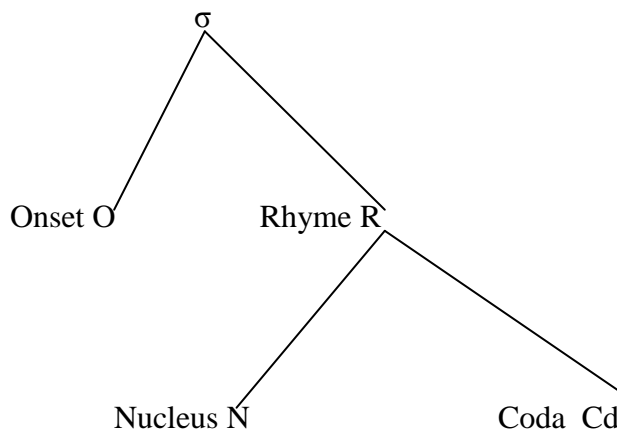
3.2. The Bʊrfʊɔr Syllable Structure

This section takes a look at the structural composition of the Bʊrfʊɔr syllable. The evidence presented below sugests that Bʊrfʊɔr, just like many other languages, has an obligatory syllable Nucleus with optional syllable Onset and coda. There are no consonant clusters in Bʊrfʊɔr. There are also several models of representation of the internal structure of the syllable in phonological analysis, but in this work,   the CV-model expounded by Clements and Keyser (1983) shall be used to represent the various syllable structures.

3.2.1   The V- syllable

The V syllable structure has a vowel alone constituting the syllable or a vowel found in word-initial positions. It is a marked syllable type that encodes grammatical meaning such as definiteness, number and polarity.

Example 3.1

à-   'the definite article'

á-tá   'three'

ì   'do/be'

ɛ   'PST marker'

ɔ̃:   'yes'

3.2.2   The CV-syllable

The CV syllable has proven to be the most invasive and flexible structure in terms of its occurrence in word-shape in Bʊrfʊɔr. It is also the first syllable children acquire when learning a language (Roca and Johnson 2000). All the consonants occur in this position. All the nine oral vowels and their contrastive nasal and long counterparts also occur in the nucleus of this syllable. The groups of words that dominate this type of structure include verbs and nouns. A dot (.) will be used to break disyllabic or polysyllabic words.

Example 3.2

Word   **Gloss**

dó   'climb'

dì   'eat'

kpɛ̀   'enter'

tʊ́   'to insult'

kɔ̀   'cry'

dà: 'market'

kà: 'see/look'

kù.lò   'small hoe'

bʊ̀.rɔ̀   'bee wax'

3.2.3   The CVC-syllable

This type of a syllable consists of an onset, nucleus and a coda and constitutes the second major syllable type after the CV type described above. In Bʊrfʊɔr, only six consonants /b, l, r, m, n / can occur in the coda position.

Example 3.3

	Word	**Gloss**
/r/	bʊ̀r-	'sow'
	ɓùr	'dodge'
	dà.kpúr	'stump'
	dà.pē̄:r	'bark of tree'
/l/	búl	'germinate'
	bàl	'be tired'

	vá.ɓêl	'leaflet'
	dằ.ból	'fool'
/b/	wɔ̀b	'elephant'
	sɔ́b	'be black'
/n/	sán	'debt'
	gán	'skin'
	bà.gān	'mad dog'
	dà.gān	'cassava'
/m/	dàm	'stir'
	gàm	'cross over something'
	na.ŋmam	'pegion'

3.2.4   The CV:C-syllable

This structure is yet another frequent syllable type in Bʊrfʊɔr and all the nine vowels can occur in it. It is also a CVC syllable except that the vowels in the nucleus are long. Only the trills /l/ and /r/ and the alveolar nasal /n/ can occupy the coda position in this syllable type.

Example 3.4

	Word	**Gloss**
/r/	bá:r	'finished'
	bò:r	'granery'
	bɔ̀:r	'festival'
	gbè:r	'hicup'
	ɲú:r	'yam'
	pì:r	'sweep'
/l/	bà:l	'sickness'
	gbà:l	'gather'
/n/	kpì:n	'quench'
	kpì:n	'ghost'
	bī:n	'broth'
	sá:n	'stranger'

3.2.5   The CCV-syllable

This type of syllable structure has a cluster of two consonants in onset position. The second consonant is usually the lateral trill /l/ or the flap /r/. This structure is the result of a syllable structure process due to vowel deletion (cf 3.4.1.3).

Example 3.5

<u>**Word**</u>	<u>**Gloss**</u>
plém	'under'
plà	'white'
lúblē	'bird'
drè	'eating'
prè	'yamfield'

3.2.6   The N-syllable

This syllable type has the syllabic nasal /n/ constituting a syllable. As a result of the difficulty in assigning an underlying form to this nasal, it would be treated as an archiphoneme whose surface realization is conditioned by the consonant it precedes. In Bʊrfʊɔr, it usually occurs as the first person singular pronoun and usually becomes homorganic with the consonant it precedes.

Example 3.6

ǹ	'I' (1st Per. SG)
ǹ.sɑ̀ɑ̀	'my father'
m̀.mà	'my mother'
ŋ̀.kùùr	'my hoe'

3.3.   Word Types in Relation to the Syllable

The ensuing discussion focuses on the various word types in Bʊrfʊɔr. The words in Bʊrfʊɔr can be grouped into monosyllabic, disyllabic, trisyllabic and polysyllabic as evidenced in the examples that follow.

3.3.1   Monosyllabic words

Monosyllabic words contain a single syllable or sonority peak.

Example 3.7

<u>Word</u>		<u>Gloss</u>
à	-	'the'
ì	-	'do/be'
wà	-	'come'
bɔ́	-	'find'
tʊ̀	-	'insult'
kpì	-	'die'
ŋmè	-	'beat'
bɛ̀	-	'patch'
lò	-	'fall'

3.3.2   Disyllabic words

These are words that contain two syllables or sonority peaks.

Example 3.8

V.CV

<u>Word</u>	<u>Gloss</u>
á.tá	'three'
à.ná	'who'
á.bò	'what'

CV.CV

<u>Word</u>	<u>Gloss</u>
dí.ná	'today'
tɕí.ré	'taboo'
sì.rὲ	'truth'

3.3.3   Trisyllabic words

These words contain three syllables.

Example 3.9

CV.CV.CV

<u>Word</u>	<u>Gloss</u>
dà.yé.ré	'two days time'
ká.pá.lá	'fufu'
dà.nʨì.nὲ	'type of mouse'
ʥã̀.gù.mò	'uninitiated person'
kò.ló.kò	'turkey'

3.3.4 Polysyllabic words

These group of words contain multiple sonority peaks. Below area few examples.

Example 3.10

CV.CV.CV.CV

<u>Word</u>	<u>Gloss</u>
ʥã̀.ʥa.pi.la	'egret'
bʊ́.ló.bʊ́.lɔ́	'lukewarm'
sà.kpù.lõ̀.bíὲ	'hailstone'
mà.kpã́.gã̀.gã̀:	'praying mantis'
sà.gõ̀.gò.ɾà:	'rainbow'

3.4   Syllable Structure Processes in Bʊrfʊɔr

Syllable structure processes are phonological processes that condition the structure of the syllable to conform to the acceptable partterns permissible in a language. These processes result in a redistribution of sounds within the word or morpheme by ensuring what clusters and sequences of vowels are allowed in a language. The processes discussed in this section are elision (consonants and vowels), vowel epenthesis, syllable truncation and reduplication.

3.4.1   Elision

Elision as a syllable structure process has no single definition. Matthews (1997:111) as cited in Abakah (2004:182) defines elision as "a process by which a vowel at the end of a word is lost, or elided, before another vowel at the beginning of a word that follows". This definition in the opinion of Abakah (2004) limits the phenomenon to only vowels and therefore does not encompass all the phonetic environments under which elision operates in Fante[1]. For instance, in Fante deletion does not only affect the last vowel of the first word but also vowels that begin a second word.

Based on this perception, Abakah (2004:182) gives an alternative definition of the concept as "a phonological process by which a vowel or consonant or even a syllable which is an intrinsic property of a morpheme in an isolative style is dropped in a combinative style". The motivation for segment deletion is not only phonetic but a combination of morphophonemic and phonotactic factors can serve

as triggers for segment deletion (Lass 1995). In Bʊrfʊɔr this process does not only affect vowels but consonants also get deleted usually in fast speech.

3.4.1.1   Consonant elision

In Bʊrfʊɔr, the consonant /b/ in the plural marker /bɛ/ and /be/ gets deleted in rapid speech resulting in a reduction of the syllable from CV.CV.CV to CV.CVV

Example 3.11

Underlying Form	**Surface Form**	**Gloss**
a) /kʊ́síbɛ́/	[kʊ́síɛ́]	'stones'
b) /dàɲíbɛ́/	[dàɲíɛ́]	'roots'
b) /nàɲìbè/	[nàɲìè]	'thieves'

3.4.1.1.1   Consonant Elision Across Word Boundaries

Consonant deletion accross word boundaries is common in Bʊrfʊɔr. When a word which ends in a consonant precedes another word which begins with a consonant, the coda consonant of the first word is dropped. It should however be noted that the consonants that are likely to under go this process are the bilabial plosives.

Example 3.12

a)   /wòb   +   bar̀/ ⟶ wòbàr

           'pick'   'away'   'pick away'

b)   /kàb   +   dà:/ ⟶ kàdà:

'break'   'stick'   'break a stick'

c)   /lɔ̄b   +   'jɔ̀/ ⟶ lɔ̄'jɔ̀

'throw'   'into'   'throw into'

d)   /'wɔ̀b   +   pù:r/ ⟶ 'wɔ̀pù:r

'chew'   'spit'   'chew and spit'

3.4.1.2   Vowel elision

Vowel deletion in Bʊrfʊɔr is more conspicous in rapid speech than in normal speech. Bʊrfʊɔr speakers just like their Nkonya counterparts as espoused in (Asante,2009) tend to delete the vowels that precede the lateral /l/ and the trill /r/ in intervocalic positions usually in rapid speech. This implies that, a structure such as $C^1V^1C^2V^2$ becomes $C^1C^2V^2$ but the tone does not change. This deletion process ultimately results in consonant clusters (cf 3.2.5). Below are some illustrations.

Example 3.13

a)   /pílém/ ⟶ [plém] 'under'

b)   /pìlà/ ⟶ [plà]   'white'

c)   /lúbīlē/ ⟶ [lúblē] 'bird'

d)   /dìrè/ ⟶ [drè]   'eating'

e)   /pìrè/ ⟶ [prè]   'yamfield'

3.4.1.2.1   **Vowel elision Across Word Boundary**

Vowel deletion across word boundary is a common process in Bʊrfʊɔr especially in rapid speech. In the examples below, the vowel in the future marker /na/ is deleted at word boundary in the future constructions below.

Example 3.14

a)   /wʊ na wana/   ⟶   [wʊn wa na]

        1SG FUT come DEF.   1SG FUT come DEF.

        's/he will come'

b)   /sɪ na kul la/   ⟶   [sɪn kul la]

        1PL FUT go home DEF.   1PL FUT go home DEF.

        'We will go home'   'We will go home'

c)   /ba na di na/   ⟶   [ban di na]

        3PL FUT eat DEF   3PL FUT eat DEF

        'They will eat'   'They will eat'

A similar process is realized in constructions involving the negative marker /ba/. In such constructions, the vowel of the negative marker is deleted whilst the following vowel is lengthened to compensate for the deleted vowel as evidenced in the examples below.

Example 3.15

a)   /a ba ɩ maa lɛ ɛ/   ⟶   [a bʊ maa lɛ ɛ]

It NEG be me DEF   It NEG be me DEF

'It is not me'

b)   /a ba ɩ yele ɛ/   ⟶   [a bʊ yele ɛ]

It NEG be matter   It NEG be matter

'It is not a problem'

3.4.2   Vowel Epenthesis

Epenthesis refers to a process where an extra sound is inserted in a word. The phenomenon is most common with vowels than with consonants. In Brʊfʊɔr, the process involves only vowels and is often employed to resyllabify borrowed words to fit into the unmarked syllable partern of the language. Vowels are normally inserted to break up clusters found in borrowed words that depart from the acceptable syllable partterns in Bɪrfʊɔr words. Vowel insertion results into simpler syllables or word patterns. All nine vowels can be employed in this process. From the examples below, /a/ serves as the epenthetic vowel in <u>sakuu</u>r 'school' whilst in <u>bukati</u> 'bucket' and <u>sʊmɛ̃tɩ</u> 'cement' /i/ and /ɪ/ are introduced word finally to prevent /t/ from closing the syllable since the language does not permit the occurrence of /t/ in word final positions.

Example 3.16

	English		**Bɪrfʊɔr**
	English	**Phonetic**	Orthographic
a)	school	[sku:l]	/sàkú:r/
b)	bucket	[bɒkɪt]	/búkátì/
c)	cement	[sɪment]	/sìmɛ́tì/
d)	belt	[bɛlt]	/bɛ̄lɛ̄tì/
e)	tape	[teip]	/tépù/
f)	book	[bʊk]	/búkù/

Whilst it is obious that vowel harmony is adhered to in the epenthetic process, it is a little problematic to determine the exact nature of the epenthetic vowel.

3.4.3   Syllable Truncation

This syllable structure process reduces words that otherwise contain two syllables into a single syllable whilst keeping the original meaning of the word. In other words, the reduction in syllable quantity does not affect the meaning of the word in question. In Bɪrfʊɔr, this process involves the deletion of the plural suffix of the class of nouns that take the suffix −sɪ in their plural forms. The suffix −sɪ which usually forms the second syllable in such words is deleted reducing the otherwise CVC.CV syllable into a CVC syllable. For instance the word bùlò 'kid'has two plural forms bùlsí 'goats' and bul 'goats'. The first plural bùlsí has a CVC.CV

syllable structure. When the truncation process is applied, the plural suffix -sɪ (CV) is deleted and the word becomes bǔl (CVC) 'kids'. The examples below comprise words that behave like bùlsí.

Example 3.17

a)   bùlò ⟶ bùlsí ⟶ bǔl

     'kid'   'kids'   'kids'

b)   kùlò ⟶ kùlsí ⟶ kǔl

     'small'   'small hoes' 'small hoes'

c)   dèlè ⟶ dèlsí ⟶ děl

     'small stick' 'small still' 'small stick'

d)   dʊ̃ɔ̃ ⟶ dʊnsī ⟶ dʊn

     'animals'   'animals'   'animals'

e)   dājō ⟶ dājōsī ⟶ dājōn

     'rats'   'rats'   'rats'

3.4.4   Reduplication

Reduplication is a widespread phenomenon in many Ghanaian languages including Akan (Dolphyne,1988), Sekpele (Tornu, 2009) and Dagaare (Bodomo, 1997). It is a productive process and usually entails the repetition of an entire stem or part of a stem whilst maintaining certain vital phonological features

such as tone and vowel harmony. Reduplication in Bɩrfʋɔr may highlight the nature of the action being described, or an intensive form of the adjective in question. Reduplication may change the class and meaning of the reduplicated word. The phenomenon operates in verbs and adjectives.

3.4.4.1   Reduplication in Verbs

Reduplication involving verbs are of two categories. The first involves the repetition of the entire stem but does not result in a change in meaning of the final output. Two things happen here. In the first place, there is an increase in syllable count as single syllables could end up being two, three or four depending on the level of intensity the speaker intends to place on the repeated words. Secondly, words in open syllable positions that have long vowels will have one of the vowels dropped. Consonants in coda positions are also dropped.

Example 3.18

	Word		**Gloss**
a)	ŋmè	⟶	ŋmèŋmè
	'beat'		'beat repeatedly'
b)	tɕɛ̀	⟶	tɕɛ̀tɕɛ̀
	'cut'		'chop into pieces.
c)	wòb	⟶	wòwòb
	'collect'		'collect'

d)   dáá   ⟶   dádá

          'push'   'push'

e)   màr   ⟶   màrmàr

          'paste'   'paste repeatedly'

f)   ˈjὲr   ⟶   ˈjὲrˈjὲr

          speak   ' speak repeatedly'

The second category of reduplicated verbs in Bʊrfʊɔr is partial and involves the repetition of the first syllable of the verb. This type of reduplication leads to a change in word class as verbs are changed into nouns.

Example 3.19

a)   sɛ̃̀nɛ̃̀   ⟶   sɛ̃̀sɛ̃̄nɛ̄

          'fornicating'   'fornicator'

b)   tṏnɔ̀   ⟶   tṏtṏnɔ̄

          'sending'   'messenger'

c)   kṏnɔ̀   ⟶   kṏkṏnɔ̄

          'crying'   'crier'

3.4.4.2 Reduplication in Progressive Tense

The reduplication process involved in the progressive form of verbs is also partial but unlike the situation found with adjectives (Example 3.20) where there is no change in word class, the one being described leads to a change in word class as progressive verbs are changed into nouns.

Example 3.20

a)   kùrò ⟶ kùkúró

        'PROG.mould'   'moulder'

b)   dìrè ⟶ dìdíré

        'eating'   'eater'

c)   sìɛ̀rɛ̀ ⟶ sìsíɛ́rɛ́

        'dancing'   'dancer'

d)   ŋmìère ⟶ ŋmìŋmíéré

        'beating'   'beater'

3.4.4.3 Reduplication in Adjectives

With regards to adjectives, the reduplication process can be described as partial since the entire stem is not repeated. The process does not lead to a change in word class but rather generates an intensive form of the adjective in question.

Example 3.21

a)   pʊ́r ⟶ pʊ́pʊ̀r

'little'   'small pieces'

b)   pìlà ⟶ pílpíl

'white'   'very white'

c)   wɵ́ɵ́ ⟶ wɵ́wɵ́ɵ́

'long/tall'   'very long/tall'

d)   fɔ́ɔ̀ ⟶ fɔ́fɔ́ɔ̀

'quick'   'very quickly'

3.5   Assimilation

Katamba (1989:80) describes assimilation as the modification of a sound in order to make it more similar to some other sounds in its environment and this consequently results in smoother, and more effortless transition from one sound to the other. This according to him gives the speaker the added advantage to conserve energy as less effort is required in the production of an utterance. Assimilation is therefore a process whereby a segment influences another segment that occurs in its environment.

It is a bidirectional process so the influence could be regressive or progressive depending on the position of the influenced sound. According to Lass (1995:171), "standard taxonomy involves direction; the assimilating influence may work to

right or to the left". He further asserts that assimilation could be classified into contact and distant depending on whether the affected segments in a word are in contact or are separated by intervening segments. The following assimilatory processes in Bʋrfʋɔr shall be discussed.

a)   Homorganic nasal assimilation

b)   Nasalization

c)   Labialisation

d)   Palatalisation

e)   Affix Harmonization

3.5.1   Homorganic Nasal Assimilation

Homorganic nasal assimilation is a common feature of African languages including Akan (Dolphyne, 1988), Nawuri (Casali, 1995), Krachi (Adonae, 2005), and Dagaare (Bodomo, 1997), just to mention but a few. According to Dolphyne (1988:142) ''In general, whenever a nasal consonant occurs before another consonant within the same word in Akan, the nasal has the same place of articulation as the following consonant''. Essien (1990) describes this type of assimilation as anticipatory and also regressive since the following segment influences the preceding one.

In Bʋrfʋɔr, a nasal consonant usually becomes homorganic with the following consonant. Before a following consonant, a syllable–final nasal consonant assimilates to the point of articulation of that consonant: That is, when a nasal

consonant immediately precedes another consonant the nasal consonant usually takes the place of articulation of the following consonant. It will take the alveolar place of articulation if the following consonant is an alveolar, velar if the following consonant is a velar sound and the bilabial place of articulation if the following consonant is a bilabial consonant. This can be illustrated with the following compound words.

Example 3.22

lan   +   bir   ⟶   lambir

'testis'   'seed'   'testicle'

pan   +   bir   ⟶   pambir

'door'   'seed'   'door pane'

san   +   'kora'   ⟶   'saŋkora'

'debt'   'old'   'old debt'

gbam   +   'dire'   ⟶   gbandire

'gamble' (v)   'winning'   'winner'

The 1st Person singular pronoun /n/ assumes differrent shapes when used in possesive constructions.

a)   n   +   sãa   ⟶   n-sãã

          1SG   father   'my father'

b)   n   +   mã ⟶ m-ma

        1SG   mother   'my mother'

c)   n   +   daa ⟶ n-daa

        1SG   stick   ' my stick'

d)   n   +   kuur ⟶ ŋ-kuur

        1SG   hoe   'my hoe'

The behavior of the homorganic nasal consonant is represented in the P-Rule below.

P-Rule 1

$$\left[+\text{Nasal}\right] \longrightarrow \left[\alpha\text{place}\right] \Big/ \underline{\quad\quad} \left[\alpha\text{place}\right]$$
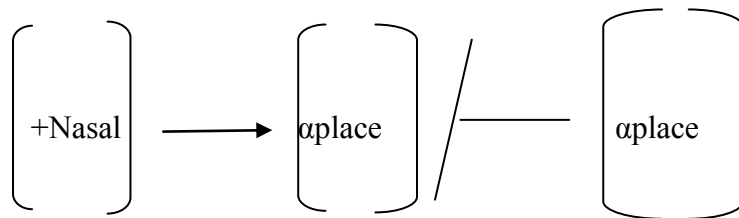
The implication of P-Rule 1 is that, a nasal consonant takes the place of articulation of the consonant that follows it. From the examples cited above, the alveolar nasal /N/ is realized as /n/ when followed by an alveolar sound /d/. In like manner, the same nasal /N/ is realized as /m/ and /ŋ/ because it is followed by a bilabial stop /b/ and a velar stop /k/ in these respective enviroments..

3.5.2   Consonant and Vowel Nasalisation

This is yet another assimilatory process in Bʊrfʊɔr that affects both consonants and vowels. It is a process whereby an oral segment acquires nasality from a neighboring segment (Katamba 1989). This condition is driven by articulatory constraint which demands the lowering of the velum in order to produce a nasal segment. Consonant and vowel nasalization are two of such processes that have been identified in Bʊrfʊɔr and are discussed below.

3.5.2.1   Consonant Nasalization

As noted in (3.5), assimilation is the modification of a sound in order to make it conform to the features of some other sounds found in its enviroment. Consonant nasalization is a process whereby an oral consonant surfaces as a nasal consonant when it occurs in the environment of a neighbouring nasal segment (Asante 2009). Under such circumstances, a consonant that has [+nasal] feature causes a [-nasal] consonant sound to become like it when juxtaposed. Although this is not a widespread phenomenon in the in Bʊrfʊɔr, the 1st Per SG   pronoun which becomes homorganic with the consonant it precedes causes the /b/ in the negative marker /ba/ to change to /m/ when juxtaposed in a negative construction as evidenced in the examples below.

n-ba ⟶ m-ba ⟶ m ma

1SG NEG   I not

n-ba ʨen nɛ ⟶ m-ba ⟶ m ma ʨen nɛ

1SG NEG go   I did not go

n-ba 'yɛr ka lɛ ⟶   m-ba⟶   m mɛɛ ka lɛ

1SG NEG say that   I did not say that…

N-ba kʋ wu ɛ ⟶ m-ba ⟶ m ma kʋ wʋ ɛ

1SG NEG give him/her   I did not kill him/her/it

In a related manner the subjunctive marker /táá/ changes to /náá/ when juxtaposed with a nasal consonant at word boundary.

n táá ⟶ n náá

n **taa** ʨena   ⟶   n **naa** ʨena

I Subj. go COMP.   'I should have gone'

wʋn **taa** wa na   ⟶   wʋn **naa** wa na

S/he Subj. come COMP.   'S/he should have come'

The phenomenon of consonant nasalization can be formalized in the P-Rule below. and applies to the contexts discussed above.

P-Rule 2

$$
\begin{bmatrix} +Cons \\ -Nas \end{bmatrix} \rightarrow \begin{bmatrix} +Nas \end{bmatrix} \Big/ \underline{\qquad} \begin{bmatrix} +Cons \\ +Nasa \end{bmatrix}
$$
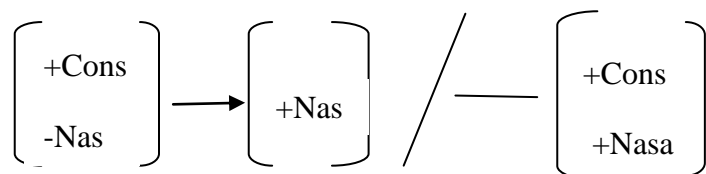
3.5.2.2   Vowel Nasalization

Vowel nasalization refers to the condition where an oral vowel attains nasality when it occurs contiguous to a nasal consonant. This is a phonological condition that makes these oral vowels to assimilate the nasal features of the nasal consonants that they precede or follow. This reflects the assertion by Payne and Burquest (1995:3) that, "sounds tend to be affected by the environment in which they occur". When oral vowels are preceded by nasal consonants, then the process is described as progressive and also predictable. On the other hand, when the oral vowel is followed by the nasal consonant then the process is seen as regressive. The two scenarios exist in Bɪrfʋɔr and are manifested in both long and short vowels.

Example 3.23

Progressive Nasalization:

a)   mã̀   'mother'

b)   nõ̌   'love'

c)   ɲɛ̃́   'see'

d)   ɲã̃́   'chest'

e)   mã̀ã́   'me' (Emph.)

f)   nã̀ã̀   'chief'

g)   ŋmã̃̄ã̃̄   'short'

Example 3.24

a)   bȉn   'put down'

b)   tȁn   'shout'

c)   tɔ̏n   'profit'

d)   kpíín   'ghost'

e)   kpȉȉn   'quench'

f)   sáán   'visitor'

g)   gbēēn   'lion'

The data from examples (3.23 and 3.25) above show that, an oral vowel is nasalized when preceded or followed by a nasal consonant. In examples 3.24 we have progress nasalization whilst examples 3.25 depict regressive nasalization. The two processes can be expressed by the P-rules below.

 P-Rule 3 (a &b)

(a)

$$V \longrightarrow \begin{bmatrix} +\text{Nasal} \end{bmatrix} \Bigg/ \_\_\_ \begin{bmatrix} +\text{Cons} \\ +\text{Nas} \end{bmatrix}$$

(b)

$$v \longrightarrow \begin{bmatrix} +\text{Nasal} \end{bmatrix} \Bigg/ \begin{bmatrix} +\text{Cons} \\ \text{Nasal} \end{bmatrix} \_\_\_$$
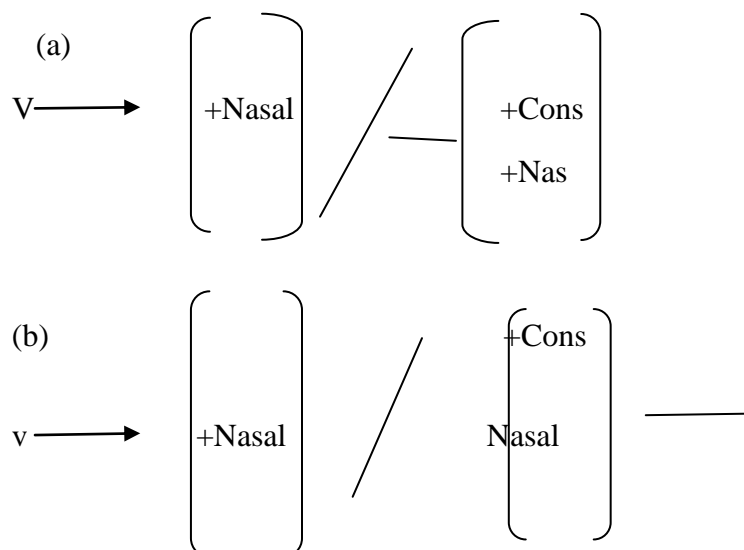
One interesting feature about vowel nasalization in Bʋrfʋɔr is that, it happens in different ways. Although progressive or anticipatory nasalization has been amply demonsrated (cf example 3.23) to be prevalent in the language, it is also true that it does not happen across board. There   are instances where anticipatory vowel nasalization does not happen eventhough the vowels are preceded by nasal consonants. Below are a few examples:

Example 3.25

a.   nàá   cow

b.   nà:r   'to dodge'

c.   mà:l   'do/make'

d.   nɛ́:   'mouth'

e.   nɩ́rɛ́   'person'

f.   ɲú:r   'yam'

g.   nú:r   'hands'

Apart from example 3.26 (a) and (d) which are open syllables, the data above show that, when the liquids /l/ and /r/ occur in coda positions in a word that has a nasal consonant in onset position, then they tend to block nasalization from spreading from the nasal consonant onto the following vowel(s).

Another feature inherent in vowel nasalization in Bʋrfʋɔr worth noting is the fact that, vowel nasalization occurs within the domain of the syllable. In this vain, oral

vowels in the language can only be nasalized by a nasal consonant, if and only if, they share the same syllable with the nasal consonant. For instance, where as the final /a/ in <u>tà.mā̀</u> 'tobaco' is nasalized, that of the medial is not although both vowels occur in the environment of the nasal consonant /m/. This assertion is in consonance with what has been reported in Buli (Akanlig-Pare 1994) and Nkonya (Asante 2012).

3.5.3   Labialization

Consonant labialization is another assimilatory process in Bʊrfʊɔr and is usually conditioned by the presence of high back vowels. The motivation for this type of labialization is that, in articulating a consonant, the lips normally anticipate the roundness of the following vowel so that the consonants are rounded in their own articulation (Burquest and Payne, 1993). Casali (1995:62) refers to this as anticipatory labialization and argues that, consonant labialization before rounded vowels should be seen as a feature-spreading phonological process that assigns the feature specification [+round] to consonants that precede such round vowels. The nature of labialized consonants in Bʊrfʊɔr is analogous to what has been described by Casali (ibid). Although Bʊrfʊɔr does not have labialized consonants such as the ones found in Chumburung and Nawuri (Hansford 1990, Casali 1995), Bʊrfʊɔr consonants that are followed by high back vowels are always labialized.

Example 3.26

a)   /púó/ ⟶ [pʷúó]   'farm'

b)   /dʊ́ɔ́/ ⟶ [dʷʊ́ɔ́]   'raise ones head'

c)   /sʊ̀ɔ̀/ ⟶ [sʷʊ̀ɔ̀]   'knife'

d)   /kùòr/ ⟶ [kʷùòr]   'funeral'

The phenomenon of consonant labialization is formalized in the P-Rule below.

P-Rule 4

$$
\begin{bmatrix} +\text{Cons} \\ -\text{Round} \end{bmatrix} \longrightarrow \begin{bmatrix} +\text{Round} \\ +\text{High} \end{bmatrix} \Big/ \underline{\quad} \begin{bmatrix} +\text{High} \\ +\text{ Syllabic} \\ +\text{Round} \end{bmatrix}
$$
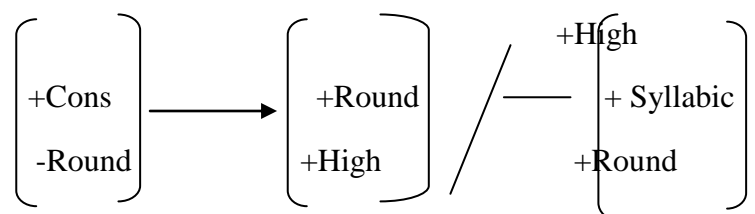
3.5.4   Palatalization

Palatalization is a secondary articulatory process that involves the raising of the front of the tongue towards the hard palate. Consonants tend to be palatalized when they are placed adjacent to the front high vowels. The phenomenon is more pronounced with vowels following the consonant rather than those that precede it. In Bʊrfʊɔr, most of the stops and nasals tend to be palatalized when they precede front high vowels followed by front mid vowels.

Examples: 3.27

a)   /pɪ̄ē/ ⟶ [pʲie]   'ten'

b)   /dìè/ ⟶ [dʲie]   'room'

c)   /tìɛ̀/ ⟶ [tʲιɛ]   'tree'

d)   /míé/ ⟶ [mʲie]   'ropes'

The phenomenon discussed above can be formalized using the phonological rule below.

P-Rule 5

$$
\begin{bmatrix} -\text{Cons} \\ -\text{High} \end{bmatrix} \longrightarrow \begin{bmatrix} -\text{Back} \\ +\text{High} \end{bmatrix} \Big/ \underline{\qquad} \begin{bmatrix} -\text{Cons} \\ +\text{High} \end{bmatrix}
$$
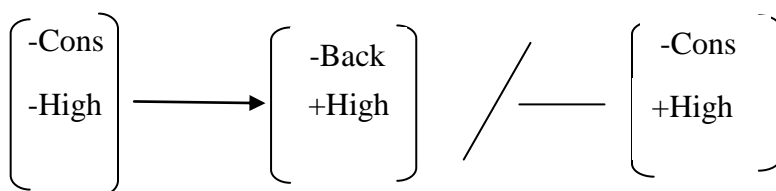
3.5.5   Harmonizing affixes

A major tenet of the Vowel Harmony system in Bʋrfʋɔr (cf 2.1.6) is the harmonization of affix vowels with the stem vowels. It is an assimilatory process that causes the affix vowels to harmonize with the stem vowels not only in tongue height but also in roundness. In the ensuing section, we discuss how the progressive suffix and the plural suffix for agentive nouns harmonize with their stem vowels in tongue height and roundness. We also look at how the diminutive suffixes bile 'small' and bir 'seed' impose their vowel qualities on the stems they follow.

3.5.5.1   The Progressive Sufixes

In Birfor, the progressive suffixes **/-re/** and **/-ne/** are underlyingly unrounded and [+ATR]. However, when attached to a stem, they harmonize in [ATR] as well as in roundness to become **/-ro/-rɔ/-re/-rɛ/** and **/-ne/-nɛ/-nɔ/-no/-bɔ/** respectively. When the vowels of the root are rounded vowels, then these prefixes will harmonize for the feature [+/-ATR] and the feature [+/-round]. The same thing happens when the root vowels are front unrounded vowels. So we always find the same progressive suffix assuming different shapes depending upon the features of the root vowels.

Example 3.28

[+ATR] -ro

a)   bù   +   re ⟶ bùrò

         'mix'   PROG   'mixing of mortar'

b)   vú   +   re ⟶ vúró

         'drag'   PROG   'dragging'

c)   sùù   +   re ⟶ súró

         'climb down' PROG   'climbing down'

[-ATR] -rɔ

d)   kʊ̀   +   re ⟶ kʊ̀rɔ̀

| | 'kill' | PROG | 'killing' |

e) vóʊr + re ⟶ vɔ́rɔ̀

    'breathe'   PROG   'briefing'

f) mòʊr + re ⟶ mòrɔ̀

    'suck'   PROG   'sucking'

[+ATR] -re

g) dì + re ⟶ dìrè

    'eat'   PROG   'eating'

h) tì + re ⟶ tìrè

    'throw out'   PROG   'throwing out'

i) tɕíir + re ⟶ tɕíré

    'deny'   PROG   'denying'

j) kpì + re ⟶ kpìrè

    'die'   PROG   'dying'

[-ATR] -rɛ

k) sì + re ⟶ sìrɛ̀

    'take off skin' PROG   ' taking of skin'

l)   bì   +   re   ⟶   bìrɛ̀

         'be ripe'   PROG   'ripening'

m)   mí:r   +   re   ⟶   mírɛ̀

         'drizzle'   PROG   'drizzling'

The progressive suffix /ne/nɛ/no/nɔ

+ATR /-ne/

n)   bìn   +   ne   ⟶   bìnè

         'put'   PROG   'putting'

o)   kpììn   +   nè   ⟶   kpìnè

         'quench'   PROG   'quenching'

-ATR /-nɛ/

p)   ŋmììn   +   ne   ⟶   ŋmìnɛ̀

         'squeze'   PROG   'squizing'

q)   tɕíí̋   +   ne   ⟶   tɕínɛ̀

         'fry'   PROG   'frying'

-ATR /-nɔ/

r)   sȍȍ̏   +   ne   ⟶   sȍnɔ̀

'help'   PROG   'helping'

s)   dɔ̌̃   +   ne ⟶ dɔ̃̀nɔ̀

'bite'   PROG   'biting'

+ATR /-no/

t)   sṹ̃̀̃   +   ne ⟶ sùnò

'fetch soup'   PROG   'fetching'

u)   'wṹ̃̀̃   +   ne ⟶ 'wṹ̃̀nò

'burry'   PROG   'burrying'

3.5.5.2 Plural Suffix of Agentive Nouns

Another suffix that behaves in similar manner to the one discussed above is the plural suffix of agentive nouns. This category of nouns emanate from verbs with reduplicated stems which usually take the agentive suffix /re/ro/rɔ/ or /rɛ/ in their singular forms depending on the [ATR] feature of their stem vowels (cf 3.5.5.1). However, in forming their plurals, the singular suffixes /-re/ /-ro/ and /-rɛ/ change to /-bo/, /-bɛ/ and /-bɔ/ depending on the [ATR] and rounding values of the reduplicated stems. For instance, the verb ŋme 'beat' is reduplicated and the agentive suffix /-re/ added to form the verbal noun ŋmeŋmiere 'beater'. This singular verbal noun ŋmeŋmiere takes /-be/ in its plural form to become ŋmeŋmierbe 'beaters'. The selection of the plural suffix /-be/ is informed by the [ATR] and the roundness values of the verbal stem ŋme. The examples cited

below demonstrate how noniminalized verbs in their singular forms harmonize for [ATR] and rounding in their plural forms.

Example 3.29

	SG -ro			**PL-bo**
a)	kukuro +	bo	⟶	Kukurbo
	'Blacksmith'	PL		'blacksmiths'
b)	tùtúórò +	bo	⟶	tutuorbo
	Carrier'	PL		'carriers'
c)	tuturo +	bo	⟶	tuturbo
	'follower'	PL		'followers'

	SG-re			**PL-be**
d)	ŋmeŋmiere +	be	⟶	ŋmeŋmierbe
	'Performer'	PL		'performers'
e)	didire +	be	⟶	didirbe
	'Eater'	PL		'eaters'

	SG -rɛ			**PL-bɛ**
f)	mʊmɪɛrɛ +	bɛ	⟶	mʊmɪɛrbɛ
	'Builder'	PL		'builders'

g)   sɛ̃sɛ̃nɛ̃   +   bɛ ⟶ sɛ̃sɛ̃nbɛ

        'Fornicator'   PL   'fornicators'

h)   sɪsɪɛrɛ   +   bɛ ⟶ sɪsɪɛrbɛ

        'Dancer'   PL   'dancers'

                    SG-nɔ   **PL-bɔ**

i)   sõsõnɔ   +   bɔ ⟶ sõsʊnbɔ

        'Helper'   'helpers'

j)   kʊkʊɔrɔ   +   bɔ ⟶ kʊkʊɔrbɔ

        'Farmer'   'farmers'

3.5.5.3 .   Diminutive suffixes bile/ bir

Bʊrfʊɔr has two diminutive suffixes, <u>bile</u> which denotes 'smallness' or 'youthfulness' and **-bir** which denotes 'seed' or 'smallness'. These suffixes appear to exhibit a dominant status by imposing their [+ATR] value on the stems of the words that precede them. The behaviour of <u>bir</u> and <u>bile</u> as dominant [+ATR] suffixes is in conformity with what has been reported in some Ghanaian languages with Cross Height Vowel Harmony such as Dagaare (Bodomo 1997), Nawuri (Casali 1988) and Krachi (Dundaa 2000). The examples below show how these suffixes influence the vowels of the stems they follow in the domain of [ATR] vowel harmony in Bʊrfʊɔr.

Example 3.30

/-bir/ (seed)

a)   tʊ́   +   bír ⟶ túbír

         'insult'   'seed'   'insult'

b)   sí: +   bír ⟶ síbír

         'honey'   seed   'bee'

c)   bìr   +   bír ⟶ bìrbír

         'breast'   'seed'   'nipples of breast'

d)   bɛ̃́:   +   bír ⟶ Bɛ̃́bír

         'beans'   'seed'   'a bean'

The Diminutive suffix-bile (small)

Example 3.31

a)   sʊ̀ɔ̀   +   bīlē ⟶ 'sòbīlē'

         'knife'   'small'   'small knife'

b)   pɔ̄:   +   bīlē ⟶ 'pò:bīlē'

         'woman'   'small'   'young girl'

c)   sīrɛ̄   +   bīlē ⟶ 'sìrbīlē'

'husband'   'small'   'younger brother-in-law'

d)   bī̄ē   +   bīlē ⟶ 'bìbīlē'

'child'   'child'   'small child'

3.6   Conclusion

The issues discussed in this chapter include syllable structure and some phonological processes in Bʋrfʋɔr. The chapter unveils that, the unmarked syllable type in Bʋrfʋɔr is the CV structure, so borrowed words which differ from this structure have to be resyllabified to conform to it. The discussion also brings to light the fact that, the various syllable structure processes such as elision, epenthesis, and syllable truncation discussed are necessary in ensuring what clusters and sequences are allowed in the language.

Assimilatory processes such as homorganic nasal assimilation, consonant and vowel nasalization, among others have also been extensively discussed. It was observed that sounds influence each other when juxtaposed and that this influence is bi-directional and depending on the position of the influenced sound, assimilation could be regressive or progressive.

END NOTES

1. Fante is one of the dialects of Akan. It is the language spoken by the majority of people in the Central Region and some parts of the Western Region in Ghana. It has an estimated population of about 1.9 million speakers.

CHAPTER FOUR

TONOLOGY

4.0   Introduction

This chapter discusses tone in Bʊrfʊɔr. It begins with a survey of the domain of tone assigment in the language as well as the various tonal patterns in the language.The chapter also takes into account how tone operates in the various word classes as well as some tonal processes that occur when different tone melodies come into contact. The chapter also discusses the various functions played by tone in the language.

4.1   Pitch and Tone

Abakah (2003) following Clements (1979:536), Kenstowicz and Kisserberth (1979:264) cautions that, Tone and Pitch are intricately interrelated so in discussing Tone, it is pertinent to make a distinction between Pitch and Tone. Kenstowicz and Kisseberth (1979:264) see pitch as "our subjective perception of voiced sounds and is correlated with the frequency of vibration of the vocal cords". Physiological factors such as the thickness of the vocal cords account for the rate of vibration of the vocal cords and thus affect the pitch of which the speaker has no control. Pike (1948:4), as cited in Clark and Yallop (1991), describes pitch accent languages as 'word-pitch' systems which use pitch to differentiate the meaning of various lexical items, but the placement of the pitch is restricted to certain types of syllables or to specific places in the word. According to Ladefoged (1993:204), several factors account for the pitch of the voice and

prominent among them is the tension of the vocal cords. Variations in pitch therefore arise due to alternations in the tensions of the vocal cords.

Tone forms an intergral part of many Afro-Asiatic languages and Bʋrfʋɔr is no exception. It is generally described as the distinctive pitch levels in a syllable (Crystal 1982). Yip (2002:1) contends that, "A language is a 'tone language' if the pitch of the word can change the meaning of the word. Not just its nuances but its core meaning" .In effect, tone is the "abstract entity in terms of which the pitch patterns of utterances can be understood" (Kenstowics and Kisseberth ibid: 265). Although tonal differences are key in the determination of meaning in many of the world's languages, not all languages make use of tone. Tone constitutes the domain for differences in meaning in minimal pairs or words that are otherwise identical. In Bʋrfʋɔr, a relative difference in the pitch with which a sound is produced, brings about a change in meaning creating the same effect that would result from a change in segment. Tone is also responsible for grammatical differences in identical constructions. Tone therefore plays a very crucial linguistic function in the language.

4.2   The Tone Bearing Unit (TBU)

Divergent views have been expressed by phonologists over the years with regards to what constitutes the domain of assigning tone in a language. Whilst others such as Goldsmith (1990), Clements & Ford (1979), Kenstowicz (1995) and Dolphyne 1988), share the opinion that the Tone Bearing Unit (TBU) is in the domain of the syllable, others such as Odden (1996) Goldsmith (1976) suggest that the domain of

tone assignment is the mora. Schaefer and Schaefer (2003) suggest in their analysis of the Safaliba language that the mora is the (TBU) since vowels as well as sonorant consonants in coda position may bear tone in the language. They further argue that, since vowels and sonorant consonants have one mora respectively, they can thus bear a single tone whilst long vowels which constitute two morae may bear two tones.

Abakah (2003), citing various sources such as Cahill (1999:341) and Dolphyne (1988:52) to support his choice of the syllable as the TBU in Akan, argues that, Akan does not have heavy syllables so the mora and the syllable overlap in the language. He further contends that, the terms 'mora' and 'syllable' are synonymous in Akan hence his preference of the syllable as the TBU in Akan. However, my preference of the syllable as the TBU in Bɪrfʋɔr instead of the mora is informed by the view expressed by Akanlig-Pare (2005:154) that "if both light monomoraic and heavy bimoraic syllables can bear the same type of tones, simple and complex, in one and the same language, then the TBU in that language must be the syllable". In Bɪrfʋɔr both light and heavy syllables can bear both simple and complex tones at varying degrees.

4.3   Tone in Bɪrfʋɔr

According to Roca and Johnson (2000), no language is spoken in a flat pitch. It usually entails rhythmic alternation of pitch as characterized in a song. Like its numerous counterparts in the African and Asiatic continents, Bɪrfʋɔr is a tonal language. Adonae (2005) in his description of the phenomenon in Kaakye argues

that, in a tonal language, the meanings of the words are not only determined by the segments that constitute the words, but the relative pitch that is employed in the pronunciation of each of the components of the words. It is also pertinent to note that not all languages in the world are tonal. It is also clear that not all languages in the world exhibit the same number of tones.

The tonal system of Bʋrfʋɔr is similar to what pertains in Buli (Akanlig-Pare 2004), and Dagara (Bemile 1983;84) which also have three level tones: High (´), Low (`) and Mid (-). The three tonal system found in these languages is opposed to evidence from studies done extensively in other Mabia languages such as Dagaare (Bodomo 1997), Mampruli and Dagbani (Naden 1988), and Gurenɛ (Dakubu 2006) which posit two tones (L) and (H) for these languages. The discovery of a Mid tone (M) in Bʋrfʋɔr is also at variance with the assertion by Kuch (1993) that Bʋrfʋɔr has two tones (L) and (H). A few cases of Rising and falling tones have also been reported. All these tones bring about a distinction in meaning in words which are otherwise minimal pairs.

4.3.1   High Tone

The high tone is produced with a high pitch.

Example 4.1

Word	**Gloss**
dé	'take/collect'
ʨén	'go'

kpóló   'bird species'

nátɕíné   'cowboy'

fá: 'seize'

4.3.2   Low Tone

The Low tone, as opposed to the High tone, is produced with a low pitch.

Example: 4.2

<u>Word</u>	<u>Gloss</u>
dà	'buy'
kpì	'die'
dèlè	'small stick'
kpòlò	'termite'

4.3.3   Mid Tone

Mid tones are produce with a pitch that can neither be described as High nor Low.

Example 4.3

<u>Word</u>	<u>Gloss</u>
dʑū	'steal'
wōb	'weave'

pɔ̄:   'woman'

būlō   'well'

4.3.4   Contour Tones

Contours occur when two different tone melodies occur on a single TBU such as the syllable or the mora (Goldsmith 1990). Contours are very prevalent in single syllable words as well as syllable final positions. This assertion is particularly true about falling contours which normally occur syllable-finally, mostly in words which do not end in a glottal stop.

Yip (2002:27) identifies three main possibilities of contour tones. Firstly, Contours may be found in polysyllabic words so that each syllable is essentially level with the first high and the second low but the word as a whole has a fall. Although each syllable is level the word has a contour as evidenced below.

Example 4.4

Word   **Gloss**

dà-kpúr   LH   'stump'

lì-bír   LH   'money'

vɛ̃́-bàr   HL   'forgive'

Secondly, a Contour may occur in a simple syllable but the syllable must be heavy or have long vowels. The third possibility is that, Contour tones may occur on both heavy and light syllables and although occurrences of such nature have been

described in the literature, such languages are scarce.In Bʊrfʊɔr, Contour tones occur on both light and heavy syllables.

4.3.4.1   Falling Contour

A sequence of high and low tone occurring on the same syllable results in the phenomenon of falling tones.

Example: 4.5

HL

Word	**Gloss**
náà	'cow'
páàl	'territory/country'
ɲîm	'tooth'
ʤîm	'fish'

4.3.4.2   Rising Contours

Rising contours arise when a sequence of low and high tone occur on the same syllable.

Example:4.6

LH

Word	**Gloss**
bǎǎ	'lizard sp'
ʤǎǎ	'yesterday'
mǎǎ	'me'

dǎn   'bought with'

wìíl   'show to'

bŭl   'kids'

kŭl   'small hoes'

dǎn   'bought with'

sĭn   'we Emph.'

4.4   Tone in Word Classes

The ensuing sections look at tone in the various word classes such as nouns, adjectives and verbs.

4.4.1   Tone in Verbs

The verbal system in Bʋrfʋɔr is characterized by the CV structure. The verbs are mostly monosyllabic and can bear any of the level tones albeit in varied degrees. This situation is akin to what has been reported in Buli in Akanlig-Pare (2005). In Buli, verbs in the imperative are realized with the Mid, but when inflected for Tense, Aspect and Polarity, they are realized in varying tones. In Bʋrfʋɔr, a vast majority of the monosyllabic verbs bear either a high or a low tone.

Example 4.7

Monosyllabic Verbs

L		H		M	
wà	'come'	pɔ́	'vow'	mɪ̄r	'shake'
dà	'buy'	ʤú	'steal'	'lɛ̄r	'split'
wɔ̌	'hear'	bɔ́	'find'	wōb	'weave'
dì	'eat'	lé	'become rich'		
sò	'bath'	tɕɛ́	'left over'		

Disyllabic verbs

L

Word	**Gloss**
tàrà	'hold'
ʤìnɛ̀	'sit'
àrà	'stand'

4.4.2   Tone in Nouns

The nominal stem in Bʊrfʊɔr just like Ewe (Ansre 1961) is either monosyllabic or polysyllabic. Based on this, monosyllabic nouns in Bʊrfʊɔr bear a Low, High, Mid, falling or rising tone whilst polysyllabic words may bear a Low-high (LH), Low-low (LL), High-high (HH) or Mid-mid (MM) tone.

Example 4.8

L		H		M	
dìè	'room'	púó	'farm'	pɔ̄:	'woman'
tìɛ̀	'tree'	kʊ́ɔ́r	'guard'	wōb	'weave'
pìɛ̀	'basket'	tɕíɛ́	'squirrel'	mīr	'shake'
bàà	'valley'	ŋmá́áń	'monkey'	pɔ̄	'inside'

Disyllabic nouns

LL		**HH**	
kùlò	'small hoe'	féré	'type of yam'
tǎpìɛ̀l	'ashes'	nǐbír	eye
bèlè	'puppy'	kádʑún	sheaf of guineacorn
kpòlò	'termite'	kpóló	'type of bird'

MM

būlō   'well'

vērē   'variety of yam'

bērē   'days

bālā   'matriclan'

LH   **HL**

dàkpúr   'stumps'   nélè   'calf'

ŋmèlé   'small calabash'   tɕílè   'personal name'

gùrú   'mushroom'   dúlò   'small pot'

pàlá   'path'   pélè   'lamb'

Trisyllabic words

LL   HH

dà̰tɕìnɛ̀   'type of mouse'   nátɕínɛ́   'cowboy'

bìkpìbɛ̀   'orphan'   bádábá   'friend'

nàɲìbè   'thief'   dá̰ɲúró   'drunkard'

4.4.3   Tone in Adjectives

The tonal pattern of Bʊrfʊɔr adjectives is similar to the one found in Sɛkpɛle (Tornu 2009) where adjectives bear level tones and in some cases a combination of low and high tones.

Example 4.9

L   **H**

ʤìɛ̀   'red'   ʤáá́   'far'

pìlà   'white'   máá́   'cold'

vìlà   'good'

nṏɔ̃̀   'tasteful'

kòr   'old'

HL

bílɑ̃̀   'little'

fɔ́ɔ̀   'quick'

4.5   Tonal Processes

This section is devoted to certain tonal assimilatory processes that occur when different tones are juxtaposed in Bʊrfʊɔr. The processes discussed include, high tone spreading, tone deletion, tone shifting, down drift and tone copying.

4.5.1   High Tone Spread (HTS)

The phenomenon of tone spreading presupposes that, when two contiguous syllables which differ in tone come into contact, the tendency would be for the tone of the first syllable to "spread" into the second syllable (Hyman and Schuh 1974). In Bʊrfʊɔr, when a noun which bears a high tone is merged with an adjective which bears a low tone, the high tone spreads rightward causing the low tone of the first syllable of the adjective to change from low to high. This development is illustrated in the data below.

Example 4.10

pɛ́r   +   pìlà   ⟶   pɛ́rpílà

'sheep'   'white'   'whitesheep'

dʑú   +   nǒ̀ɔ̌   ⟶   dʑúnǒ̀ɔ̌

'head'   'sweet'   'goodluck'

gbɛ́r   +   vìlà   ⟶   gbɛ́rvílà

'leg'   'nice'   'goodluck'

There are some exceptions to this process. When a noun bearing a high tone comes into contact with an adjective with a high tone, the process discussed above will not apply. This may be due to the fact that the second word already bears high tones. This is illustrated in the examples below.

ʤú   +   túó ⟶ ʤútúó

'head'   'bitter'   'badluck'

ʤú   +   kɔ́ɔ́ ⟶ ʤúkɔ́ɔ́

'head'   'dry'   'wickedness'

4.5.2   Tone Deletion

In the opinion of Kwateng (2009), tone deletion is the outcome of a phonological process that entails the deletion of a tone together with the TBU. In Bʊrfʊɔr, an existing tone is deleted alongside the TBU when two vowels occur contiguous to each other at word boundary through the process of vowel elision. When this happens, the tone is completely deleted and does not float or dock on any other TBU.

Example 4.11

a.   bērē   +   ájí ⟶ bērájí

          'days'   'two'   'two days'

b.   bērē   +   átá ⟶ bērátá

          'day'   'three'   'three days'

c.   nádár +   bīlē ⟶ nábīlē

'male cow'   'small'   'young male cow'

From the data in example(4.11), it is clear that the tone on the second TBU of the root gets deleted along with the vowel or syllable that it was associated with.

4.5.3   Tone Stability

Tone stability refers to the condition in which a loss in segment as a result of elision, syllable truncation, contraction or reduplication, does not lead to a loss of the tone associated with the deleted segment or TBU. The floating tone survives and docks on the nearest tone bearing unit. Asante (2009) reports of a similar phenomenon in Akan (Asante dialect) where the low tone progressive marker /rè/ docks on the nearest TBU when ever that syllble is deleted as shown below.

Example (203) as cited from Asante (2009:248).

kwàdwó   rè – kɔ́   fíé   [kwàdwóò   kó   fíé]

Kwadwo PROG.go   home

'Kwadwo is going home'

Urua (2001), in her description of Ibibio tonal system also contends that, when two vowels occur contiguous to each other, they create a deleting environment for one of the vowels and since vowels bear tones within syllables, vowel deletion should suggest that the tone is deleted along with the vowel. However, this is not always the case since the tone sometimes does not delete with the vowel. According to

her, in such instances, the tone on the deleted vowel is set afloat thus constituting one source of floating tones in the language. Such a floating tone is then re-linked or re-associated to the next TBU to the right in the case of Ibibio.

The principle described above reflects a similar situation in Bʋrfʋɔr where the deletion of the plural marker –sɪ which constitutes a syllable does not result in the deletion of the tone associated with it. Rather, the floating tone docks on the nearest TBU to the left in the case of Bʋrfʋɔr. This is shown in the data below.

Example 4.12

	SG		**PL1**		**PL2**
a.	bùlò	⟶	bùlsí	⟶	bŭl
	'kid'		'kids'		'kids'
b.	dèlè	⟶	dèlsí	⟶	dĕl
	'small stick'		'small sticks'		'small sticks'
c.	kùlò	⟶	kùlsí	⟶	kŭl
	'small hoe'		'small hoes'		'small hoes'

4.5.4   Tone shifting

Tone shifting, according to Hyman and Schuh (1974), occurs when a tone shifts from one syllable to another. In most intances the shifting is normally from left to right. In Bʋrfʋɔr, when two lexical items such as a noun and a noun or a noun and an adjective are merged through compounding, there is the tendency of the tone of

the first lexical item to shift and displace the initial tone of the second lexical item. For instance, the word **náà** which means 'cow' bears two tones low and high whilst the word **ʤɔ̀:** which means 'kraal' bears a low tone. When these words are compounded, the high tone of **náà** shifts and pushes the low tone of ʤɔ̀: to the next TBU resulting in falling contour. This is illustrated below:

Example 4.13

gbɛ́r   +   dà:r ⟶ gbɛ́rdá:r

'leg'   'sticks'   'walking sticks'

nṹ: +   pɔ̀rɔ̀ ⟶ nṹpɔ́rɔ̀

'hand'   'nothing'   'empty handed'

júór   +   pɔ̀rɔ̀ ⟶ jópɔ́rɔ̀

'name'   'nothing'   'a person without substance'

From the ensuing examples, it can be observed that the high tones of the first nouns shift rightward to dislocate the first low tones of the second nouns in the compounds.

4.5.5   Downdrift

The term down drift has been widely used in the description of the tonal system of many African and for that matter, Ghanaian languages including Nkonya (Asante 2009), Esahie (Frimpong 2009) Anufo (Kwateng 2009) Ibibio, (Urua 2001) and Akan (Schachter and Fromkin 1968, Dolphyne 1988) just to mention

but a few. In the view of Kenstowicz and Kisseberth (1979:265), the underlying tenet of down drift presupposes that, "in a phrase, any high tone that is separated by one or more low tones is pronounced at a somewhat lower pitch level than the preceding high tone".

In languages that exhibit down drift, the first high pitch remains the highest in that particular utterance since the subsequent high pitches cannot get to the level of the first high pitch. The implication of such a phenomenon is that, low tones also drift downwards in pitch. The principle is crystallized in the chart below.

Dár   kɔ́   ná   à   kpóló   ⟶   'Dar killed the bird sp'

H   H   H L   H H
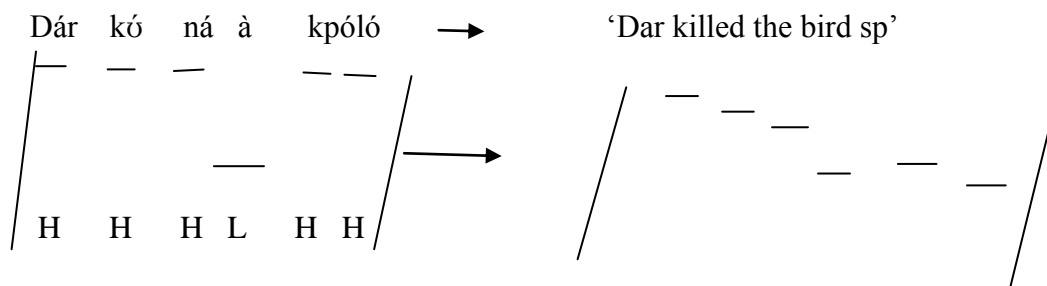
In this utterance, the first sequence of vowels are produced with a high pitch whilst the subsequent vowels are pronounced at a lower pitch level. In a long utterance, it will be noticed that, a final high pitch may even be realized lower than an initial low pitch.

4.5.6   Tone Copying

This is yet another tonal process in Bʋrfʋɔr that is associated with the progressive marker. Following Hyman and Schuh (1974) and Akanlig-Pare (2005), tone copying is said to have taken place when a syllable or a morpheme that is considered to have no tone receives its tone from an adjacent syllable. In Bʋrfʋɔr, the progressive marker which is toneless, copies the tone of the verb to which it is

attached. As the data in 4.14 show, the suffix does not only copy the tones of the
stem, but also harmonizes in tongue root quality with the stem vowels.

Example:4.14

/-ro/

bù + **ro** ⟶ bùrò

'mix'   'mixing of mortar'

vú + **ro** ⟶ vúró

'drag'   'dragging'

/-rɔ/

kɔ̀ + **rɔ** ⟶ kɔ̀rɔ̀

kill'   'killing'

vɔ́r + **rɔ** ⟶ vɔ́rɔ́

'perforate'   'perforating'

/-re/

dì +   **re** ⟶   dìrè

'eat'   'eating'

tì +   **re** ⟶ tìrè

'throw out'   'throwing out'

kpì + **re** $\longrightarrow$ kpìrè

'die'   'dying'

/-rɛ/

sì + **rɛ** $\longrightarrow$ sìrɛ̀

'take off skin'   ' taking of skin'

bì + **rɛ** $\longrightarrow$ bìrɛ̀

'be ripe'   'ripening'

/-ra/

màr + **ra** $\longrightarrow$ màrà

paste   'pasting'

The progressive suffix **/-ne/-nɛ/-no/-nɔ**

/-ne/

bìn + **ne** $\longrightarrow$ bìnè

'put'   'putting'

kpììn + **ne** $\longrightarrow$ kpìnè

'quench'   'quenching'

/-nɛ/

ŋmǐːn + **nɛ** ⟶ ŋmǐnὲ

'squeze'   'squizing'

lɛ̌n   + **nɛ** ⟶ lɛ̌nὲ

'lick'   'licking'

/-nɔ/

sɔ̌ɔ̌   + **nɔ** ⟶ sɔ̌nɔ̀

'help'   'helping'

dɔ̌   + **nɔ** ⟶ dɔ̌nɔ

'bite'   'biting'

/-no/

sǔǔ   + **no** ⟶ sùnò

'fetch soup'   'fetching'

'wǔǔ   + **no** ⟶ 'wǔnò

'burry'   'burrying'

4.5.7   Low Raising

Low raising is another tonal process in Bɩrɩfʋɔr that cannot be overlooked. It refers to a situation where a low tone or mid tone is produced with a raised pitch when followed by a high tone (Hyman and Schuh 1974). In Bɩrfʋɔr, when a low tone is

followed by a mid tone, the preceding low tone is raised to a mid tone. Similarly, a mid tone preceding another mid tone is raised to high causing the the following mid tone to step up to high. This is particularly true when verbs are combined with the agentive suffix /fʊ/ which always bears a mid tone in isolation. Low raising defers from tone copying where a toneless suffix copies the tone of of the root it is attached to (cf 4.5.6).

Example 4.15

'rest'   pὲn + fʊ   ⟶ pēnfʊ   'resting'

'straighten'   dὲn + fʊ   ⟶ dēnfʊ   straightening'

'learn'   dʑàn + fʊ   ⟶ dʑānfʊ   'learning'

'tremble'   mȳr + fʊ   ⟶ mírfʊ́   'trembling'   ʊ

marry   kūl + fʊ   ⟶ kúlfʊ́   'marrying'

Interestingly, when this same suffix is prefixed with a verb which bears a high tone, the mid tone of the prefix changes to low.

Example 4.16

'remove'   'jír +   fʊ   ⟶ 'jírfʊ̀   'removal'

'take'   dé +   fʊ   ⟶ défʊ̀   'taking'

4.6   Functions of Tone

Generally, tone performs two main functions in most African languages.These functions are lexical and grammatical. However, it is worth noting that, the degree

to which languages make use of these functions may vary from language to language. Whilst Asian languages make more extensive use of lexical tone, African and native American languages use grammatical tone more extensively (Urua 2001). For instance in Cantonese, the syllable [yau] can convey six different meanings when pronounced with one of six different pitches (Yip 2002).

(1) [yau] in Cantonese (Yip 2002:2)

high level   'worry'

high rising   'paint (noun)'

mid level   'thin'

low level   'again'

very low level   'oil'

low rising   'have'

The Cantonese example cited from Yip (ibid) substantiates the assertion by Urua (2001) that lexical tone is more extensively exploited in Asian tone systems than their African counterparts.

4.6.1   Lexical Tone

Lexical tone brings about a change in meaning of words which are otherwise identical. In Bʋrfʋɔr, the types of words that are distinguished by tone may not necessarily belong to the same lexical category or word class.

Example.4.16

L	H	M
dà	dá	dā
'buy'	'matriclan'	push down
sɔ̀r	sɔ́r	sɔ̄r
'begger'	path	'count'
fòr	fór	fõr
'bruise'	'untie many'	untie
bùlò	búló	būlō
'kid'	germinating	'well'

4.6.2   Grammatical Tone

Grammatical tone is the conduit by which several grammatical categories are distinguished. In the views of Akanlig-Pare (1994:154), variations of pitch patterns at utterance final positions may realise different types of clauses such as a statement or an interrogative question. In Bʋrfʋɔr a low tone on the pronoun and

the verb following it signifies a statement whilst a high tone on the pronoun and verb that it precedes indicates a question. In examples 4.16c and 4.16d below the verbs <u>dà</u> **'**buy' and <u>wà</u> 'come' which usually carry a low tone in their bear forms take a high tone when used in the interrogative.

4.6.2.1   Statement and Interrogative

Example 4.17

a.   ǹ   dá   kὺ   wὺ

        ISG   PRES. buy   give   him/her

        'I buy for him/her'

b.   ǹ   wá   dì

        1SG PRES.come   eat

        'let me come and eat'

c.   ń   dá   kὺ   wὺ

        ISG   PRES.buy   give   3SG

        'I should buy for him?'

d.   ń   wá   dì

        1SG   PRES.come   eat

        should I come and eat?

4.6.2.2   **Declarative and Imperative Sentences**

Declarative sentences are made with a low tone on the pronoun /a/[1] and a high tone on the verb. In this regard, verbs that have a low tone when in isolation take on a high tone whilst verbs that bear a high tone maintain their high tones. Imperative sentences or commands on the other hand are made with a high tone on the pronoun and the verb.

Exmple:4.18

a.   à   sí   tɕén   (declaritive)

       Let   1PL   go

       'let's go'

b.   á   sí   tɕén   (imperative)

       Let   1PL   go

       'we should go'

c.   à   sí   dí   (declaritive)

       let   1PL   eat

       'lets eat'

d.   á   sí   dí   (imperative)

       let   1PL   eat

       'we should eat'

4.7   The Verb

A greater number of the verbs in Bʊrfʊɔr are monosyllabic and can bear a low, high or mid tone. Only a few cases of disyllabic verbs have been reported (cf 4.4.1).

4.7.1   The Progressive Tense

 The tone of the progressive marker depends on the tone of the verb root (cf 4.5.6)

Example:4.19

a.   Olo   dìrè   ná   à   sā:

        Olo   eat-PROG. FACT   DET   sā:

        'Olo   is eating the sā:'

b.   Sèy   túró   ná   a   bɔ̀:

        Sey   dig-PROG.   FACT DET   hole

        'Sey is digging the hole'

c.   à   dābā   kʊ́rɔ́   nà   á   náà

        DET   man   kill-PROG   FACT. DET   cow

        'the man is killing the cow'.

4.7.2   Past Tense

Verbs in their past tense usually bear the tones they carry in their imperative forms.   Verbs with low tones in their imperative forms bear same in their past tense form and the vice-versa. This is then followed by the factitive marke **/lá/, /rá/, /má/** or **/ná/** depending on whether the coda of the verb is a trill, flap, an alveolar nasal or a bilabial nasal. This completive marker usually carries a high tone. This distinction is illustrated below:

Example:4.20

a.   ǹ   ból   lá

        1SG   PST.smear   COMP.

        'I smeared'

b.   à   sìr   rá

        3PL   PST.evaporate COMP.

        'It has evaporated'

c.   wò   dàm   má

        2SG   PST.stir   COMP.

        s/he   stirred

d.   sɩ   tàn   ná

        1PL   PST.shout   COMP.

All the pronouns carry a low tone in their subjective forms and this is maintained in the past tense.

4.7.3 Future Tense and Future Interrogative.

Marking the future tense and the future interrogative in Bʋrfʋɔr is differentiated only by tone. This behavior of tone has also been reported in Kusaal by Agoswin (2010:134) where he argues that, "futurity in Kusaal just like English is not marked through overt or covert morphological properties but rather by a particle na. Likewise, the future tense in Bʋrfʋɔr is marked by the particle na which usually bears a low tone. The verbs which follow will then take on a high tone instead of the low tone they usually bear in their imperative forms. The verb is then followed by the factitive marker which usually bears a high tone.

4.7.3.1 The Future Tense

Example:4.21

a.   ǹ   nà   ló   ná

      1SG   FUT   fall   FACT.

      'I will fall'

b.   fʋ̀   nà   dí   ná

      2SG   FUT   eat   FACT

      'You will eat'

c.   bà   nà   wá   ná

	3SG	FUT	come	FACT.

'They will com e'

d.	sì	nà	tɕén	ná

	1PL	FUT	meet	FACT.

'We will go'

4.7.3.2   Future Interrogative

The Interrogative future tense is formed with a falling tone on the factitive marker –nɛ́: with a long vowel.

Example:4.22

a.	ǹ	nà	ló	nɛ́ɛ̀

	1SG	FUT	fall	QP.

'Will I fall'

b.	fò	nà	dí	nɛ́ɛ̀

	2SG	FUT	eat	QP.

will you eat?

c.	bà	nà	wá	nɛ́ɛ̀

	3SG	FUT	come	QP

'Will They come'

d.   sì   nà   ʨén   nã́ã̀

1PL   FUT   meet   QP

' Will we meet'

4.7.4   Tone in Reduplicated Verbs

There are no tonal changes when verbs are reduplicated in Bʊrfʊɔr. The tone in the verb stem is simply replicated.

Example:4.23

dì   dìdì

'eat'   'eat eat'

ʨὲ   ʨὲʨὲ

'cut/chop'   'chop into pieces'

dá: dádá

'push'   'push push'

4.8   Tone in Noun Class System

Nouns in Bʊrfʊɔr can be classified into 11 classes based solely on which plural suffixes they take. Depending on the class, Bʊrfʊɔr nouns can take the following suffixes in their plural forms**:-r, -i, -ɩ,-l –sɩ, -ba, -ma, -bɛ** and **–bo**. Although these nouns take differrent suffixes in their plural forms, majority of them maintain the tones they bear in their singular forms. From the examples cited below, all the

nouns in the various classes bear the tone of the singular forms when in their plural

forms except those in class four.

Example: 4.24

	GLOSS	**SG**	**PL**	
1.	'thorn'	gʊ́ɔ̀	gʊ́ʊ̀r	'thorns'
	'goat'	bʊɔ̄	bʊʊr	'goats'
2	'axe'	'lár	'láí	'axes'
	'vagina'	páár	páí	'vaginas'
3.	'moon'	ŋmárá:	ŋmársí	'months'
	'friend'	bàrà:	bàrsì	'friends'
4.	'small hoe'	kùlò	kùlsí/kǔl	'small hoes'
	'kid'	bùlò	bùlsí/bǔl	'kids'
5.	'rabbit'	sɔ́ɔ̀	sɔ̂n	'rabbits'
	'scorpion'	lɔ̄ɔ̄	lɔ̄n	'scorpions
6.	'visitor'	sá:n	sáánbà	'visitors'
7.	'squirell'	tɕíɛ́	tɕíír	'squirell'
	'tree'	tìɛ̀	tìr	'trees'
8.	'debt'	sán	sámá	'debts'

'skin'   gán   gámá   'skins'

9.   'ear'   tò:r   tòbò   'ears'

'woman'   pɔ̄ɔ̄   pɔ̄bɔ̄   'women'

4.8.1   Tone in Agentive Nominals

This category of nouns emanate from verbs with stems which usually take the agentive suffix /-ré/-ró/-rɔ́/ or **/-**rɛ́**/** in their singular forms and /-bé/-bó/-bɔ́**/** and /bɛ́/ in their plural forms depending on the [ATR] feature of their stem vowels. They differ from those discussed in (3.4.1.2) which involved reduplication. From the data below it would be observed that, the high tone of the agentive suffix spreads leftward causing the the low tone of the verb to become high.

Example: 4.25

mɛ̀   míɛ́rɛ́

'build'   'builder'

tɛ̀   tíɛ́rɛ́

'shoot'   'shooter'

kùr   kúró

'mould'   'moulder'

dì   dírbé

'eat'   'eaters'

4.9   Conclusion

This chapter sought to identify and describe the tonal system of Bʊrfʊɔr. It has been discovered that, Bʊrfʊɔr has three level tones: High, Low and Mid like Buli but departs from what entails in some of her siblings such as Dagaare, Gurunɛ, Mampruli and Dagbani (cf 4.3). In addition to these level tones, Bʊrfʊɔr also has a rising contour and a falling contour which occur on both light and heavy syllables. It was also established that, the type of tone that a word bears does not determine the class it belongs. The chapter also discussed a number of tonal processes that occur when different tone melodies are juxtaposed in the language.

Tone plays two major functions in the language. These functions are lexical and grammatical. Lexically, tone brings about differences in the meaning of words which are otherwise identical. This differentiation is not limited to any word class. In other words, tonal differences bring about differences in meaning among verbs and nouns as well. Grammatically, tone makes a distinction between imperative and declarative sentences in the language. Tone therefore constitutes an integral part of the grammar of the language and therefore deserves a place in the description of the language.

CHAPTER FIVE

SUMMARY AND CONCLUSION

5.0   Introduction

This thesis sought to describe Aspects of the Phonology of Bʊrfʊɔr. The ensuing section is therefore a summary of some of the issues discussed in the various chapters and concludes with some reflections and recommendations for future research.

5.1 Summary of Key Findings

Chapter one examines the socio-cultural background of the Bʊrfʊɔr people, taking into account their origins and geographical location. The discussion revealed that, the socio-economic challenges confronting the people have contributed in no small way to the very problem that this study sought to address. Although Bʊrfʊɔr remains viable in terms of its usage at home, church and other traditional functions, the fact that its future survival is under threat for lack of detailed linguistic description vis-a-vis its siblings in the Mabia group of languages cannot be over emphasised and this constituted one of the basis for this study.

Chapter two focused on the description of the consonant and vowel inventories in Bʊrfʊɔr. It was established that, Bʊrfʊɔr has nine oral vowels. These oral vowels in turn have their long and nasal counterparts so vowel length and nasality are phonemic in the language. It was also noted that, although the oral vowels have a full complement of their nasal counterparts, same cannot be said of the frequency

of their occurrence and distribution. Available data show that /ẽ/ does not occur as frequently as its other counterparts. Bʊrfʊɔr also exhibits an active vowel harmony system based on the feature Advanced Tongue Root [ATR]. One interesting feature of the vowel harmony system in Bʊrfʊɔr worth commentary is that, the affixes -bile 'small' and –bir 'seed' tend to impose the [+ATR] value of their vowels on the stems that they are attached to and not the reverse.

The twenty seven consonants are well distributed in syllable onset positions except the glottal stop which has a limited occurrence in all positions in a word. Although it not represented in the orthography, I have included it on the consonant chart because it is found to be phonetically present in the language. Perhaps, another interesting discovery in the consonant inventory is the presence of glottalized consonants /'w, 'j,'l/ and the implosive /ɓ/. These sounds are rare in many Ghanaian languages except Dagara (Bemile 1984) and Busilu-Sisaala (Kuch 1993) all spoken in the Upper-West Region. Only /b,l,m,n,r/ can occur in syllable word-final position.

The discussion in chapter three focused on Syllable Structure and Assimilatory processes in Bʊrfʊɔr. It was discovered that, the CV syllable type is the preferred structure and so borrowed words which differ from this structure have to be resyllabified to conform to it. The discussion also brings to light the fact that, the various syllable structure processes such as elision, epenthesis, and syllable truncation discussed are necessary in order to ensure that only permissible clusters and sequences are allowed in the language.

Assimilatory processes such as homorganic nasal assimilation, consonant and vowel nasalization among others have also been extensively discussed. It was observed that sounds influence each other when juxtaposed and that this influence is bi-directional and depending on the position of the influenced sound, assimilation could be regressive or progressive. The harmonization of affix vowels with the vowels of the stems they are attached to is a case in point.

Chapter four sought to identify and describe the tonal system of Bʊrfʊɔr. It was discovered that, Bʊrfʊɔr has three level tones, High, Low and Mid a phenomenon which departs from what entails in some of her siblings such as Dagaare, Gurunɛ, Mampruli and Dagbani (cf 4.3). In addition to these level tones, Bʊrfʊɔr also has a rising contour and a falling contour which occur on both light and heavy syllables. Lexical Tone brings about differences in meaning in words that are otherwise minimal pairs whislt Grammatical Tone for instances brings about differences between statements and questions, declarative and imperative sentences just to mention but a few.

The discussion of the various tonal processes prevalent in the language led to some interesting findings that should not be glossed over. To begin with, the discussion under Tone Shifting revealed that, when two lexical items such as a noun and a noun or a noun and an adjective are merged through compounding, there is the tendency of the tone of the first lexical item to shift and displace the initial tone of the second lexical item. Under Tone Stability, it was realized that the deletion of the PL1 marker –sɪ does not result in the deletion of the tone associated with it. Rather, the floating tone docks on the nearest TBU to the left. More so, , an

existing tone is deleted alongside the TBU when two vowels occur contiguous to each other at word boundary through the process of vowel elision.

Finally, it was also established that, when a noun which bears a high tone is merged with an adjective which bears a low tone, the high tone spreads rightward causing the low tone of the first syllable of the adjective to change from low to high.

5.2   Contribution to knowledge

As summarised in 5.1 above, the research made some interesting discoveries about the Bʊrfʊɔr langauge, some of which are not very common among its sister languages. In this section, I consider a few of such discoveries which, among others, contribute to knowledge.

To begin with, Bʊrfʊɔr has been analyzed to have nine oral vowels which in turn have their phonemic nasal counterparts. Although phonemic nasality is a widespread feature in many languages in the Niger-Congo family, not many languages have a full complement of nasal vowels. However, evidence from this research shows that Bʊrfʊɔr is among the few languages in Ghana that has a full complement of oral and nasal vowels.

Another interesting finding in the phonemic inventory of the Bʊrfʊɔr consonant system is the presence of glottalized consonants /ˈj,ˈw,ˈl/ and the voiceless bilabial implosive /ɓ/. Glottalized sounds are articulated with secondary glottal constriction and are rare in many Ghanaian languages, except Dagara and Bussilu-Sissala (Kuch 1993).

In the domain of vowel harmony, the diminutive suffixes <u>bile</u> 'small' and <u>bir</u> 'seed' tend to impose their [+ATR] value on the stems they are attached to. This finding is significant since it is the stem vowels that often determine the ATR status of affixes.

The discovery of a Mid tone (M) in Bʊrfʊɔr is also at variance with the assertion by Kuch (1993) that Bʊrfʊɔr has two tones (L) and (H). A few cases of Rising and falling tones have also been reported. All these tones bring about a distinction in meaning in words which are otherwise minimal pairs.

Ultimately, a comprehensive phonological description of the language, as has been done in this study (with some limitations though), will draw the attention of future researchers to delve into the other aspects of the language which are equally important. This information does not only add to the literature of the language but also serves as a platform on which future research into the language can be premised.

5.3   Limitations

One of the challenging outcomes of describing Aspects of the Phonology of a language is that, certain areas are not exhaustively addressed and this is certainly true for the present study. One of such scenarios in this work is my analysis of the Bʊrfʊɔr tonal system. Although evidence in the data shows that Bʊrfʊɔr has three level tones, the phenomenon of contour tones has not been discussed in detail. Likewise the description of the phonological and tonal processes that occur in the language is not exhaustive due to limited space and time.

Secondly, the approach to this study has been largely descriptive as no strict theoretical framework has been adhered to. It would therefore be very interesting to see how some of the phonological and tonal processes discussed here behave when treated within the Autosegmental and Optimality theory frameworks.

5.4   Suggestions and Recommendations

As stated in section (1.6) of this study, a good phonological description of the Bɪrfʊɔr sound system will in no doubt constitute the foundation for the development of literature to sustain its viability. I am therefore hopeful that, this study will serve as the foundation for further explorations into the other areas of linguistics such as the syntax and morphology of the languge as well as discourse analysis.

On a more specific note, it was established in the discussion on vowel harmony that, suffixes generally harmonize with the vowels of their roots in ATR and Rounding. However, this has not been the case with the agentive suffix f̱ʊ the locative suffixes ḏʑu and p̱ɔ as well as the plural suffix s̱ɪ. Although they have been described in this study as exceptions to the harmony rule, they are simply too many to be ignored. It would therefore be interesting to critically examine why these suffixes fail to harmonize.

5.5   Conclusion

The over all objective of this thesis is to describe the Bʊrfʊɔr sound system. Situating the discussion from a descriptive angle, the study gives a detailed description of the Bʊrfʊɔr Vowel and Consonant sytems, Syllable Structure and Assimilatory Processes and Tone in a manner that is is in consonance with the tenets of generative phonological tradition. Whilst it is not contentius that this study does not address every phonogical detail in the language, it will in no doubt urge other scholars interested in Bʊrfʊɔr to undertake further studies in the langauge to ensure its viability.

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APPENDIX

SIL AFRICAN COMPARATIVE WORDLIST 2 (SILCAWL 2)

NO	ENGLISH	BIRFƱƆR
1	eye	Níbír
2	Ear	Tòòr
3	Mouth	nɛ́ɛ́
4	Tooth	ɲím̀
5	Lips	nɛ́gámá
6	Chin	tɛ̀n
7	Jaw	jòlár
8	Beard	tɛ̀nkɔ̀ɔ́l
9	Cheek	kɔ́sír
10	Tongue	ʥɛ̀lbìr
11	Nose	ɲɛ̄ɛ̄
12	Face	níè
13	Forehead	gbìè
14	Head	ʥú
15	Hair (head)	ʥúkɔ́ɔ́l
16	Hair (body)	kɔ̄ɔ̄l
17	Fur	kɔ̄ɔ̄l
18	Feather (s)	nákɔ́ɔ́l
19	Horn	ʔîl
20	Neck	ɲīē
21	Throat	kɔ̀kɔ́rlóró
22	Shoulder	bɔ̀ɲǎ̀pīr
23	Armpit	bò:là:

24	The bush	mʊɔ̄r
25	Breast	bìr
26	Udder	Bɔ̀ɔ́r
27	Milk (mother)	bìrkʊ̀ɔ̌
28	Milk (animal)	bìrkʊ̀ɔ̌
29	Butter	Kɑ̃́:
30	Cheese	kɑ̃́:
31	chest	ɲɑ̃́:
32	Belly	púór
33	Navel	ɲʊ̃̀ò
34	Side of body	lɔ̃bō:r
35	Rib	ɲébír
36	Back	pùór
37	Buttocks	pārbīē
38	Leg	gbɛ́r
39	Hip	kpíkpíìl
40	Thigh	gbɛ́rkpɛ̃́ɛ̃́
41	Knee	gbɛ́rdún
42	Foot	gbɛ́rpêl
43	Sole of foot	gbɛ̀rpêl
44	Arm (forearm)	kpɑ̀̃kpɑ̀̃n
45	Wing	bì:r
46	Elbow	nṹkúlṍkúùl
47	Tail	ɖʑʊ:r
48	Hand	nṹ:
49	Palm	nṹpêl
50	Finger	nṹbîr

51	Thumb	nű̃bír-dā:
52	Toe	gbɛ́rbîr
53	Fingernail	nű̃bírpɛ̄:r
54	Claw	gã̀:fī̃:l
55	Body	ʔì̃gã́n
56	Skin (of man)	ʔì̃gã́n
57	Hide (animal skin)	gã́n
58	Wound	nātī̃r
59	Scar	fɛ̀l
60	Bone	kɔ̄:r
61	Meat, flesh	nṹn
62	Fat, grease	kã́:
63	Oil	kã́:
64	Vein	ɗʑìlé
65	Egg	náɗʑɛ̂l
66	Blood	ɗʑĩ̌
67	Saliva	nátáàr
68	Tears	níbírkṵ̀ɔ̀
69	Urine	dṹrṵ̀
70	Sweat	ɲ̀ĩ̀ẽ̂
71	Feces / excrement	bĩ̄n
72	Dung	nābĩ̄n
73	Heart	kpɛ̀ér
74	Liver	sɔ̄:r
75	Guts /bowels	ɲābā
76	Brain	tàpòrò
77	Person /human	nɛ́̃nsáàl

78	Child / youngster	bībīlē
79	Elder	nĩ́kpɛ́:
80	Man (vir)	dābā
81	Husband	sīrɛ̄
82	Son	bìdābā
83	Boy	dābīlē
84	Woman	pɔ̄:
85	Wife	pɔ̄:
86	Daughter	bìpɔ̄:
87	Girl	pɔ̀:bīlē
88	Father	sà̰:
89	Mother	mà̰
90	Brother	jɛ́dābā/yábá
91	Elder brother	jɛ̄kārmā
92	Younger brother	jābīlē
93	Sister	jɛ̄pɔ̄:
94	Elder sister	jɛ̄pɔ̀:kpɛ́:
95	Younger sister	jɛ̄pɔ̀:bīlē
96	Friend	bádábá
97	Mother's brother	ārbā
98	Father's brother	sà̰: jābā
99	Child (offspring)	bīē
100	Twins	jībɛ̄
101	Stranger	sãan
102	Guest	sá̰:n
103	Enemy	dɔ̃̄dɔ̃̄mɔ̄
104	Chief / king	nà̰:

105	Owner	sórò
106	Slave	gbã̀gbàá
107	Judge	tɔ̀:r
108	God	nã̀:ŋmín
109	Spirit / ghost	síɛ́
110	Shadow	gã̀:gíɛ̀
111	Name	júór
112	Voice	kɔ̀kɔ́r
113	Language	kɔ̀kɔ́r
114	Story (tale)	mã́nã́
115	Animal	dʊ̃̄ɔ̃̄
116	Wild animal	mɔ̀dʊ̃̄ɔ̃̄
117	Domestic animal	dʊ̀bà:l
118	Sacrifice	lòbɔ̀:r
119	Dog	bā:
120	Jackal	gbɔ̀gbòr
121	Hyena	mɔ̀bā:
122	Cat	ɲà'wólò
123	Lion	gbē:n
124	Leopard	lʊɔ̄r
125	Rat	dàjɔ́
126	Bat (fruit)	dʑɔ̃̄dʑɔ̃̄:
127	Elephant	wɔ́b
128	Hippo	ˈjɛ́n
129	Buffalo	mɔ̀náà
130	Monkey	ŋmã̄:n
131	Baboon	gbɔ̀kò

132	Goat	bʊɔ̄
133	Sheep	pέr
134	Pig	dòbā:
135	Horse	wì:
136	Cow (cattle)	nà̰̄:
137	Cow (female)	nāpɔ̄:
138	Bull	nádár
139	Ox	nádár
140	Bird	lúbīlē
141	Chicken	nʊ̋ɔ̋
142	Hen	nɔ̃̄pɔ̄:
143	Cock	nɔ́rá:
144	Eagle	tū:
145	Vulture	sīdūmō
146	Guinea fowl	kɔ̋ɔ̰̀
147	Dove	ŋmɑ̰̂m
148	Pigeon	nàŋmâm
149	Tortoise, water	kùr
150	Lizard	bà̰dā:
151	Crocodile	'jέbá:
152	Snake	wɑ́ɑ̀
153	Worm (earth)	sàbɛ̌rmà
154	Fish	ʥĩ̄m
155	Crab	kɔ́tɔ̄
156	Louse	tɕìbè
157	Fly (house)	náʥúɔ̀
158	Honey	sʊ́ì

159	Honeybee	síbír
160	Grasshopper	sɔ́sóòr
161	Ant (soldier)	ɲīrā:
162	Termite	kpòlò
163	Spider	sīdār
164	Scorpion	lɔ̃̄:
165	Tree	tìɛ̀
166	Bark (tree)	dàpɛ̄:r
167	Leaf (tree)	vá:r
168	Branch (tree)	wìlè
169	Stick (tree)	dà:
170	Root of tree	dànyī:r
171	Thorn	gòɔ́
172	Flower	Pū:l
173	Fruit	wɔ̂m
174	Seed	Bir
175	Grain	bɔ̋bír
176	Wheat	tɕí
177	Millet	dʑìɛ́
178	Barley	N/A
179	Maize	kámɑ̋ɑ̏n
180	Rice	mòí
181	Banana (s), sweet	kōdū
182	Plantain	bɔ̀:dīɛ̄
183	Palm tree (eg date)	bɛ̀tìɛ̀
184	Yam	ɲú:r
185	Manioc / cassava	dāgɑ̃̄n

186	Groundnut / peanut	sū̃mȭ
187	Tobacco	tàmã̀
188	Grass	mʊ́ɔ́r
189	Thatch (n)	mʊ́ɔ́r
190	Forest	tū:
191	"The bush"	mogon
192	Desert / wilderness	dã̀lpʊ̀ɔ̀
193	Field (s)	ʥɔ̀kɔ̀l
194	Place	ʥīē
195	Country	páàl
196	Tribe /ethnic group	bʊrɔ̄
197	Village	tɛ̀bīlē
198	Home / compound (including the courtyard)	Yirdɔndɔr
199	House, hut	jír
200	Roof	gàr
201	Loft / granary	bò:r
202	Wall	dàʨīn
203	Door	pã̄n
204	Gate	dɔ̃̀dɔ́r
205	Fence	ʥɔ̀:
206	Path	sɔ́r
207	Road	sɔ́rkpĩ́ɛ́
208	Well (water)	būlɔ̄
209	Thing (object)	bɔ́́n
210	Thing (affair)	jēlē
211	Clothing	fɔbaa

212	Pagne (wrap-around)	pɛ̀̃pèl
213	Boubou /shirt	fú:
214	Trousers	tã̄gã̄nã̄
215	Shoe (s)	náfɔ́:r
216	Sandals	náfɔ́:r
217	Bracelet	bɔ̄̃:
218	Necklace	bɔ̀̃nʤɔrmá
219	Ring (finger)	bɔ̀̃:
220	Rope	mí:r
221	String/thread	tṹ
222	Mat (sleeping)	sɛ̀̃:
223	Hoop net	---
224	Net	ʄ̤ùɔ́l
225	Chair	dàkɔ̄:
226	Stool	dàkɔ̄: bīlē
227	Drum (n)	gã̀̄gà:
228	Boat, canoe	gbòrò
229	Calabash, gourd	ŋmān
230	Basket	pìɛ̀
231	Load	tūōr
232	Rubbish, garbage	sɔ̀̃sɔ̀:r
233	Hole (in ground)	bɔ̀:
234	Mortar (grinding)	tʊɔ̄r
235	Pestle	tùlú
236	Medicine	tɨ̀:
237	Poison	Tɨ̀: dɛ̀ɛ́r
238	Salt	ɲà:r

239	Foufou / ugali	kàpálá
240	Pot (cooking)	làdʊ́:lá:
241	Water pot (earthen)	kɔ̀jūōr
242	Cooking pot (metal)	dɑ̀̃sɛ̃ɩ
243	Iron (metal)	kúr
244	Knife	sʊ̀ɔ̀
245	Bush-knife	sʊ̀ɔ̀
246	Axe	'lár
247	Hoe	kù:r
248	Arrow	pí:n
249	Bow (weapon)	tɑ́̃m
250	Spear	piin
251	Fish-spear	ʥɑ̃́pí:n
252	Shield (n)	kpɑ̀̃n
253	War	tám
254	Law	'Yɛrbin
255	Charcoal	vɑ̀̃:vúùl
256	Fire	bɑ̃̀:
257	Firewood	Dagbɔɔra
258	Smoke	ʥʊ̀ʊ́r
259	Ash(es)	tàmpìɛ̀l
260	Fireplace (hearth)	dɔ̀:n
261	Night (time)	tɩ̃̀sɔ̄:
262	Darkness	líbé
263	Moon	ŋmɛ́rá:
264	Month	ŋmɛ́rá
265	Star	ŋmɛ́bír

266	Sun	mɔ́̃tɔ̃̌
267	Heat of day	tũ̂l
268	Daylight	tɕã̀:
269	Day-time	Mɔ́̃tɔ̃̌
270	Day of 24 hours	Bibir
271	Morning	Bibio
272	Evening	ʥã̀:núɔ̀r
273	Sky	sá:ʥú
274	Cloud(s)	ʥùlɔ̃̀ʥùr
275	Fog/ mist	'wũ̂l
276	Wind	sɛ̀bɛ̀
277	Storm	sɛ̀sɛ̀bɛ̀
278	Water	kʊ̃̀ɔ̀
279	Rain	sáá
280	Lightening	saa nyirfo
281	Thunder	saa tanfo
282	Hail	sakpulõbie
283	Dew	'ʊl
284	Watercourse	kɔ̃̀pàlá
285	River	mã̀n
286	Stream	kʊlɔ̄
287	Lake	mã̀n
288	Sea	pʊ̀
289	Mountain	tɔ́̃:
290	Hill	tɔ́̃bílé
291	Rock	kɔsɪr pã̀n
292	Stone	kɔ́sɪ́r

293	Pebble	kɔsʊr saalsi
294	Earth(soil)	tɛ́́n
295	Ground	tɛ́́:
296	Sand	bìré
297	Dust	tanbuul
298	Clay	jɔ́:r
299	Mud	tɛ́́n
300	Year	jùòn
301	Rainy season	síɛm
302	Dry season	'wúòn
303	How many?	aŋmʊnɛ
304	One	bó'jén
305	Two	ájí
306	Three	átá
307	Four	ànā:r
308	Five	ànṹ:
309	Six	àjòɔb
310	Seven	àjòpɔ̃́é
311	Eight	àní:n
312	Nine	píé fórbír
313	Ten	píé
314	Twelve	píé ní āyī
315	Fifteen	píé ní ānṹ:
316	Twenty	lìʤɛ́r
317	Thirty	lìjɛ́r ní pīē
318	Hundred	kɔ̀bà:
319	Thousand	túr

320	Hot weather	wɛ́r tûl
321	Cold weather	'wɔ́:r
322	Long thing	bʊ̃́wɔ́:
323	Tall	wɔ́:
324	Deep	sū:
325	Short thing	bʊ̃ŋmɑ̃́:
326	Short (not tall)	ŋmãa
327	Big	kpɛ̃ɛ
328	Thick (thing)	tírɛ́
329	Fat (person)	ǹgán sɔ̀ɔ́
330	Wide	jàl
331	Small	bílé
332	Thin (thing)	mĩ́:l
333	Narrow	mul
334	Round (adj)	bíltá:r/kúlɔ́kúlɔ́
335	Heavy	tírɛ́
336	Difficult	bʊ̃kpɛ̃̄
337	Light in weight	dɛ̃́fɛ́ré
338	Easy	kɔ́kɔ̃́mɔ̃́
339	Hard (surface)	bʊ̃kpɛ̃̄
340	Strong	kpɛ̄mɛ̄
341	Soft (surface)	bàl
342	Weak	bàl
343	Smooth	sàl
344	Shiny	ɲílɛ̀
345	Clean, pure	tɕɛ́tɕɛ́
346	Defiled	sɔ̃̀:

347	Good	vìlà
348	Well (adj)	vìlà/š̀
349	Bad	bʊnsɔ̃naa
350	Bitter	bʊntuo
351	Sour	mì:r
352	Sweet	nǒ̃ɔ̃̀
353	True	yèlmìɛ̀
`354	False	ʥìrí
355	Untruth/ lie	ʥìrí
356	Straight	tōr
357	Crooked	gɔ̃̀:
258	Right (correct)	jèlmìɛ̀
359	Right (side)	nũsõɔ
360	Left side	gʊbaʥie
361	New	pá:lá:
362	Young	pɔ́l
363	Old (worn)	kòr
364	All	àʥà:
365	Many, much	jɔ́:
366	Crowd (of people)	nĩ́jɔ́:
367	Few	bɨ́lɔ̃̀
368	Some	àmìnè
369	Other / different	àɲàsʊ́ɔ̀
370	Red	ʥìɛ̀
371	Yellow	dʊ̀ɔ̀r
372	Green	fʊ̀l
373	Black	sɔ́:lā:

374	Dark- colored	sɔ́:lā:
375	Dark	sɔ́:là:
376	Blue	sɔ́:là:
377	White	pìlà
378	Bright-colored	
379	Who?	àná
380	I	mãa/n
381	You (thou)	fʊ̃ʊ̃
382	He (s)	wʊ̀
383	We	sì
384	You (pl)	jĩn
385	They	bà
386	What?	bò
387	This	ɲà
388	That	lɔ́
389	Where?	ɲínɛ́
390	Here	ká/kánà
391	There	bè/bènè
392	Yonder	kásɛ̀
393	At	à
394	Going (toward)	kyiini
395	Coming (from)	wà:rà
396	Near	gbʊr
397	Far	ʤã̀á
398	Before	sɛ́rɛ́
399	Behind, after	pùór
400	In	pɔ̄

401	Above	ʥúsɔ̀:
402	Below	pílépɔ́
403	How?	ŋmínɛ́
404	With	nī̄
405	Also	mɪ/anɪmɪ
406	And	nī̄
407	If	ala ɪ
408	When?	dàbór
409	Then/ that time	lɛ daar
410	Today	dínɛ́
412	Yesterday	ʥæ̀ǽ
413	Tomorrow	bíó
414	Why?	bò
415	Because	àlèʥũ̂
416	No,not	lɛ ba lɛɛ
417	Alive, to be	tara ɲɛvʊr
418	Life	ɲèvór
419	Dirty, to become	dɛ̀ɛ́r
420	Become dry	kò
421	Full, fill	sɛ́:
422	Ripe, be	mʊ̀ɔ̀
423	Rotten	pʊ̃́ɔ́
424	Sharp	dìrè
425	Blunt, dull	gbàl
426	Become wet	mǽ:
427	Sit (down)	ʥɪ̀nɛ̀
428	Be seated	ʥɪ̀nɛ̀

429	To remain /reside	bè
430	Stand up	àrà
431	To be standing	àrà
432	To stop	bàr
433	Lie down	gã tee
434	To be lying	gã́
435	Sleep (v)	gúr
436	Dream (v)	ʤã̀n
437	Fear (n)	dã̀bĩ́ɛ
438	Anger; be angry	sur/ɲɛ suur
439	Hunger; be hungry	kɔ̃́
440	Thirty; be thirsty	kɔ̃̀ɲú:r
441	Shame; be ashamed	vĩ́
442	Illness; be ill	bà:l/bĩɛrɛ
443	Sorrow; be sad	pòsɔ̃̀:
444	Joy; be joyful	pòpὲl
445	To bite	dõ̀
446	Gnaw	'wɔb
447	Eat	dì
448	Food	bʊndí:r
449	Drink	ɲú
450	To smoke (something)	'wɔ̃̀
451	Vomit	tì
452	To cough	kɔ̀r
453	Sneeze	tìr
454	Suck	mὸ:
455	Suck (the breast)	'jὲn

456	Spit	pɔ̀:r
457	Blow	fù:r
458	The wind blows	sɛ̀bɛ̀ fúró nà
459	Breathe	vóór
460	Whistle	fúól
461	Yawn(v)	híér
462	Sing	jíél
463	Song	jíél
464	Dance (v)	sɛ̀ bĩ̄nɛ̄
465	Dance (n)	bĩ̄nɛ̄
466	Play (v)	dìɛ̀n
467	Laugh (v)	là
468	Weep	kɔ̀
469	To bark	wúól
470	Cry out	kɔ̀
471	Make noise	pɔ̀: gɔ́mɔ́
472	Say	'yɛ̀r
473	To talk / speak	'yɛ̀r
474	Answer	sɔ̀:
475	Tell	yɛ̀r
476	Proclaim	mʊ́ɔ́l
477	Ask (question)	sɔ̀:r
478	Ask for	sɔ̀:r
479	To command	tìr nɛ́:
480	To rule	dì nɛ̃̀:
481	Obey	tù
482	Refuse	tɔ̀r

483	To swear an oath	pɔ́
484	To curse (someone)	pɔ́
485	Insult	tʊ́
486	See	ɲɛ́
487	Look at	kà:
488	Show	wì:il
489	Teach	wì:l
490	Hear	wɔ̀
491	Listen to	tɕɛ̀l wɔ̀
492	To smell (something)	wõ nyũu
493	Smell, stink	ɲũ̀:
494	Know (something or someone)	bɔ̀:
495	Learn	ɖʐɑ̀̃n
496	Remember	tíɛ́r
497	Forget	ˈjì̃:n
498	Count (v)	sɔ̄r
499	Read	kàr
500	Book	gɑ̄̃n
501	Write	sɛ́b
502	Think	tíɛ́r
503	To suffer / feel bad	wɔ̀
	To love	nɔ̀
505	To want (something)	bɔ́
506	Desire	bɔ́fʊ́
507	To want (to do something)	bʊ́ɔ́rɔ́
508	Need (v)	bʊ́ɔ́rɔ́

509	To seek	jɔ́bɔ́
510	Find (V)	bɔ́
511	Carry	tùò
512	Take	dɛ́
513	Seize	fá:
514	Catch	ɲɔ́:
515	Hold	ɲɔ́:
516	To lift/raise	ɓɔ́:
517	Give	kʊ̀
518	Gift	kʊ́fʊ́
519	Pay	jāb
520	Money	lìbír
521	Cost	sɑ́́n
522	To get/ receive	ɲɛ́
523	Steal	ʤú
524	To hide (something)	sɔ́:l
525	Lie (tell lies)	ʤìrí
526	Deceive	bɛ̀l
527	Buy	dà
528	Sell	dà
529	To marry	kúl
530	Bear child	dɔ̀:
531	Bear twins	dɔ̀: jībɛ̄
532	Be born	dɔ̀́:
533	To live	tàrà ɲɛ̀vʊ́r
534	To leave, depart	yí
535	To go (somewhere)	kyén

536	Come (to)	wà ká
537	Come from	jí wá
538	Arrive	tá
539	Return	lɛ̀b
540	Go out	jí
541	Enter	kpɛ̀
542	Go up	dó sá: ʥú
543	Follow	tù
544	Bring	wàán
545	Send (someone)	tɵ̃̀
546	Fly (v)	'wɔ́:
547	Jump	'wɔ́:
548	Swim	dū:
549	Dive	mòr
550	Float	dū:
551	Walk (v)	tɕén
552	Run	ʥò
553	Flow	ʥò
554	Fall	lò
555	Turn	lìɛ̀b
556	Scratch	kòɔ̀r
557	Scratch oneself	kòɔ̀r
558	Rub	fɔ̀fɔ́
559	Wipe	fìɛ̀l
560	Pour	kpá:r
561	Wash	pɛ́:
562	To bathe (oneself)	sò

563	Wash one's hands	pɛ́: nú:r
564	Wash (clothes)	pɛ́: fɔ̀:r
565	To wash a pot	pɛ́: lā:
566	Sweep	pì:r
567	Broom	sá:r
568	Open (v)	jùò
569	Shut (v)	pɔ̀:
570	Break (tr)	ŋmɛ́r
571	Split (wood)	'lɛ̄r
572	Tear (v tr)	tɕìèr
573	Divide	pɔ́
574	Cut	ŋmà:
575	Saw	ɲɛ́
576	Chop	ŋmà
577	Stab(pierce)	tɕɔ̀:
578	Fight	dʑɛ̀b
579	Hit, strike	ŋmè
580	Beat	ŋmè
581	To hurt someone	
582	Help (v)	sɔ̌:
583	Heal	sɛ̌:
584	Healer	bà:l sárá
585	Throw (v)	lɔ́b
586	Throw away	lɔ́bár
587	Push (v)	dá:
588	Pull (v)	tɔ̀:
589	Press	díb

590	Squeeze (v)	ŋmì:n
591	Tie	lṹ
592	Hitch	tɕìèr
593	Untie	'lór
594	Build	mɛ̀
595	Make	mà:l
596	Do	ì?
597	Work (v)	tɵ̃̀
598	Work	tɵ̃mɔ̄
599	To create	mà:l
600	Forge (v)	kùr
601	Blacksmith	kùkūrō
602	Begin	píél
603	Finish	bá:r
604	To sew	sɛ̀
605	Weave	wōb
606	Weaver	wówó:ró
607	Dress	fú:
608	Undress	jà:
609	To braid, to plait	wōb
610	Hunt (v)	jɔ́bɔ́
612	Hunter	nɐ̀kpɑ̃̄:n
613	Shoot	ŋmɛ̀
614	Gun	màlfá
615	Cook (v)	dʊ:
616	Cultivate	kɔ́
617	To plow	kɔ́

618	Plant (v)	bòr
619	To dig (a hole)	tū:
620	Bury	ṳ̀:
621	Burn(something)	tɕɔ̀m
622	Kindle	kpì:n
623	To burn/ be alight	tɕɔ̀m
624	Extinguish	kpì:n
625	Shiver	mīr
626	Swell (v)	mɔ̄r