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A GRAMMATICAL SKETCH OF ISAALO (WESTERN SISAALA)

by

Steven Paul Moran

Thesis

Submitted to the Department of English Language and Literature

Eastern Michigan University

in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

in

English with a concentration in Linguistics and a certificate in Language Technology

Thesis Committee:

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Edward Garrett, PhD

January 1, 2006

Ypsilanti, Michigan

DEDICATION

This work is dedicated to all who share in the pursuit of describing and preserving the world's disappearing languages.

ACKNOWLEDGMENTS

I would like to thank the Sisali for their trust and hospitality during my three-month stay in Lambussie. I am grateful to Cletus Basing and Osman Baa-ang for being patient with me and for enduring long hours of fieldwork. I am in awe of them for their appreciation and encouragement of this project and for sharing with me these insights into their beautiful language.

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Finally, to my family. Mom, you've instilled in me a passion for writing that has influenced many of my academic pursuits. You and Rick never questioned my insatiable hunger to travel and ultimately encouraged it. I love you both.

ABSTRACT

This thesis presents a grammatical description of Western Sisaala, a previously undocumented language spoken by fewer than 10,000 individuals in the Upper West Region of Ghana. This work is based on three months of field work in Lambussie with two native speakers. Its main emphasis is to describe the languages phonological description, which has been the basis for the development of an orthography for its speakers. Other chapters in this work include a description of the Sisaala language complex, the sociolinguistic situation of the speakers of Western Sisaala, and a preliminary analysis of Western Sisaala's morphological system. Western Sisaala belongs to the Western Grusi branch of the Gur language family, of the Niger-Congo phylum. Historically it has been considered a dialect of the much larger Sisaala Tumulung of the Sisaala language complex, but this work recognizes it as a distinct language.

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LIST OF ABBREVIATIONS[1]

Ø	null marker
1	first person
2	second person
3	third person
ADJ	adjective
DET	determiner
FUT	future
GEN	genitive
LOC	locative
NUM	numeral
OBJ	object
PL	plural
POSS	possessive
PROG	progressive
PST	past
QUANT	quantifier
REFL	reflexive
SG	singular
< X	source of borrowing
( )	comments
*	ungrammatical construction

[1] An extension of the Leipzig Glossing Rules, see http://www.eva.mpg.de/lingua/files/morpheme.html

1. INTRODUCTION

This thesis presents a linguistic description of Western Sisaala [SSL],[2] a previously undocumented and unwritten Gur language spoken in Lambussie, in the Upper West Region of Ghana. Although no census of Western Sisaala speakers has been conducted, on the basis of my research, the number of speakers of the language can be estimated at fewer than 10,000, and the language is in danger of becoming extinct. This thesis places emphasis on describing Western Sisaala's phonological system and aims to establish a writing system for use by its speakers. It is my hope that this orthography will be adopted, modified, and used by native speakers to establish their own literary traditions. This work also attempts to disambiguate previous research on Sisaala (also in the literature as 'Sissala' or 'Sisala') languages by providing a brief overview of each of the four Sisaala languages that are spoken in Ghana and Burkina Faso. This research is based on data collected in the field, in Lambussie, during a three-month period between May

[2] Ethnologue language codes from the 14th edition are used throughout this document to identify languages. For more information, see http://www.ethnologue.com/codes/

and August of 2003. Because this is the first work on Western Sisaala, I have attempted to be as detailed as possible in my description and, by doing so, forego concise theoretical assumptions typically provided in grammars. It is my belief that the detail of this work will be pedagogically useful to the Western Sisaala speaking community. It is also a foundation for producing a grammar for the language.

1.1 Purpose of This Study

The main purpose of this study is to provide a linguistic description of Western Sisaala and to establish a writing system for speakers of the language. It also provides the field of linguistics with new data on a previously undocumented language, which will contribute to typological and historical studies of languages in Western Africa. It offers cognitive science new human language data, essential to a broader understanding of how human thought and language is encoded in the brain. A by-product of this thesis has been the development of an online case study of digital *best practice standards*. This has been accomplished through my work with

the Electronic Metastructure for Endangered Languages (E-MELD)[3] (2005) project, funded by the National Science Foundation (NSF). Administered by The Linguist List,[4] the five year E-MELD initiative, in close collaboration with numerous international institutions and researchers in Linguistics, Computer Science, and Language Technology, has developed standards for long-term preservation of digital language materials. In its best practices tutorial website, The E-MELD School of Best Practices in Digital Language Documentation (2005),[5] the Western Sisaala data that I collected in the field is being showcased as an example of adhering to digital best practice standards. This case study, *From Older Field Methods to Best Practice, a Case Study of Western Sisaala*,[6] describes the methodologies I used in digitizing the field data and the many benefits of following best practices, including long-term preservation and archiving of data, interoperability of cross-linguistic archival searching, and increased accessibility of the materials (Moran, 2006).

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[3] http://emeld.org

[4] http://linguistlist.org

[5] http://emeld.org/school/

[6] http://emeld.org/school/case/sisaala/

1.2 Organization of This Study

This study is organized into six parts. Chapter 1 introduces this work and details its purpose, organization, and significance and the methodologies used. Chapter 2 provides information on each of the four languages in the Sisaala language complex. Thereafter, focus is placed on Western Sisaala, and in Chapter 3, I provide background information on Western Sisaala, including its genetic affiliation, a survey of previous research on the language, a brief section on the speakers' sociolinguistic situation, and sections on ethnography and demography. In Chapter 4, I outline the phonological system of Western Sisaala, including a description of its phonemes and tonal system and introduce an orthography developed for pedagogical purposes. In Chapter 5, I present the morphological system and discuss the noun and the noun phrase structure. I also provide initial research on Western Sisaala's noun class system and on its inflectional morphology. Chapter 6 includes my conclusions, and the references and appendices follow.

Appendix A provides language maps, Appendix B is an interlinear glossed text, and Appendix C is a 1200-word glossary.

1.3 Justification and Significance

My aim in doing this research has been to provide a linguistic description of a previously undocumented African language, Western Sisaala. In doing so, my goal has been to describe the language in as much detail as possible so as to create a pedagogical resource useful to Sisaala speakers, as well as to build a foundation for the later development of a grammar and dictionary. My main focus in this work has been to describe Western Sisaala's phonological system. In doing so, I have established a phonemic inventory that was the basis for developing a writing system for the language. I hope that this is significant to the Western Sisaala-speaking community and that it may be useful as a language-teaching tool. This research is also important because it provides science with new data on an endangered language. The field of linguistics is aware that the paramount loss of human languages in the next 100 years will have a dramatic effect on what we will be able

to understand about the diversity of human language and the cognitive system. At present, estimates are that the human species loses a language every two weeks. It is therefore crucial that initiatives be taken to document all disappearing languages. The loss of a human language is terminal.

1.4 Methodology

Work on Western Sisaala initially began in a Field Methods course at Wayne State University (WSU) during the Winter semester of 2002. The class was taught by Professor Martha Ratliff, and our language consultant was Mr. Michael Gyaagiro Alandu, a 32-year-old native of Ghana (in 2002) and a doctoral candidate in International Politics at WSU. Mr. Alandu grew up in various places in Ghana because of his father's employment and reported that he had occasionally visited Lambussie. Mr. Alandu also speaks Hausa, Dagaare, Asante, Frafra, Wale, French, English, and some Japanese.

This study is based on my linguistic fieldwork conducted in Lambussie, in the Upper West Region of Ghana (see Map 1 in Appendix A). I have worked mainly with

two native speakers of the language, both of whom speak English as a second language: Cletus Basing (56 years old in 2003), a retired teacher; and Osman Ba-ang (born June 24, 1974), currently a teacher and university student. The data was collected from May to August during the summer of 2003 and represents a database of more than 3000 entries, which includes lexical items, phrases, and sentences. I have also collected nine audio/video recordings of narratives, two of which have been transcribed and glossed. All materials were also digitally recorded, and the consultant interviews make up a corpus of 50+ gigabytes (audio .WAV files). In collecting these materials, I have tried to adhere to current best practices in digital language documentation as set by the NSF-funded E-MELD project. This includes digitizing the textual documentation in the Unicode standard (I have used Arial MS Unicode font) and recording audio in an uncompressed and lossless format (in this case I recorded audio in the .WAV format at 44.1kHz). Currently there is no best practice protocol for capturing uncompressed video.

For data collection, I have used Kaufman's extended Swadish word list (Kaufman, n/d); Comrie and Smith's (1977) Lingua Descriptive Studies Questionnaire, a typological checklist based on Thomason's typological checklist (ms, n/d); Berlin and Kaufman's (1987) South American Indian Languages Documentation Project Questionnaire; and portions of Bouquiaux and Thomas's (1992) Studying and Describing Unwritten Languages.

1.5 Conclusion

This section has provided the basis for this study. I have detailed the purpose and organization of this thesis and described the justification and significance of this work. The methodology and materials that I have used in data collection have also been outlined. The following section describes each of the Sisaala languages in more detail, and subsequent sections focus solely on describing Western Sisaala.

2. SISAALA LANGUAGES

There are four Sisaala languages spoken in the Upper West Region of northwestern Ghana and in the adjoining areas of southern Burkina Faso: Western Sisaala, Sisaala Tumulung, Sisaala Pasaale, and Sissala. Three Sisaala languages are spoken exclusively in Ghana; these include Sisaala Tumulung, Sisaala Pasaale, and Sisaala Western. Sissala is spoken in Burkina Faso and is related most closely with Western Sisaala. Researching materials on these languages is made difficult by the variations of spelling the literature; Sisaala appears spelled 'Sisaala,' 'Sissala,' or 'Sisala.' This section aims to describe the differences among these four languages, which because of different levels of unidentified mutual intelligibility, have been historically considered dialects of one Sisaala language. Recent personal communication with Michael Toupin of the Summer Institute of Linguistics (SIL), co-author of the Sisaala Pasaale grammar (McGill, Fembeti, & Toupin, 1999), has provided insight into the Sisaala languages dialect continuum. More investigation is

needed in order to establish the exact nature of the continuum between the languages and the possibility of a fifth Sisaala language.

2.1 Sisaala Western[7] [SSL]

Sisaala Western, or Western Sisaala, is spoken in Lambussie and surrounding villages in the Upper West Region. Lambussie is the central point of the language and is where the majority of its speakers, including their Chief, live. Lambussie is located a few miles east of Nandom, across the Jirapa-Lambussie and Lawra district border and a few miles south of Ghana's northern border with Burkina Faso. The Ghana Institute of Linguistics Literacy and Bible Translation (GILLBT) figures from 1988 estimated 20,000 speakers, but these figures are too high. Elders and political authorities of the tribe estimate that there are less than 10,000 speakers. The *2000 Population and Housing Census: Special Report on 20 Largest Localities* (2002) by the Ghana Statistical Service stated Lambussie's total population being 2,199. Lambussie is the fourth largest locality of the Jirapa-

[7] Please note that the Ethnologue's listing is 'Sisaala, Western.' In this work, I use the term 'Western Sisaala'; however, speakers of the language refer to their language as 'Isaalo.' This research was done with the 'Busili' dialect.

Lambussie District and one of only 2 localities in the top 20 whose population figures have decreased since the last census, which was in 1984. According to the census of 2000, there were 495 fewer individuals, which was a 22% decrease in the population since 1984.

Alternate names for Western Sisaala as listed in the *Ethnologue* (2004) are Busillu Sisala, Sisai, Issala, and Hissala. The *Ethnologue* also states that Western Sisaala is closely related to the Sissala of Burkina Faso but that it is distinct. It notes that there is intelligibility with Sisaala Tumulung and Sissala of Burkina Faso and that investigation is needed. Western Sisaala speakers reported that they cannot communicate with Sisaala Tumulung speakers, but they do recognize certain words. When asked about the Sissalas of Burkina Faso, they reacted confusedly to the idea that they cannot communicate with them. Lambussie Sisaalas refer to the Sisaalas of Burkina Faso as their *brother Sisaalas*.

At this time I know of no previous research on Western Sisaala and have found no materials written on, or in, the language. This thesis is the first

grammatical description of the language. It is likely that previous work was not undertaken on Western Sisaala because it was considered a dialect of the much larger Sisaala Tumulung (see the language maps in Appendix A). However, my research indicates that Western Sisaala is a distinct language.

2.2 Sisaala Tumulung [SIL]

Sisaala Tumulung is unquestionably the largest of the Sisaala languages, with sources indicating over 100,000 speakers in Ghana (*Ethnologue*, 2004; GILLBT, 2002). *Ghana Statistical Service's 2000 Population and Housing Census* reported a total population of 85,442 for the Sissala District in the Upper West Region, in which the city of Tumu is located and where Sisaala Tumulung is spoken (refer to number 56 in Appendix A, Map 1). Though no census figures are precise, 76,584 of the Sisaala District's 85,442 inhabitants reportedly live in rural areas. This rural diversity is typical of life in northern Ghana.

Sisaala Tumulung has several alternative names, including Sisai, Issala, Hissala, Sisala Tumu, and Isaalung. The GILLBT recognizes nine major dialects of

Sisaala Tumulung, of which Gilbagila, Debi, and Isaaliŋ are spoken by the largest number of people (GILLBT, 2002). The Ethnologue (2004) lists four dialects: Isala, Gil Bagale (also Galebagla), Nsihaa, and Potule.

The literature on Sisaala Tumulung includes two dictionaries (Rowland, 1966a; GILLBT, 2002), a phonological description (Rowland & Rowland, 1965), a paper on Sisaala noun groups (Rowland 1966b), and vernacular publications indexed in the Ethnologue from SIL's bibliography.[8] The larger dictionary, *Sisaala–English/English–Sisaala*, was first published in 1975 (Blass, 1975) and later republished in 2002 by the GILLBT. It contains more than 3000 lexical entries and was developed for pedagogical purposes. This dictionary represents the Isaaliŋ dialect, which is spoken in Tumu and in areas to its southeast. In 1965 Ronald and Muriel Rowland published *Collected Field Reports on the Phonology of Sisala* (Rowland & Rowland, 1965). This is the earliest work available on Sisaala Tumulung, although Blass (1990) mentioned an 18-page grammatical outline written

[8] See http://www.ethnologue.com/show_language.asp?code=sil or search Ethnologue for Sisaala, Tumulung.

by the German missionary linguist Funke in 1928. Funke, however, apparently obtained data from Sissalas living in Togo, and the dialect has not been established, no longer exists, or has evolved (Blass, 1990, p. 2). Rowland and Rowland (1965) described Sisaala Tumulung's phonemic inventory and provided a description of the language's syllable structure and its tonal system. In 1966 Ronald Rowland also published *A Short Dictionary of Isaalang* (Rowland, 1966a), as well as a paper on Sissala noun groups (Rowland, 1966b), published in the *31st Journal of West African Languages*.

There are also stories, reading primers, and health and hygiene materials now written in Sisaala Tumulung. T.T. Wubonto's works include the Sisaala stories *Nihuobisiŋ Namakisiŋ*, and *Nyua Liizɔmuŋ–Drink Good Water* (1996a, 1996b). Other materials are being produced by GILLBT in Tamale, as well as at the Institute of Linguistics.

2.3 Sisaala Pasaale [SIG]

Sisaala Pasaale, the second largest Sisaala language, is spoken in the Upper West Region of Ghana in about 18 villages that lie 80 km south of Tumu and 105 km east of Wa (the capital of the Upper West Region). SIL indicated 26,000 to 30,000 speakers in its 1996 figures.

Sisaala Pasaale's alternative names include Pasaale, Funsile, and Southern Sisaala. Sisaala Pasaale dialects include Glibagala, Pasaali, Funsi, and Kundogo. Funsi and Kundogo are reported to be the predominant dialects among Sisaala Pasaale villages (Ethnologue, 2004).

A grammar of Sisaala Pasaale was published in 1999 by Stuart McGill, Samuel Fembeti, and Mike Toupin (McGill et al., 1999). The Ethnologue, in its 15th edition, has added references to materials written in Sisaala Pasaale, including primers and educational materials (Gordon, 2005).

2.4 Sissala of Burkina Faso [SLD]

Sissala of Burkina Faso, usually referred to simply as 'Sissala,' is spoken by a reported 13,000 people in Burkina Faso's Sissili province in 30 villages between Léo and Hamale (Ethnologue, 2004). This makes it the smallest of the four languages in the Sisaala language complex as referenced in the Ethnologue, and the mutual intelligibility of the Sissala of Burkina Faso and Western Sisaala (the language on which this studies focuses) needs investigation. Blass (1990) stated, "The dialect in Ghana has a cognate similarity of only 50 percent to the dialect in Burkina Faso, and has major phonological, lexical and grammatical differences from that dialect" (p. 123). However, the Sissala of Burkina Faso is closest to Western Sisaala, which is spoken in the area between Hamale and Tumu and is not mutually intelligible with Sisaala Tumulung, which is spoken much further to the east. Blass was the first to publish widely on the Sissala of Burkina Faso. Her work includes an account on double negation in Sissala (Blass 1983), studies on discourse constraints and contrastive focus in Sissala (Blass 1988, 1990, 1998), as well as works on

conditional particles, grammaticalization, and pragmatics in Sissala (Blass, 1989a, 1989b, 1989c). Blass also worked closely with the GILLBT on the *Sisaala (Tumulung)–English/English–Sisaala Dictionary* (GILLBT, 2002).

As mentioned before, more evidence is needed to provide mutual intelligibility figures and to establish the distinctiveness of the Sisaala languages. To this extent, Margrit Frempong of the GILLBT and I are comparing Western Sisaala and Sissala of Burkina Faso data to establish the relatedness of the two languages.

2.5 Conclusion

In this section I have provided information for differentiating the four Sisaala languages spoken in Ghana and Burkina Faso. I have provided basic information for each language, including a list of alternative language names and dialects, a description of where each language is spoken, including population figures, and I have also provided references for each language when applicable. It has been my attempt to make clear the linguistic situation of the Sisaala languages. The Ethnologue mixes bibliographic materials between each of the four languages, and

in this section it has been my attempt to disambiguate the Sisaala languages. In following sections, I will focus on Western Sisaala by describing its phonological system, including the development of an orthography. I also provide ethnographic and sociolinguistic information about Western Sisaala and briefly detail its morphological system.

3. WESTERN SISAALA

Western Sisaala, or Sisaala, is called [isaalo] by its speakers, who are [sisalas] and belong to the [sisali] tribe. This description represents the dialect known as [busili], which is spoken in Lambussie and in surrounding villages mainly to the north and east in the Upper West Region of Northwestern Ghana (see no. 67 on Map 2 of Appendix A). There are less than 10,000 speakers, the majority of whom are farmers by profession.

3.1 Genetic Affiliation

Genetically, Western Sisaala has been classified as a member of the Western Grusi[9] group of the Gur branch of the Niger-Congo language family (Ethnologue, 2004). Gur languages are spoken in an area including Southern Mali, Northern parts of Côte d'Ivoire, Ghana, Togo, and Benin and throughout Burkina Faso. They also reach into Nigeria and are a very large family of languages with an estimated 5,500,000 speakers (Manessy, 1981). In French, Gur languages are referred to as

[9] Naden (1988) has classified the Sisaala languages into a distinct subbranch of Grusi, which he termed *Southwestern Grusi*.

Voltaic (voltaïque) because of their proximity to the River Volta. The term *Gur* stems from Krause (1895) from language names like Gurunsi, Gurenne, and Gurma. Gur languages are of the North Volta-Congo family of the Atlantic-Congo Subbranch of Niger-Congo languages. The Niger-Congo language phylum is the largest phylum in the world with an estimated 1,436 languages (Grimes, 1996; Heine & Nurse, 2000). It also covers the greatest area of any of the African language phyla, stretching from the Atlantic coast of Western Africa south of the Sahara to the eastern and southern coasts of the Indian Ocean and South Africa. Niger-Congo languages are spoken by at least 360 million Africans; these figures, however, could be largely underestimated (Grimes, 1996; Heine & Nurse, 2000).

In the Northern and Upper Regions of Ghana there are 25 Gur languages, spoken by 2-3 million people (Naden, 1988). There are 10 Western Grusi languages: seven are spoken in Ghana (Chakali [CLI], Deg [MZW], Sisaala Pasaale, Sisaala Tumulung, Western Sisaala, Tampulma [TAM], and Vagla [VAG]), and three

are spoken in Burkina Faso (Winyé [KST], Phuie [PUG], and Sissala) (Ethnologue, 2004). Their family tree is provided in Figure 1 below.

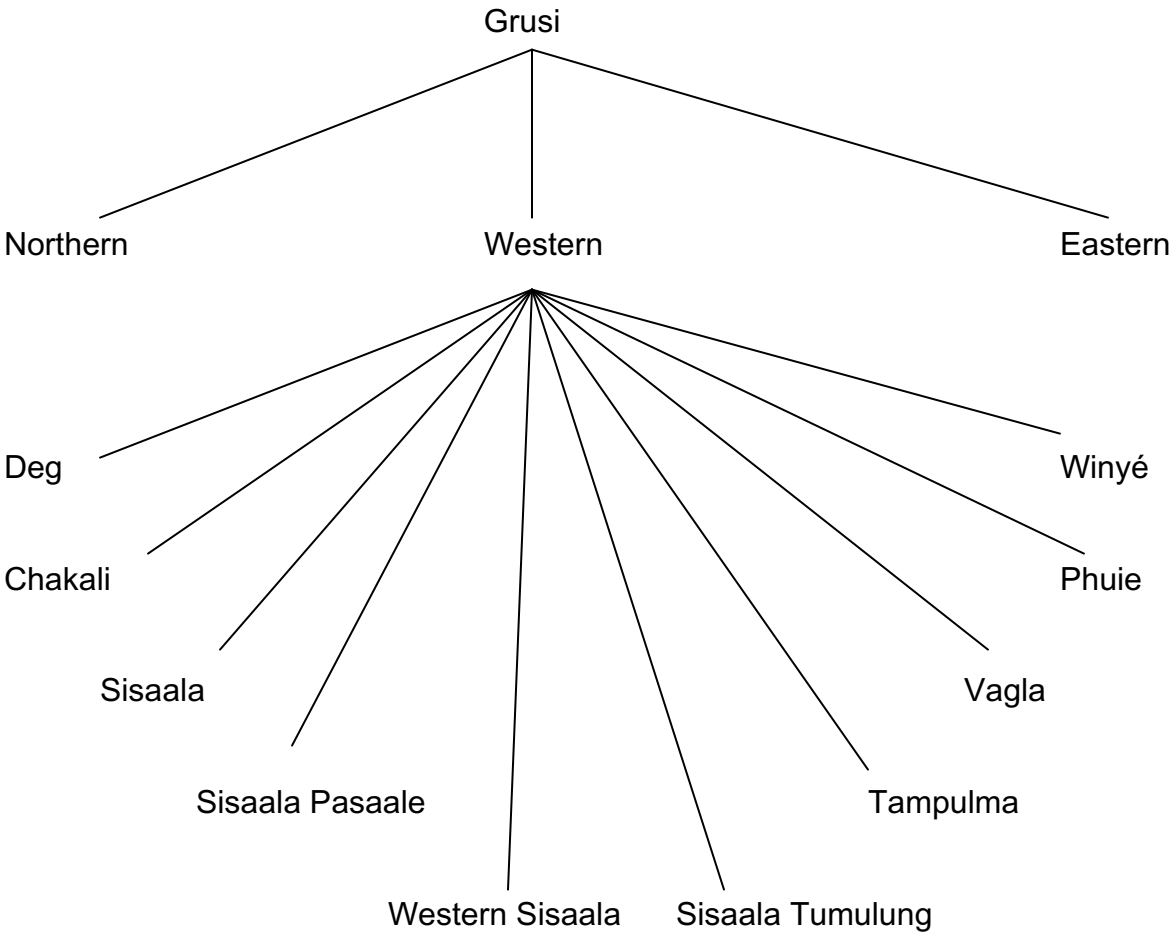

Figure 1. Linguistic lineage of the Western Grusi languages.

Naden (1998) suggested that Sisaala Pasaale, Sisaala Tumulung, and Western Sisaala constitute their own branch of Grusi, what he has termed *Southwestern*

Grusi. This might well be the case; some support comes from the fact that these languages have historically been considered one. At this time however, I know of no research that describes the genetic relatedness of the Grusi languages in detail. More data collection and linguistic analysis is needed before a precise description of the relatedness of these languages is established.

3.2 Previous Research

There is a dichotomy in research materials in Ghana. On the one hand, linguistic descriptions by outsiders are not common for smaller languages, and many languages in these regions still lack a writing system in which speakers can produce their own language materials or descriptions. On the other hand, language materials that are produced by locals in this area of the world are hard to locate. The lack of infrastructure in Ghana makes it extremely difficult to search for academic materials, and linguistic materials published locally are not readily accessible. There are also cases of university-educated individuals' returning to their villages and attempting to take on tasks of language maintenance. This was the case in Lambussie, where

someone tried to help a group of peers to learn to read their language by introducing his knowledge of Sisaala Tumulung, which he had learned to read and write. He apparently held meetings for a period when there was interest in the village. Unfortunately, this person could not be contacted because he had left Lambussie some time before and his whereabouts were unknown. Language interest is also apparent from a short weekly radio broadcast in Western Sisaala by a Western Sisaala speaker. Unfortunately, for many Sisaalas, a radio and batteries to operate it are still a luxury. These difficulties notwithstanding, I have found no previous linguistic materials on Western Sisaala.

3.3 Sociolinguistic Situation

There are few, if any, monolingual Western Sisaala speakers. Interaction is common among Western Sisaala, Dagaare, and Wala speakers; therefore, many Western Sisaala speakers are multilingual in Dagaare and Wale. Also, the privileged who study outside of Lambussie may also acquire Twi, Akan, or Hausa depending on where they live. Multilingual situations are common in markets that

are an integral part of the lives of the Sisaalas. Children are exposed to multilingual environments very early, particularly if they must help in the markets, which serve as a main source of income for many families.

In Western Sisaala, loanwords are predominantly from English, Hausa, and Twi. Most loanwords are words for mechanical or technological items or for fruits and other edibles that are now brought to the Upper West Region from other areas. It should also be noted that although Western Sisaala and Dagaare speakers are in close contact with each other, there seems to be a resistance to adopt Dagaare words into Western Sisaala.

Those who live and grow up in Lambussie learn to speak Western Sisaala as a first language and later learn English and Dagaare in school. English is the official language of Ghana and is taught in schools and is spoken at least functionally by most individuals. In schools in Lambussie and surrounding villages where Sisaalas live, Dagaare is also taught. This is because Dagaare is one of nine government-sponsored languages, and it is densely spoken in this area. Sisaala children are

pressured to learn Dagaare in school because it is one of the official literacy languages of Ghana and a test subject in this area. Students are tested in an array of subjects at a presecondary level, which determines their possibilities for further education. This sociolinguistic situation is unfortunately not conductive to Sisaala-language learning. Because education is seen as the key to a child's future, spending valuable time learning essential testing subjects is preferred to having Western Sisaala taught in schools. The Sisaalas are proud of their language, but for these practical reasons, it is not taught in schools. The deteriorating effects of not having access to Sisaala written materials and of learning other languages in school may be apparent in Western Sisaala's numeral system. Whereas elders and adults report their ability to count up to one million, using Western Sisaala native forms, teenagers' and children's ability to count using native Western Sisaala forms is very small if existent at all. Generally, counting is done in English. Other evidence that supports the decline in the language system includes the use of a nasalized vowel [ẽ] by adults yet its absence in use by children (as in [ẽ] vs. [e] 'to know'). Also, the

use of English in conversation is easily noticeable. (For an example, see the story "Spider and the Chief" in Appendix B.)

3.4 Ethnography

Historically, Sisaalas were farmers, and they inherited their lands from their ancestors. Today approximately 80% of Sisaalas in Lambussie and surrounding areas are farmers by profession, and they are considered to be the largest group of farmers by other ethnic groups in this area. To reach Lambussie, one must head north from Wa toward Jirapa and then further north to Nandom. In 2003, the northernmost paved roads led from Wa to Jirapa, and roads further north from Jirapa were dirt roads. The trip between Wa and Nandom lasts about three hours by truck, and transportation between these areas is rough after passing Jirapa. The roads are potholed, especially during the wet seasons, which makes for very slow driving. Typical transportation entails sitting in the back of a pickup truck or in a van with as many as 16-22 other individuals. About half a mile before Nandom, a dirt road splits to the east. This road leads eastward, and following it for a couple of miles will bring

one to the Lambussie junction. At the junction, another road leads north, and this area, encompassing about a one-mile radius around the junction, is Lambussie. There are no road names or signs in this area.

The Lambussie area is typically a dry, arid land with equatorial dry and wet seasons. The wet season lasts from July until November and is the fertile time for many crops, including rice, groundnuts (peanuts), and other fruits and vegetables. The dry season makes up the rest of the year, with the highest temperatures in April, May, and June. The seasons are somewhat different in Southern Ghana; the dry season ends in late March or April, and the wet season lasts typically from June until October.

3.5 Demography

The majority of Western Sisaala speakers live in Lambussie. Western Sisaala is also spoken in the villages of Korru [korru], Zinni [zinni], Peperimi [peperimi], Nieto [nietɔ], Nietie [nietie]. There is a dialect continuum that spreads from Lambussie, partially to the north but mainly to the east. Each village has its

own dialect, though dialects spoken in surrounding villages are still mutually intelligible with Western Sisaala. For example, the Busiilu [busiilu] of Lambussie speak Busiilu [busiilu], and the Bellaw [bellaw] of Bellaw speak Bellaw or Bellawu [bellawu]. The general language is known as Isaalo [issalo] and is spoken by the Sisali [sisali]. This dialect continuum continues to the east, where it eventually becomes unintelligible to Western Sisaala speakers and becomes Sisaala Tumulung as one nears the village of Tumu. Other villages that also have Sisaala speakers, though they are not the language majority, include Gullu [gullu], Samor [samor], Sukki [sukki], Sinna [sinna], Dende [dɛndæ], Chung [ʧung], Nawie [nawie], Bulli [bulli], Fiellamore [fiɛllamore], Jawie [ʤawie], Puzani [puzæni], Wiiru [wiiru], Bo [bo], Hamale [hamale], Boo [buu], Naballa [naballa], Dahillie [dahɪlli], Pina [pina], Kongwalla [koŋwalla], and Hapa [haapa]. Most of these villages have Dagaate people as well as settlers from other ethnic groups. There are other groups inhabiting areas where Western Sisaala is the majority language, including the

Dagaate, Wala, Fulanis, and Mosi. The Fulanis and Mosi (also known as Moshi) are nomadic peoples who are mainly shepherds of livestock.

Lambussie has schools, a clinic, a few small shops, and a marketplace under development. Though there are electrical poles and lines, there is no power running through them.

3.6 Language Policy in Ghana

Language policy in Ghana is under criticism because of the government's decision to make English the only medium of instruction in schools, particularly at the lower primary level. This policy has met fierce opposition by Non-Government Organizations (NGOs), including the Northern Network for Education Development (Home Page Ghana, 2004). The denial of L1 as a medium of instruction at the primary level is seen by many educators in Ghana as disadvantageous to children, principally those who do not have access to English through English-speaking parents or other means. There seems to be little resistance to English as the official language of communication in Ghana, and the importance of teaching and acquiring

it in secondary schools does not seem to be in question. However, there are numerous studies on the effects of L1 as a medium of instruction in primary schools, which will continue to fuel criticism against the government's language policies (University of Cape Coast, 2003).

Ghana's language policy clearly puts Western Sisaalas at a disadvantage for teaching their language in schools. In Lambussie for instance, English and Dagaare (the largest local language) are the languages taught in schools, not Western Sisaala. This is because English and Dagaare are *testing subjects*, approved by the government as languages for the Lambussie district secondary exams, like Mathematics. Lambussie teachers focus solely on testing subjects because children must do well on their exams to advance to junior schools and universities. Therefore, the denial of L1 as a medium of instruction in schools and the pressure to do well in testing subjects do not foster the use or the development of the language for pedagogical purposes. Because of these factors, it is unlikely that Western

Sisaala will ever be adopted as a subject in Lambussie's schools and, other forms of language maintenance must emerge if its speakers wish to preserve their language.

3.7 Language Maintenance

Despite the language policy in Ghana and it implications on teaching Western Sisaala in schools, there is much interest among its speakers in preserving the language. This means that the Western Sisaalas meet the first of three general factors that seem essential in developing a successful language-maintenance program. The second is that language maintenance and revitalization efforts benefit from having a literary culture. When printed materials and linguistic resources, such as grammars and dictionaries, exist to assist speakers in learning to read and write in their native language(s), these languages seem to have a better chance of survival. Unfortunately, the only written materials in Western Sisaala are those that have been developed through this work. This includes two oral traditions transcribed into the alphabet and the broad transcription of the lexicon collected during field work. The third step in language maintenance for the Western Sisaalas is to develop

reading primers to encourage the acquisition of reading in the language. After speakers begin to read their language, emphasis could shift to writing and developing a written stock of materials. Also, continued linguistic research by linguistically trained native speakers and linguists would provide beneficial language information that would help in the development of more in-depth grammatical materials, such as a grammar and a dictionary.

Chapter 4 of this thesis presents a phonological description of Western Sisaala. While in the field, I used this description to establish a phonemic inventory, which in turn is the basis for Western Sisaala's first alphabetic orthography. These tasks were undertaken while I was in the field, and three stories were collected and transcribed into the alphabet. I then asked Western Sisaala speakers who were literate in English and Dagaare to read these materials. To my surprise, those tested read these stories with ease and, when prompted, children could use the alphabet to spells words in Western Sisaala.

I believe the initial steps in maintaining the language are in place and that with some further development, these steps could be expanded to help preserve the language.

3.8 Conclusion

Whereas section 2 disambiguates the Sisaala languages of Ghana, this section focuses directly on Western Sisaala. I have provided detailed information about Western Sisaala's ethnography and demography and have described its genetic classification and previous research. The sociolinguistic situation of the Sisaalas in Lambussie has been stated, including observations on multilingualism, loanwords, and village dialects. Finally, the position of Western Sisaala in schools and its effects were briefly mentioned. Steps for a language-maintenance initiative through which Sisaalas can begin to develop their own language materials and literary tradition were addressed. The following section provides a phonology of Western Sisaala.

4. PHONOLOGY

This chapter provides a description of the phonological system of Western Sisaala. My aim is to describe Western Sisaala's phonemic inventory and to establish a practical orthography for use by the Sisaalas. I will first generalize the phonology in a section on phonotactics but then proceed to describe in detail the consonant and vowel systems. These sections include charts, and for each phoneme, I provide a description, the environments in which it occurs, allophonic variations (when applicable), and examples. Following the consonant and vowel descriptions, there are sections on Western Sisaala's suprasegmental system, syllable structure, and nasal assimilation, as well as an orthography proposal. This orthography was established in the field and for practical purposes uses a mixture of Roman Latin graphemes and phonetic symbols from the International Phonetic Alphabet (IPA, 1993).

4.1 Phonotactics

There are 23 consonant and 9 vowel phonemes in Western Sisaala. All consonants occur word initially and medially, and nasals may also occur word finally except the voiced bilabial nasal *m* and the voiced palatal nasal *ɲ,* as well as the voiced velar-labial stop *ŋm*. Consonant clusters are limited to consonant stops / b, t, k, g / or the fricative / s /, combined with / r /, a voiced alveolar flap, or / w /, a voiced bilabial approximant. There are eight geminate consonants, including / kk, ss, zz, mm, nn, ŋŋ, ll, rr /, and the voiced and nasal labial-velars / gb, ŋm /. Note that the voiceless counterpart /kb/ does not appear in Western Sisaala, though it is present in other Sisaala languages, including Sisaala Tumulung and Sissala Pasaale.

Western Sisaala has a nine-vowel system: / i, ɪ, e, ɛ, a, u, ʊ, o, ɔ /. Vowel length is phonemic in at least seven vowels, / ii, ee, ɛɛ, aa, uu, oo, ɔɔ /, and there are also numerous vowel diphthongs, as well as two nasalized vowels, / õ, ẽ /. More investigation is needed into the +/- ATR vowel harmony, found in many languages in this area of Ghana but that does not seem to be present in Western Sisaala. Tone

is either high or low and contrasts lexically as well as grammatically. Syllables carry tone and have the structure V, CV(V), CV(V)C. Western Sisaala also has syllabic nasals, and although nasal assimilation has been identified as an allophonic rule in the language, other productive phonological rules are still under investigation.

4.2 Structure of Examples

Throughout this study, all examples are phonemic unless stated otherwise. Tone is marked with acute (for [high]) and grave (for [low]) accents over the vowel. When no tone appears, the form is toneless, and the tonal pattern is all low. Toneless forms are not contrastive. When forms are marked only with low tone, they are lexically or grammatically contrastive with a form with high tone. Examples appear as follows:

Phonemic form (alternations) Gloss (comments) Lexicon Entry Number

4.3 Consonants

Consonants have distinctive features (or distinctive sound properties), such as place of articulation, degree of stricture, or voicing, that differentiate them acoustically from each other. This section examines the consonant phonemes in Western Sisaala (see Table 1) in order of their manner of articulation, and a short introduction is provided for each. Each subsection provides phonemic evidence for its phonetic environments and is ordered by place of articulation.

Western Sisaala has consonants in these manners of articulation: stops, fricatives, affricates, nasals, liquids (lateral and flap), and semivowels. There is also a set of labial-velar consonants that are sometimes considered unusual sounds although they are commonly found in Western Africa. These are discussed in a separate section. In each section, sounds are described in order of their place of articulation. Notes are also provided when relevant, particularly when allophonic variation occurs or when the word has been borrowed.

There are 23 consonant phonemes in Western Sisaala: / p, b, gb, t, d, k, g, f, v, s, z, h, tʃ, dʒ, m, ŋm, n, ɲ, ŋ, l, r, w, y /, shown in Table 1.

Table 1

Consonant Phonemes

	Bilabial	Labial-velar	Labiodental	Alveolar-dental	Palatal	Velar	Glottal
Stops	p b	gb		t d		k g	
Fricatives			f v	s z			h
Affricates				tʃ dʒ			
Nasals	m	ŋm		n	ɲ	ŋ	
Liquids - lateral				l			
Liquids - flap				r			
Semi-vowels	w				y		

4.3.1 Stops

Stops (or occlusives) occur in all of the world's languages (Ladefoged & Maddieson, 1999). They are created by constrictions in the oral cavity at points of articulation that interrupt airflow from the lungs exiting the mouth. Western Sisaala has seven stops: / p, b, t, d, k, g, gb /. Six of these occur across three places of articulation: bilabial, alveolar-dental, and velar. They include three voiced and voiceless pairs: the bilabials / p, b /, the alveolar-dentals / t, d /, and the velars / k, g /. These phonemes occur word initially and medially; none occurs word finally. Western Sisaala also has a dually articulated labial-velar voiced stop, /gb/. It lacks its voiceless counterpart, /kp/, found in Sisaala Tumulung (Rowland & Rowland 1965; GILLBT, 2000).

/p/ voiceless bilabial stop; it occurs in word initial and medial positions; it does not occur in word final position.

(1) **p**arra	'leaves (n)'	739
(2) **p**osa	'animals'	9

(3) **p**úllù 'vein' 1404

(4) ta**p**uma 'ash' 11

(5) bi**p**ole 'baby' 37

(6) nu**p**ona 'hair' (pl) 100

/b/ voiced bilabial stop; it occurs in word initial and medial positions; it does not occur in word final position.

(7) **b**uo 'hole, grave' 104

(8) **b**ɛnnà 'toilet, feces' 1595

(9) **b**aŋŋa 'neck' 136

(10) na**b**ele 'shin' 119

(11) lu**b**i 'intestines' 98

(12) lo**b**iɛ 'intestine' 99

/t/ voiceless alveolar stop; it occurs in word initial and medial positions; it does not occur in word final position.

(13) **t**ɪto 'night' 138

(14)	**t**ɪtowa	'nights'	139
(15)	**t**upá	'leaf'	156
(16)	ni**t**ulhɔ́	'senior sister'	227
(17)	ni**t**uhiɛnse	'senior sisters'	228
(18)	ni**t**ulbie	'junior sister'	229

/d/ voiced alveolar stop; it occurs in word initial and medial positions; it does not occur in word final position.

(19)	**d**aboɔ	'stones'	1444
(20)	**d**ɛnkɛ́nna	'skin'	246
(21)	**d**i	'to eat, to win'	340
(22)	mo**d**õn	'one'	540
(23)	me**d**ili	'food'	665
(24)	ba**d**ɛsse	'tall man'	773

/k/ voiceless velar stop; it occurs in word initial and medial positions; it does not occur in word final position.

(25)	**k**a	'and'	1112
(26)	**k**ɛnne	'books'	778
(27)	**k**o	'come'	1044
(28)	me**k**arra	'witch'	1098
(29)	kɛn**k**an	'often'	973
(30)	su**k**ul	'school' (<English 'school')	785

/g/ voiced velar stop; it occurs in word initial and medial positions; it does not occur in word final position.

(31)	**g**a	'steal'	1275
(32)	**g**arra	'thief'	1276
(33)	**g**ɪrra	'bush'	1582
(34)	**g**o	'to dance'	309
(35)	va**g**ɪrru	'bracelets'	1436
(36)	nɛ**g**utuksi	'elbows'	1388
(37)	go**g**ɔnse	'rags'	1540

4.3.2 Fricatives

Whereas stops interrupt airflow, fricatives generate acoustic turbulence by narrowly constricting air flow that exits the lungs through the mouth. This creates sounds that can generally be held for the duration of air's being expelled. There are five phonemic fricatives in Western Sisaala: / f, v, s, z, h /. These occur across three places of articulation: labiodental, alveolar-dental, and glottal. They include two voiced and voiceless pairs: the labiodentals /f, v/ and alveolar-dentals /s, z/. The labiodentals and alveolar-dentals occur word initially and medially; they do not occur word finally. Though laryngeals such as [h] are sometimes treated as approximants, /h/ is treated as a fricative in this study (Kenstowicz, 1999). The voiceless fricative /h/ occurs word initially and medially. When considering dorsal, laryngeal, and pharyngeal consonants, Clements (2000, p. 123) remarked, "Most African languages also have laryngeal sounds such as the glottal stop /ʔ/, the voiceless aspirate /h/, or the voiced aspirate /ɦ/, though the latter two rarely contrast." Indeed, this is the case in Western Sisaala, in which /ɦ/ is an allophone of /h/ and surfaces intervocalically in

noncompounds. It occurs as /h/ word medially and intervocalically when morpheme initial in compound words.

/f/ voiceless labiodental fricative; it occurs in word initial and medial positions; it does not occur in word final position.

(38)	**f**ila	'flower'	75
(39)	**f**ɪrɛ	'whip'	1252
(40)	**f**oli	'foreigner'	849
(41)	kɛn**f**iɛnna ɲa	'the red book'	779

/v/ voiced labiodental fricative; it occurs in word initial and medial positions; it does not occur in word final position.

(42)	**v**oti	'vote (v)' (<English 'vote')	1199
(43)	**v**avala	'walker'	1226
(44)	**v**ɪlle	'whips'	1251
(45)	vo**v**otú	'voter, voters'	1204
(46)	vun**v**uo	'wasp'	2442

(47) vun**v**urra 'wasps' 2443

(48) baa**v**oka 'soothsayers, sorcerers' 2615

/s/ voiceless alveolar-dental fricative; it occurs in word initial and medial positions; it does not occur in word final position.

(49) **s**iiyɛ 'eyes' 1149

(50) **s**owɔ 'death' 1477

(51) **s**ɔre 'frogs' 1102

(52) tobi**s**i 'girls' 180

(53) tá**s**è 'bowl' 1325

(54) ʧan**s**e 'moons, months' 129

/z/ voiced alveolar-dental fricative; it occurs in word initial and medial positions; it does not occur in word final position.

(55) **z**olo 'one hundred' 570

(56) **z**iponná 'feather of fowl' (rooster or hen) 362

(57) **z**uku 'thick' 1298

(58)	mu**z**eno	'big'	81
(59)	kɛn**z**ɪnfiɛnna	'big red book'	783
(60)	kɛn**z**ɪnde	'big long book'	784
(61)	ka**z**ɛkka	'tick'	2458
(62)	ka**z**ɛká	'ticks'	2459
(63)	hɛ**z**oo	'ant hills'	2441

/h/ voiceless glottal fricative; it occurs in word initial and medial positions; it does not occur in word final position.

(64)	**h**aale	'a woman'	1082
(65)	**h**adɛnsé	'roof tops'	1352
(66)	**h**arra	'back'	12
(67)	**h**ará	'backs'	13
(68)	**h**e	'write'	1451
(69)	**h**ɔɔ	'metal'	1542

/h/ occurs allophonically as [ɦ] in word medial intervocalic environments except when morpheme initial in compound words, as in (78)-(81).

(70)	[mo**ɦ**ó]	'bitter'	2739
	/mo**h**ó/		
(71)	[o ka me**ɦ**o]	'it's bitter'	2740
	/o ka me**h**o/		
	it is bitter		
(72)	[na**ɦ**ine]	'thigh'	1376
	/na**h**ine/		
(73)	[na**ɦ**uo]	'thighs'	1378
	/na**h**uo/		
(74)	[nɛ**ɦ**iie]	'arm' (between shoulder and elbow)	1390
	/nɛ**h**iie/		
(75)	[nɛ**ɦ**ie]	'arms' (between shoulder and elbow)	1391
	/nɛ**h**ie/		

(76)	[bu**ɦ**unsi]	'gnats'	2429
	/bu**h**unsi/		
(77)	dɪ**h**alle	'fried soup, stew'	738
(78)	zi**h**alla	'fowl egg'	54
	zinu+halla		
	fowl+egg		
(79)	zi**h**aála	'fowl eggs'	55
	zinu+haála		
	fowl+eggs		
(80)	su**h**alla	'Guinea fowl egg'	56
	suwu+halla		
	Guinea fowl+egg		
(81)	su**h**aala	'Guinea fowl eggs'	57
	suwu+haala		
	Guinea fowl+eggs		

4.3.3 Affricates

Affricates are stops that are released into a fricative. As is the case with some sounds, their acoustic boundaries are not clear cut. The area where the stop is released and the fricative's flow begins is often cloudy. There are two alveo-palatal affricates in Western Sisaala, the voiceless and voiced pair /ʧ, ʤ/. They occur word initially and word medially but do not occur word finally. The voiceless postalveolar fricative /ʃ/ is an allophone of the voiceless alveo-palatal affricate /ʧ/ and optionally appears word initially in some words.

/ʧ/ voiceless alveo-palatal affricate; it occurs in word initial and medial positions; it does not occur in word final position.

(82)	ʧaana	'local guitar, local lamp'	891
(83)	ʧollu	'love, like'	1256
(84)	ʧuni	'rabbits'	530
(85)	váʧò	'shoulder'	1391
(86)	neʧuo	'hat'	1323

(87) wɔʧe 'watch' 1433

The phoneme /ʧ/ occurs allophonically as [ʃ] in optional word initial environments.

(88) [ʃiye] ~ [ʧiye] 'tomorrow' 1051

(89) [ʃiyetulaŋ] ~ [ʧiyetulaŋ] 'day after tomorrow' (lit. 'tomorrow next')

[ʃiye+tulaŋ] ~ [ʧiye+tulaŋ] 1053

tomorrow+next

/ʤ/ voiced alveo-palatal affricate; it occurs in word initial and medial positions; it does not occur in word final position.

(90) ʤa 'house' 508

(91) ʤapan 'Japan' (<English 'Japan') 982

(92) ʤise 'houses' 509

(93) ʤiʤaka 'chair' 1321

(94) ʤúʤú 'tarantula' 2456

(95) ʤuʤuwa 'tarantulas' 2457

4.3.4 Nasals

Nasals have an outward flow of air through the nasal passage because the velum is lowered, causing a closure in front of the velic opening in the oral cavity. There are no fricative nasals, but because air flows uninterruptedly through a constriction not narrow enough to cause turbulence, nasals are similar to approximants (Ladefoged & Maddieson, 1999). Nasals use the articulatory positions of stops but to a limited degree because the closure that causes pulmonic air to pass into the nasal cavity happens at the point that allows maximally uvular sounds. As noted by the IPA, pharyngeal and glottal nasals are articulations judged humanly impossible, indicated by shaded areas in the International Phonetic Alphabet (IPA).

Western Sisaala has five nasals occurring across four places of articulation: bilabial /m/, dental /n/, palatal /ɲ/, and velar /ŋ/. The labial-velar nasal /ŋm/ is also phonemically present in Western Sisaala. All nasals occur word initially and medially, but only /m, n, ŋ/ occur word finally, yet to different degrees. The phoneme /m/ has only been shown to occur word finally in the loanword /brum/ 'blue' from

English 'blue.' However, /n/ and /ŋ/ occur commonly word finally. Nasals are also syllabic in Western Sisaala, which is very productive, as in *n*, the first person singular pronoun, which may assimilate to the place of articulation of the following word initial phoneme of the verb. Example (96) illustrates this, as well as nasal assimilation of first person singular accusative pronoun, also *n*:

(96)	ŋ	kiɛrɛn	m	mukilu	duo
	1SG	sit	1SG.OBJ	butt	LOC
	I	sit	my	butt	on.top

'I sit on my buttocks'

/m/ voiced bilabial nasal; it occurs in word initial, medial, and final positions.

(97)	**m**awa	'mothers'	131
(98)	**m**olla	'under, anus'	1122
(99)	**m**ukilu	'buttocks'	1123
(100)	a**m**o	'tomato, tomatoes'	2150
(101)	na**m**iie	'meat'	1362

(102)	na**m**ballo	'hunter'	524
(103)	bru**m**	'blue' (<English 'blue')	845
(104)	aba**m** ma	'me too' (lit. 'and me')	830
	[aba ma]		

/n/ voiced alveolar nasal; it occurs in word initial, medial, and final positions.

(105)	**n**á	'leg'	1378
(106)	**n**uɔ	'mouth'	1151
(107)	**n**inno	'fire, light'	71
(108)	pi**n**i	'tadpole'	2392
(109)	tie**n**e	'lands'	728
(110)	mimi**n**i	'black ant' (carpenter ants)	2434
(111)	modõ**n**	'one'	540
(112)	sɪnka**n**	'groundnuts' (peanuts)	198
(113)	ondõ**n**	'even, just one'	699

/ɲ/ voiced palatal nasal; it occurs in word initial and medial positions; it does not occur in word final position.

(114)	**ɲ**a	'the'	157
(115)	**ɲ**ɔ	'grass'	2122
(116)	**ɲ**unŋa	'toad'	2388
(117)	ba**ɲ**ina	'old'	1021
(118)	tɔ**ɲ**uo	'west'	1612
(119)	o wa**ɲ**iie	'he/she/it swims'	912
	3SG wa-**ɲ**iie		
	he swims-water	'he swims'	

/ŋ/ voiced velar nasal; it occurs in word initial, medial, and final positions.

(120)	**ŋ**ufállá	'cup'	1341
(121)	**ŋ**úfállè	'cups'	1343
(122)	ba**ŋ**ŋa	'neck'	136
(123)	ba**ŋ**e	'necks'	137

(124)	haŋbɛlɛ	'bone'	27
(125)	neŋala	'somebody'	1463
(126)	tulaŋ	'not there'	695
(127)	aŋ	'who?'	275
(128)	dɔlloŋ	'light' (in weight)	2825
(129)	nálaŋ	'bright'	2663

4.3.5 Approximants

This section addresses Western Sisaala's approximants. Approximants have nonturbulent airflow and include the liquids /l/ and /r/ and the glides /w/ and /y/ (Kenstowicz, 1994). However, traditional phonetic classification, as pointed out by Ladefoged and Maddieson (1999),

> has often set up a category of sounds known as semi-vowels. These are vowel-like segments that function as consonants, such as *w* and *j*. These sounds have also been termed 'glides,' based on the idea that they invoke a quick movement from a high vowel position to a lower vowel. This term, and

> this characterization of the nature of these sounds is inappropriate; as with other consonants they can occur geminated, for example in Marshallese, Sierra Miwok and Tashlhiyt. (p. 322)

Therefore, I make a distinction between Western Sisaala's approximant phonemes: liquids, including the voiced alveolar-dental lateral /l/ and the voiced alveolar-dental flap /r/; and semi-vowels, /w/, a voiced bilabial approximant, and /y/, a voiced palatal approximant. In this study, the symbol /y/ is used instead of /j/ as the voiced palatal approximant.

Maddieson stated that "most lateral segments in the world's language are made with an occlusion in the dental / alveolar region" (1984a, p. 123). This is the case in Western Sisaala, and there may be phonetic-level distinction of /l/ according to succeeding vowels. The phoneme /l/ may be more dental when preceding front vowels, alveolar-dental preceding central vowels, and alveolar when preceding back vowels. Unlike /r/, which occurs only word medially (except for the ideophone [sir] 'silent'), the phoneme /l/ occurs word initially and medially.

All approximants in Western Sisaala are nonsyllabic. Maddieson stated, "Of the world's languages 85 percent have the palatal approximant j and 76 percent the labial-velar approximant w" (1984a, p. 123). Western Sisaala's phonemic inventory includes both of these sounds, and each occurs word initially and medially.

/l/ voiced alveolar-dental lateral; it occurs in word initial and medial positions; it does not occur in word final position.

(130)	**l**obiɛ	'intestine'	99
(131)	**l**ubi	'intestines'	98
(132)	**l**ʊki	'lucky' (<English 'lucky')	816
(133)	pa**l**e	'mountains, hills'	1574
(134)	medi**l**i	'food'	665
(135)	onto**l**oto**l**o	'warm'	890

/r/ voiced alveolar-dental flap; it occurs in word medial positions; it does not occur in word initial or final positions.

(136)	butu**r**u	'three'	542

(137) nalu**r**í 'root' 215

(138) ʧu**r**i 'eight' 547

(139) kuo**r**owa 'chiefs' 661

(140) pat**r**u 'petrol' (<English 'petrol') 2701

The phoneme /r/ as found in the data only occurs once word finally in the ideophone for 'silent':

(141) [o ka sɪ**r**r] 'it's dead silent' 2688

he is silent

/w/ voiced bilabial approximant; it occurs in word initial and medial positions; it does not occur in word final position.

(142) **w**ie 'tense' 898

(143) **w**olle 'day before yesterday' 1037

(144) **w**u 'all' 1047

(145) na**w**ollɛ 'spider' 1439

(146) nandu**w**o 'friend' 817

(147) ana**w**a 'fathers' 66

/y/ voiced palatal approximant; it occurs in word initial and medial positions; it does not occur in word final position.

(148) **y**ɛ 'sing' 1451

(149) **y**ukse 'lose' 3015

(150) **y**uo, **y**uu 'funeral' 1927

(151) on**y**ɛlla 'seller' 1269

(152) ah**y**i 'no' 694

(153) nɔbu**y**ɛ 'rock' 1576

(154) goi**y**aŋ 'guava' (<Unknown source) 2138

4.3.6 Labial-Velars

The Western Sisaala phonemic inventory includes the voiced labial-velar stop /gb/ and the labial-velar nasal /ŋm/. Ladefoged and Maddieson noted, "Doubly-articulated stops and nasals have duration comparable to those of stops and nasals with single articulations. This is an important factor in their recognition as single

sounds" (1999, p. 333). Consonant clusters, on the other hand, have duration times of twice that of dually articulated stops. This time may shorten to one and a half the time of dual articulations "Clusters typically have from one and a half to two times the duration of single segments of comparable type, even when their articulations partially overlap in time, as would usually be the case for stop sequences in English in words such as 'actor' or 'aptly'" (Ladefoged & Maddieson, 1999, p. 123). The dual-articulated phonemes /gb/ and /ŋm/ in Western Sisaala are acoustically perceivable in the order of their transcription; that is, in all occurrences the velar release precedes that of the labial. Ladefoged and Maddieson stated,

> However, in a great majority of cases the complex nature of labial-velar articulation is clearly detectable by auditory/acoustic means. In the majority of intervocalic labial-velar stops we have heard, the dominant auditor impression of the transition from preceding vowel to stop is of a velar closure, while the dominant auditory impression of the transition from stop to following vowel is of a labial release. (We do not think it is an accident that these sounds are

normally transcribed as /kp/, /gp/, rather than /pk/, /bg/). The impression is that the velar articulation leads the labial one by a brief time, and is released shortly before the labial one too, so that the labial characteristics denominate the release. (1999, p. 333)

In Western Sisaala both /gb/ and /ŋm/ occur word initially and medially but not finally. The phoneme /kp/, a voiceless labial-velar stop that is present in Sisaala Tumulung and other languages in this area of Ghana, including Dagaare, is not present in Western Sisaala. Historically it may have been present in Proto-Sisaala, but today it is not found in any Western Sisaala lexical items. More investigation is needed to establish the Proto-Sisaala phonemic inventory.

/gb/ voiced labial-velar stop; it occurs in word initial and medial positions; it does not occur in word final position.

(155)	**gb**ɛnu	'to grow lean, to slim down'	1131
(156)	**gb**ele	'to play'	604
(157)	**gb**anná	'evening'	5

(158) na**gb**élí 'shin' 1374

(159) na**gb**elli 'shins' 1375

/ŋm/ voiced labial-velar nasal; it occurs in word initial and medial positions; it does not occur in word final position.

(160) **ŋm**ánɛ̀ 'to complain' 1128

(161) **ŋm**áná 'okras' 1126

(162) **ŋm**ánnà 'okra' 1127

(163) **ŋm**owe 'beat' 1454

(164) m bo**ŋm**ɛnna nɛ 'I am traveling' 979

1SG travel PROG

(165) o ko**ŋm-**o ti 'he cut himself' 1059

3SG cut-3SG.OBJ REFL

4.3.7 Geminate Consonants

There are eight geminate consonants that occur across syllable boundaries: / kk, ss, zz, mm, nn, ŋŋ, ll, rr /. The data do not support the occurrence of other

double consonants such as / pp, bb, gbgb, tt, dd, gg, ff, vv, hh, ttʃ, ddʒ, ŋmŋm, ɲɲ, ww, yy /. Occurrences of /ll/ and /rr/ are most common in the data. Geminate consonants in Western Sisaala also mark at least two noun classes. In many cases, the geminate consonant occurs in the singular form of a noun, whereas the simple consonant occurs in the plural form. Compare (166) vs. (167), (168) vs. (169), (173) vs. (174), (179) vs. (180), (181) vs. (182), (183) vs. (184), (185) vs. (186), (188) vs. (189), (190) vs. (191), (192) vs. (193), (194) vs. (195), (196) vs. (197), and (198) vs. (199).

/kk/

(166)	kazɛ**kk**a	'tick'	2458
vs.			
(167)	kazɛ**k**á	'ticks'	2459
(168)	vítɛ́**kk**é	'large earthen pot for cooking'	1330
vs.			
(169)	vítɛ̀**k**si	'large earthen pots for cooking'	1331

/ss/

(170) nɛ**ss**e 'fight' 410

(171) nɛ**s**e 'arm' 411

(172) kɛ́**ss**à 'cough' 2570

/zz/

(173) hɛ**zz**o 'ant hill' 2440

vs.

(174) hɛ**z**oo 'ant hills' 2441

/mm/

(175) o zi**mm**o 'it is thick/heavy' 2894

3SG thick/heavy

vs.

(176) o zi**m-**ó 'it was heavy' 2828

3SG think/heavy-PST

(177) dɛ**mm**alu 'leech' 2461

(178) bu**mm**a 'fly' 2427

/nn/

(179) nupó**nn**a 'hair' (sg) 101

vs.

(180) nupo**n**a 'hair' (pl) 100

(181) ŋmá**nn**à 'okra' 1127

vs.

(182) ŋmá**n**á 'okras' 1126

/ŋŋ/

(183) ba**ŋŋ**a 'neck' 136

vs.

(184) ba**ŋ**e 'necks' 137

(185) koŋko**ŋŋ**o 'coconut' 2204

vs.

(186) koŋko**ŋ**sé 'coconuts' 2205

(187) gɔ**ŋŋ**o 'guinea corn(s)' 2151

/ll/

(188) pú**ll**ù 'vein' 1404

vs.

(189) pú**l**ú 'veins' 1403

(190) wumpu**ll**i 'fields, open places' 1602

vs.

(191) wumpu**l**i 'field, open place' 1601

(192) dendu**ll**u 'caterpillar' 2419

vs.

(193) dendu**l**ú 'caterpillars' 2420

/rr/

(194) vagɪ**rr**u 'bracelets' 1436

vs.

(195) vagɪ**r**u 'bracelet' 1435

(196) meka**rr**a 'witch' 1099

vs.

(197) mekár**r**á 'witches' 1100

(198) hɔ**rr**o 'flea' 2415

vs.

(199) hɔ**r**ó 'fleas' 2416

4.3.8 Consonant Clusters

Consonant clusters in Western Sisaala are restricted to combinations of consonants (stops /b, t, k, g/ or the fricative /s/) and the semi-vowel /w/ or of consonants and the liquid flap /r/. These combinations are also very restricted in their occurrence. Both /tr/ and /br/ have been shown to occur in one loan word each in a lexicon of over 3000 entries. The semi-vowel /w/ also occurs rarely in the lexicon when in consonant clusters with /k/, /g/, or /s/.

/tr/

(200) pa**tr**u 'petrol' (<English 'petrol') 2701

(201) o sɔ pa**tr**u 'he smells of petrol' 2702

3SG smells petrol

/br/

(202) a**br**obe 'pineapple' (<Ashanti 'abrobe') 2208

/kw/

(203) **kw**ɔ́lɛ́ 'noise' 2680

(204) hambisi ɲa kɔ **kw**ɔlɛ̀ 'the children are making noise' 2682

children DET is noise

(205) daŋ**kw**alla 'mushroom' 2124

(206) daŋ**kw**aala 'mushrooms' 2125

/gw/

(207) **gw**ala ɲa 'the dance' 1156

(208) o sɪ go **gw**ala 'he will dance the dance' 1164

3SG FUT dance(v) dance(n)

(209) lin**gw**aana 'Adam's apple' (body part, singular) 2263

(210) lin**gw**aná 'Adam's apples' (body part, plural) 2264

/sw/

(211) **sw**are 'to rot' 618

(212) o **sw**aro 'it rots' 620

it rots

(213) **sw**ana bio 'ripe fruit' 191

fruit ripe

4.4 Vowels

Vowels are sounds without major strictures in the vocal tract. Their distinctive features are created by the tongue-body position and the shape of the lips. These dimensions are categorized by height, backness, and rounding. A vowel's height is defined as high, mid, or low, and its backness is defined as front, central, or back. These properties of the tongue body are relative to a traditionally defined neutral point in which the vocal folds are in their voiced position, the velum is raised, and the tongue is in a mid front position. Rounding refers to a binary distinction between the

lips being or not being in a rounded position as air flows out of the mouth. As is often the case with distinguishing exact borders, the lines between consonants, semivowels, and vowels are blurry. Semivowels such as /w/ and /y/, like vowels, do not have obstructions in the vocal tract; however, they are not syllabic. Therefore, vowels are sounds without major strictures in the vocal tract, and they are syllabic.

Five-, seven-, and nine-vowel systems are widely found in Africa. Particular to Niger-Congo languages are seven- and nine-vowel systems. Also characteristic of non-Bantu Niger Congo languages is a system of vowel harmony. This section will describe Western Sisaala's vowel system and describes phonological processes in the language, such as nasalization and vowel harmony.

Western Sisaala has a nine-vowel system in which all vowel phonemes / i, ɪ, e, ɛ, a, u, ʊ, o, ɔ / are voiced. Vowel length is phonemic in / ii, ee, ɛɛ, aa, uu, oo, ɔɔ /. Vowels also occur as monosyllabic forms in the pronominal system /e/ 'you', the second person singular pronoun; /o/ 'he,' 'she,' or 'it,' the third person singular

pronoun; /a/ 'we,' the first person plural pronoun; and / é / 'you all,' the second person plural pronoun.

Western Sisaala's vowels are illustrated in the vocalic chart in Table 2. Evidence is then provided for front vowels, Western Sisaala's central vowel, and, finally, back vowels.

Table 2

Vowel Chart

	front	central	back
high	i ii		u uu ʊ
	ɪ		o oo
mid	e ee		ɔ ɔɔ
	ɛ ɛɛ		
low		a aa	

4.4.1 Front Vowels

Western Sisaala has four front vowels: / i, ɪ, e, ɛ /. The phonemes / i, e, ɪ / occur word initially, medially, and finally. The phoneme /ɛ/ occurs word medially and finally but not word initially. The phoneme /e/ also occurs singularly as the second person singular personal pronoun 'you' and as the genitive second person pronoun clitic 'your.'

/i/ high front unrounded tense vowel; it occurs in word initial, medial, and final positions.

(214)	**i**saalo	'Sisaala language'	2967
(215)	n**i**nno	'fire, light'	71
(216)	mab**i**si	'step mothers'	178
(217)	med**i**li	'food'	665
(218)	w**i**	'cry (v)'	1518
(219)	wumpull**i**	'flat'	2892
(220)	dɛrr**í**	'shallow'	2882

/ɪ/ high front unrounded lax vowel; it occurs in word initial, medial, and final positions.

(221)	**ɪ**lla	'milk' (general term)	1121
(222)	d**ɪ**se	'soup'	733
(223)	bánfj**ɪ**lè	'chests'	1394
(224)	t**ɪ**to	'night'	863
(225)	p**ɪ**nno	'sleep'	1550
(226)	s**ɪ**	FUT marker (also 'said')	1811

/e/ mid front unrounded tense vowel; it occurs in word initial, medial, and final positions.

(227)	**e**	2SG, 2PL.POSS	335
(228)	**é**	2PL, 2PL.POSS	241
(229)	**e**nɛ	'you'	321
(230)	m**e**dé	'tall'	987
(231)	gbar**e**he	'to gather something'	360

(232) nagb**é**lí 'shin' 1374

(233) bap**e** 'seven' 546

(234) dɪs**e** 'soup' 733

(235) kokor**é** 'jungles' 1600

/ɛ/ mid front unrounded lax vowel; it occurs in word initial, medial, and final positions.

(236) h**ɛ**lla 'sand' 1466

(237) n**ɛ**nna 'somebody' 1464

(238) t**ɛ**nna 'soil' 1465

(239) y**ɛ** 'sing' 1450

(240) sɪm**ɛ** 'know' 2944

(241) nɛm**ɛ** 'nine' 548

4.4.2 Central Vowels

Western Sisaala has one central vowel, /a/. It can occur in all positions and occurs alone as 'we', the first person plural personal pronoun, or as the first person plural genitive clitic 'our'.

/a/ low central unrounded vowel; it occurs in word initial, medial, and final positions.

(242)	**a**	'we'	240
(243)	**a**ŋ	'who'	275
(244)	**a**nawa	'fathers'	66
(245)	m**a**ke	'learn, teach'	2969
(246)	b**a**rre	'grow'	956
(247)	n**á**tàsúsé	'shoes'	1420
(248)	g**a**	'steal'	1275
(249)	dɛnn**a**	'body'	1016
(250)	kuorow**a**	'chiefs'	661

4.4.3 Back Vowels

Western Sisaala has four back vowels: /u, ʊ, o, ɔ/. The phonemes /o, ɔ/ occur in all positions, and /o/ occurs by itself as the third person singular personal pronoun 'he, she, it' and as the third person singular genitive pronoun clitic 'his, hers, its'. Phonemes /u, ʊ/ occur word medially and finally; they do not occur word initially.

/u/ high back rounded tense vowel; it occurs in word medial and final positions; it does not occur in word initial position.

(251)	t**u**wo	'tree'	1117
(252)	sɔk**u**si	'walls'	1357
(253)	vɛl**u**	'wells' (drinking wells)	106
(254)	w**u**	'all'	1047
(255)	bin**u**	'darkness'	858
(256)	zinn**u**	'fowl'	1138

/ʊ/ high back unrounded open lax vowel; it occurs in word medial and final positions; it does not occur in word initial position.

(257)	b**ʊ**ɔ	'cave'	1605
(258)	b**ʊ**se	'mosquitoes'	1339
(259)	waw**ʊ**lɛnɛrɛ	'spider'	1441
(260)	bab**ʊ**	'six'	545
(261)	gʊd**ʊ**	'bed'	811
(262)	pɔnn**ʊ**	'burn'	2032

/o/ mid back rounded close tense vowel; it occurs in word initial, medial, and final positions.

(263)	**o**	'3SG, yes'	692
(264)	**o**nlonna	'hot'	888
(265)	**o**nfiɛnna	'red, ripe, violet, orange'	844
(266)	b**o**ne	'goats'	429
(267)	ninn**o**wa	'fires, lights'	72
(268)	k**ó**llà	't.z.' (local dish)	1333
(269)	m**o**	'go'	423

(270) gogɔs**o** 'rag' 1539

(271) porr**o** 'soft' 2764

/ɔ/ mid central back rounded lax vowel; it occurs in word initial, medial, and final positions.

(272) **ɔ**se 'sacrifice (v)' 1289

(273) **ɔ**nno 'monkey' 531

(274) ɔ́ntúrù 'writer' 1468

(275) t**ɔ**mo 'beards' 1410

(276) n**ɔ**buɔ 'rocks' 1576

(277) s**ɔ**rro 'frog' 1101

(278) ɲ**ɔ** 'grass' 2122

(279) hɔl**ɔ** 'charcoals' 2023

(280) sow**ɔ** 'death' 1477

4.4.4 Vowel Length

Vowel length in Western Sisaala is phonemic and occurs in seven vowels: / ii, ee, ɛɛ, aa, uu, oo, ɔɔ /. There is no phonetic evidence to support long vowels for the two phonemes / ɪɪ, ʊʊ /.

/ii/ high front unrounded tense long vowel; it occurs in word medial position; it does not occur in word initial or final position.

(281) p**ii**́e 'yam' 195

vs.

(282) p**i**é 'yams' 196

/ee/ mid front unrounded tense long vowel; it occurs in word initial position; it does not occur in word medial or final positions.

(283) **ee**la 'breast, mother's milk' 2320

vs.

(284) **e**la 'breasts, mother's milks' 2321

/εε/ mid front unrounded lax vowel; it occurs in word initial, medial, and final positions.

(285) ok**εε**le 'small monkeys' (unknown variety) 2349

vs.

(286) ok**ɛ**lle 'small monkey' (unknown variety) 2348

/oo/ mid back rounded close tense long vowel; it occurs in word final position; it does not occur in word initial or medial positions.

(287) híns**oó** 'lived, breathed' 595

vs.

(288) híns**o** 'life, breath' 594

/uu/ high back rounded tense long vowel; it occurs in word initial, medial, and final positions.

(289) **uu**lu 'navel' 2322

vs.

(290) **u**lu 'navels' 2323

(291) ɔnt**uu**ru 'writers' 1469

vs.

(292) ɔ́nt**ú**rù 'writer' 1468

(293) pins**uu** 'sheep' (plural) 2091

vs.

(294) pins**u** 'sheep' (singular) 2090

(295) y**uu**, y**u**o 'funeral' 1927

vs.

(296) y**u** 'dip' 1928

/ɔɔ/ mid central back rounded lax vowel; it occurs in word final position; it does not occur in word initial or medial positions.

(297) b**ɔɔ** 'grassland' 1603

vs.

(298) b**ɔ** 'take' 1453

/aa/ low central unrounded long vowel; it occurs in word medial and final positions; it does not occur in word initial position.

(299)	n**aa**se	'fight (v)'	835

vs.

(300)	n**a**se	'legs'	1380
(301)	ʧ**aa**na	'local guitar, local lamp'	891

vs.

(302)	ʧ**a**ná	'moon, months'	892
(303)	f**aa**	PASSIVE	661

vs.

(304)	f**a**	'run'	288

4.4.5 Vowel Diphthongs

Whereas long vowels are segments of the same two vowels, diphthongs are segments of two contrasting vowels. Constraints for all diphthongs have not been established. Some diphthongs in Western Sisaala follow:

/ie/

(305) katawie 'umbrella' (<Twi 'katawie') 1336

/io/

(306) wio 'in pain' 3092

/iɛ/

(307) fiɛllo 'moist, damp, wet, cold' 1871

/iu/

(308) n fiu 'I ran' 921

1SG ran

/ia/

(309) atia 'cashew' 2126

/eo/

(310) n neo 'I saw it' 2628

1SG ne-o

I saw-3SG

/oɔ/

(311) bom**oɔ** 'five' 544

/aj/

(312) b**aj**sɪksi 'bicycles' 1272

/uo/

(313) f**ùó** 'sore' 2576

/uɔ/

(314) d**uɔ** 'high, on top' 2890

/ua/

(315) l**ua**rra 'medicine man' 2612

/oi/

(316) m**oi**wa 'rice, rices' 2200

/ou/

(317) p**ou** 'wind' 1866

/ʊɔ/

(318) dabʊɔ 'mound built for cooking from stones' 2028

4.4.6 Nasalized Vowels

Nasalized vowels are both allophonic and, in at least one occurrence, phonemic in Western Sisaala. However this distinction is being lost in the speech of young speakers as are a number of other features of the language. Remnants of phonemic nasalized vowels are clear in the case of /ẽ/ although its use is in sharp decline.

Clements noted that phonemic nasality "is widely found in non-Bantu Niger Congo languages" (Heine & Nurse, 2000, p. 138). Most vowel systems have an incomplete complement set of nasal vowels, although some have complete sets. Citing Williamson (1973), Clements stated, "Commonly missing are the upper or [+ATR] mid vowels [ẽ õ], while the peripheral vowels [ĩ ũ ã] are usually, though not always, present" (Heine & Nurse, 2000, p. 138). The case seems to be the opposite

in Western Sisaala, where /õ, ẽ/ are phonemic, appearing in the noun 'cow' and the verb 'to know.'

(319)	nõ	'cow'	426
(320)	e no	'you see'	420
	3SG see		
(321)	õ	'know'	2949
(322)	o	'3SG, yes'	692
(323)	n õ ŋmɛnna	'I know the road'	2947
	1SG know road		
(324)	ẽ	'know'	2950
(325)	e	2SG, 2PL	335
(326)	n ẽ ŋmɛnna	'I know the road'	2948
	1SG know road		

4.5 Suprasegmentals

Previous sections have analyzed the consonant and vocalic systems of Western Sisaala's segmental phonology. This section describes the suprasegmental features utilized in the language. This will include tone and intonation.

4.5.1 Tone

Tone is a linguistic term that refers to distinguishable differences in pitch that cause lexical or grammatical differences in meaning. Phonetically, fundamental frequency (F0) is the rate at which the vocal cords vibrate per second, measured in Hertz (cycles per second). The rate at which the vocal cords vibrate produces perceptually the pitch at which a listener hears a sound. Males and females have different pitches in their normal speech. Males generally have deeper voices than females and therefore have a lower fundamental frequency, or pitch. In normal speech, this is generally around eighty times per second for men and 400 times per second for females (Yip, 2002). If pitch on individual syllables indicates semantic

differences in lexical items or distinctions in grammatical functions, then the language is tonal. Pitch also occurs at the utterance level, often denoting questions, exclamations, or other meanings. Such languages that employ sentence-level pitch are called *intonation languages*. Whereas the majority of the world's languages employ intonation, a subset of human languages use tone as an indication of lexical or grammatical distinctions. Yip (2002) stated that by some estimates, 60-70% of the world's languages are tonal. Tonal languages are found primarily throughout Africa and Southeast Asia, and in the Americas.

Tonal systems are widespread in Africa. Clements (2000) noted, "The majority of African languages are tone or tonal-accent languages" (p. 152). Yip (2002) elaborated, "Together with East Asia, Africa has probably the highest ratio of tonal to non-tonal languages, with tonal languages found in just about every language family with the exception of Semitic and Berber. In particular, the Niger-Congo family, which subsumes most of the sub-Saharan languages, including the Bantu group, is almost entirely tonal (or occasionally accentual)" (p. 130).

A typical way to mark tone in languages with high and low tones is to mark only the high tone with an acute accent. Yip (2002) noted that many languages have only a two-way contrast of tone. This distinction, which has been referred to in the literature as *high tone* versus an absence of tone in lexical items, causes the distinction between tonal and accentual systems to be unclear. As we will see, much of the tonal system of Western Sisaala can be marked as *no tone*, contrasting with high tone. There is no midlevel tone in Western Sisaala, therefore leaving a binary distinction between high and low.

In Western Sisaala's register tone system, high and low tones appear on the syllable. Tone appears when lexical or grammatical distinctions are necessary between lexical items or grammatical functions or when the tone was perceptually clear to the researcher. When no tone is given, the syllable is considered toneless, or low.

4.5.2 Tonemes

Lexical tonemes are provided in the examples below. These examples illustrate Western Sisaala's register system's high and low tonal distinctions.

High vs. Low

(327)	é	2PL	241
	vs.		
(328)	e	2SG	238
(329)	bié	'seeds'	1558
	vs.		
(330)	biè, bìì	'baby'	1560
(331)	básá	'chair'	1294
	vs.		
(332)	básà	'mat'	1293

(333)	púrú	'socks'	1424
vs.			
(334)	púrù	'sock'	1423
(335)	búllù	'small white worm that infests the skin'	2425
vs.			
(336)	búùlú	'small white worms that infest the skin'	2426
(337)	siíbíè	'Bombara bean'	1473
vs.			
(338)	siíbié	'Bombara beans'	1471

4.5.3 Tonal Patterns on Multisyllabic Morphemes

In Western Sisaala a multisyllabic morpheme may contain a high or low tone on each syllable. The patterns that high and low tones may take across multi-syllabic morphemes are under current investigation, so this list is not yet exhaustive. Some examples of common tonal patterns follow:

High–High

(339)	dúwó	'top'	1073
(340)	nónó	'fruits, pimples'	2037
(341)	túrá	'bees, honeys'	2447

High–Low

(342)	dúwò	'hard'	1285
(343)	nónnò	'fruit, pimple'	2036
(344)	kɛ́ssà	'cough (n)'	2570

Low–High

(345)	wàrrá	'fever'	2574
(346)	ʧùrrú	'dysentery'	2572
(347)	zɛ̀nsé	'xylophone'	886

Low–Low

(348)	suùwò	'death'	2875
(349)	dùrrì	'heal, cure'	2601

High–High–High

(350)	nátáwá	'sandals'	1419
(351)	tápúllá	'morning'	1951

High–High–Low

(352)	nátáwà	'sandal'	1420
(353)	ʧɔ́wɪ́llà	'anger'	3087

High–Low–High

(354)	wólònné	'afternoons'	1960

Low–High–Low

(355)	dɛ̀ŋwɪ́llà	'lazy'	3063

4.5.4 Grammatical Tone

Tone is also a grammatical marker in Western Sisaala. In the following examples, the present tense of the verbs *to sacrifice*, *to vomit*, *to bathe (water)*, and *to work*, are marked by low tone or absence of tone on the final syllable. In the past tense, all forms contain a high tone on their final syllable.

(356)	ɔse	'sacrifice (v)'	1290
(357)	n ɔ́sò	'I sacrifice'	1291
(358)	n ɔ́só	'I sacrificed'	1292
(359)	e ɔ́sò	'you sacrifice'	1295
(360)	e ɔ́só	'you sacrificed'	1296
(361)	é ɔ́sò	'you(pl) sacrifice'	1297
(362)	é ɔ́só	'you(pl) sacrificed'	1298
(363)	o tuwɔsò	'he vomits'	2587
(364)	o tuwɔsó	'he vomited'	2589
(365)	o fò niye	'he bathes'	1807
	3SG bathes water		
(366)	o fó niye	'he bathed'	1796
	3SG bathed water		
(367)	o tommo	'he works'	1211
(368)	o tommó	'he worked'	1213

4.5.5 Intonation

Intonation is the use of pitch to convey meaning at the utterance or sentence level. Most languages use some type of intonation. In Western Sisaala, an utterance with falling intonation indicates an interrogative.

(369)	e sɪ felíì	'will you fail?'	3034
	3SG FUT fail		

vs.

(370)	e sɪ feli	'you will fail'	3032
	3SG FUT fail		
(371)	e felúù	'have you failed?'	3033
	3SG fail		

vs.

(372)	e felu	'you have failed'	3031
	3SG fail		

4.6 Syllable Structure

This section examines the structure of syllables in Western Sisaala. Words in Western Sisaala can be divided into sequences of syllables including the following syllable types: V, CV(V), CV(V)C. Like many African languages, Western Sisaala also contains the syllabic nasal *n*, which appears as /n/ when used as the first person pronoun but assimilates to the place of articulation of the first consonant phoneme when followed by nouns or verbs. Segments are made up of consonants and vowels and have an extraneous suprasegmental tier, which contains the tone. Postnuclear consonants, or codas, are limited to / n, m, ŋ /. Vowels and syllabic nasals represent syllable peaks. The structure of syllables can be exhaustively divided into V, CV(V), or CV(V)C.

4.6.1 Onset and Coda

(i) Syllabic *N*

(373) n 'I' 237

(ii) V

(374)	e	'you'	238
(375)	a	'we'	240

(iii) V–CV

(376)	ɔlό	'bush rats'	2357
(377)	ɔse	'sacrifice (v)'	1290

(iv) CV

(378)	ba	'they'	242
(379)	sɔ́	'smell'	2689
(380)	fò	'bathe (v)'	1787

(v) CVV

(381)	fùó	'sore'	2576
(382)	zaa	'today'	1955

(vi) CV–CV

(383)	boné	'goats'	2069

(384) linì 'drip, swallow (v)' 1817

(vii) CVV–CV

(385) suùwò 'death' 2875

(386) gaásɛ̀ 'madness, craziness' 3076

(viii) CV–CV–CV

(387) kazɛká 'ticks' 2459

(388) tuwɔsé 'vomit (v)' 2585

(ix) CVC

(389) o kɛŋ duusi 'he has strength' 2772

3SG has strength

(390) tɛn 'time' (<English 'time') 1976

(x) CVC–CV

(391) zaksé 'horses' 2071

(392) sullí 'sweat (n)' 2344

(xi) CVC–CV–CV

(393)	dendulú	'caterpillars'	2420
(394)	ʧaŋwolá	'stars'	1968

(xii) CVC–CVC–CV

(395)	maŋponná	'butterfly'	2417
(396)	maŋponsé	'butterflies'	2418

4.6.2 Syllabic Nasals

There is evidence in Sisaala Tumulung that the first person singular genitive /n/ is syllabic. For example (Rowland, 1965), note nasal assimilation in (397).

(397) / ṅbálà / 'my husband'

[ṁbálà]

ṁ-bálà

1SG.GEN-husband

Also, Bodomo (1997) provided syllabic nasals that occur in Dagaare, especially the Central and Southern dialects:

(398) /nbâ/ 'my friend', 'my father'

[mbâ]

m-bâ

1SG.GEN-friend/father

There is evidence to support syllabic nasals in the first person singular genitive in Western Sisaala, for example,

(399) /nbiíè la/ 'that is not my child' 1114

[mbiíè la]

m-biíè la

1SG.GEN-child not

This construction is supported by Western Sisaala's NP structure because noun heads are followed by adjectives and their determiners, which allows for nothing to come in between the genitive marker and the head noun.

In conclusion, syllable structure in Western Sisaala is restricted to the following syllable types: V or N, CV, CVV, CVC, and CVVC. Further investigation on this topic is currently underway.

4.7 Nasal Assimilation

The first person pronoun *n* assimilates to the place of articulation of the following morpheme's initial consonant phoneme, following the rule in (400):

(400) [N] -> [αN] / _ [α place of articulation]

(401) /n tummu sɪnkan/ 2172

[n tummu sɪnkan]

1SG chew groundnuts

'I chew groundnuts'

(402) /n moŋ duwo / 506

[m moŋ duwo]

1SG am on.top

'I am on top'

(403) /n ballo/ 518

[m ballo]

1SG hunt

'I hunt'

(404) /n kiɛrɛn m mukilu duo/ 1125

[ŋ kiɛrɛn m mukilu duo]

1SG sit 1SG.GEN buttocks LOC

'I sit on my buttocks'

4.8 Orthography Proposal

Universally there are three types of writing systems: logographic, syllabic, and alphabetic. Because English uses an alphabetic writing system and is also taught in public schools in Ghana, the development of the Western Sisaala writing system is also alphabetic. As with any work of this type, sufficient testing is needed and corrections will have to be made to incorporate the ideals and popular opinion of the native speakers of the language. I tested this orthography on English- and Dagaare-

literate students in Lambussie's school and was astonished by the ease with which students read and write Western Sisaala words and phrases with it.

A practical orthography is essential for speakers to begin to write and read their language. In the Western Sisaala school system, English and Dagaare are taught as test subjects, meaning they are recognized by the government as subjects that must be tested at the secondary level in order for students to matriculate. Under the Ghanaian school model (or Ghana's language policy), the mother tongue is supported as the medium of instruction in primary grades 1-3. However, this policy is clearly problematic; if there is no writing system, how can reading and writing be taught at primary levels? In my own experience, not all teachers in Lambussie speak Western Sisaala; therefore, how can it be taught or act as a medium of instruction in teaching reading and writing in other languages, particularly English?

The Ghana Alphabet Committee was created to standardize problems of alphabets and orthographies. In 1990, the committee narrowed down the range of

alphabets that could be used by a Ghanaian language (Bodomo, 1997). Bodomo suggested two weaknesses in the committee's decisions: (a) that the phoneme /ŋ/ is disregarded and left out of the orthography, and (b) that the phoneme /ŋm/ is represented as a three-letter alphabetic combination *ngm*. Bodomo pointed out the committee's reasoning that unconventional symbols make it difficult for technology, which meant typewriter technology. However, Bodomo was correct when pointing out that computers and computer font technology have made this problem irrelevant, and his proposed alphabet incorporates /ŋ/ and /ŋm/ as *ng* and *ngm* counterparts.

The alphabet for Western Sisaala developed here is modeled after Sisaala Tumulung, English, and Dagaare graphemes. Sisaala Tumulung has been used because of the phonemic inventory similarities it shares with Western Sisaala. Because Dagaare is taught in schools in Lambussie, the graphemes *ky* and *gy* were taken from the Dagaare alphabet for ease of learning by school children and by those who already read and write Dagaare fluently. Because of the instruction of Dagaare in Lambussie schools, I have used the representation of the Dagaare

phoneme /ʧ/ as *ky* in the Western Sisaala alphabet instead of the Sisaala Tumulung *ch*. This is also the case with the affricate /ʤ/, represented as *gy* in Western Sisaala instead of as Sisaala Tumulung's grapheme *j*. This is intended for ease of learnability by the Sisaala children. Both Sisaala Tumulung and Dagaare follow the *ny* standard for phoneme /ɲ/ put forth by the Ghana Alphabet Committee.

When dealing with this orthography, other issues include the problem of how to mark suprasegmentals. As does the Sisaala Tumulung dictionary (GILLBT, 2002), I suggest that suprasegmentals should be marked for high tone only. Bodomo (1997) remarked,

> We saw that tonal contrasts form an important part of the phonemic distinctions within Dagaare. This is however not represented in the writing system as indicated above. There may be several advantages and disadvantages involved in such a choice. But surely one of the guiding principles of an orthographic system should be simplicity and ease of use (though this should not let it deviate too much from accuracy). Tonal

> representations if not undertaken with care will make our writing system rather cumbersome. I will agree with the alphabet committee for recommending a sparing use of tonal marks. At present I do not think it is that necessary for the case of Dagaare but if it is found necessary with further analysis, then probably only high tones should be indicated. (p. 38)

Though I agree with Bodomo to a certain degree, I agree that simplicity and ease of use should be guiding principles of any orthographic system. I do not agree that leaving tone completely out is the way forward. I think that GILLBT in its Sisaala–English dictionary has taken the better route by introducing a reduced number of tones by marking tone only when the distinction is relevant for lexical disambiguation. In this case, we can choose to mark only high tone in cases in which there is a binary distinction. As in the case of Western Sisaala, rising tone and falling tone are limited and therefore could be overlooked. The rising tone, used primarily as intonation, can be illustrated through other traditional punctuation, such as a question mark '?'. However, there is also the matter of grammatical tone, and

this should be incorporated to a limited degree as in lexical tone; low should be the unmarked case, and high tone should be marked. The accent acute mark is therefore suggested for the high tonal mark.

Marking nasalization is problematic. Because this researcher has only found two cases in which nasalization is phonemic, it may not occur frequently enough to warrant an extra diacritic in the alphabet. However, if speakers wish to mark phonemic nasalization of vowels, I suggest they do so with the standard '~' diacritic over the vowel.

Another issue is how to incorporate compound words into the alphabet. For example, should *tɔmollá*, /tɔ/ 'day' + /molla/ 'butt', meaning 'east' be written as *tɔ-molla* or *tɔ molla* or as *tɔmolla*? I suggest, as did Bodomo, the last alternative.

Vowel harmony rules affect many languages in Africa, but in Western Sisaala, the seeming irregularity of these rules does create an orthographic issue. Whether or not possessive pronouns and their complements should be written as one or more words should also be considered. For example, in Western Sisaala 'my father' could

be written as *n ba*, or *nba*, or *mba*; 'my house' could be written as *n ʤa* or *nʤa*.

Table 3 outlines the present orthography proposal for Western Sisaala.

Table 3

Orthographies

Western Sisaala	Phonemes	Sisaala Tumulung	Dagaare
a	a	a	a
b	b	b	b
ky	ʧ	ch	ky
d	d	d	d, r
ɛ	ɛ	ɛ	ɛ
e	e	e	e
f	f	f	f
g	g	g	g
gb	gb	gb	gb
h	h	h	h

Table 3 (continued)

Western Sisaala	Phonemes	Sisaala Tumulung	Dagaare
h	h	-	ɦ
i	i	i	i
ɪ	ɪ	i	ɪ
gy	ʤ	j	gy
k	k	k	k
-	kp	kp	kp
l	l	l	l
m	m	m	m
-	-	-	mh
n	n	n	n
ny	ɲ	ny	ny
ŋ	ŋ	ŋ	ŋ
ŋm	ŋm	ŋm	ŋm

Table 3 (continued)

Western Sisaala	Phonemes	Sisaala Tumulung	Dagaare
ɔ	ɔ	ɔ	ɔ
o	o	o	o
p	p	p	p
r	r	r	-
s	s	s	s
t	t	t	t
u	u	u	u
ʊ	ʊ	u	ʊ
v	v	v	v
w	w	w	w
y	y	y	y
z	z	z	z

4.9 Conclusion

This section has provided a detailed phonological description of Western Sisaala that served as the basis for the development of a Western Sisaala orthography. I have provided evidence for each phoneme, I have described the tonal and syllable mechanics, and I have touched upon some of the phonological rules of the language. The next section will outline nominal morphology.

5. NOMINAL MORPHOLOGY

This section provides a description of the morphology of nouns, noun phrases, and nominal syntax in Western Sisaala. It also contains a brief description of nominal processes in Western Sisaala, including noun classes and compound formation. Please note that this is a preliminary description and that more investigation is needed to document existing noun classes in Western Sisaala as well as other Sisaala languages. McGill et al. (1999) provided a description of noun classes in Sisaala Pasaale and the large extent to which vowel harmony causes variation within noun classes. Western Sisaala uses a reduced form of +/- ATR vowel harmony; however, one can see considerable variation within noun classes. At this time, there does not exist a typology of Western Grusi noun classes.

5.1 Structure of Nouns and Noun Phrases

A noun phrase in Western Sisaala is composed of a free morpheme that is made up of a noun or pronoun. Plurality on common nouns is marked by singular and plural pairs of suffixes, and each pair of singular and plural suffixes is

associated with a particular noun class. Western Sisaala marks possession with enclitics that attach to the nominal stem and that include syllabic nasals. Nouns follows the pattern (POSS-) STEM (-PL), and noun phrases follow the pattern NOUN (ADJ (-PL)) (DET) (QUANT). Optional elements are marked in parenthesis. In Western Sisaala, noun phrases are left-headed. The left-most constituent is the head noun and adjectives, determiners, and quantifiers follow it in the phrase. Adjectives are postpositions, and when modifying a plural noun, a limited set must take an inflectional plural suffix according to noun class formation rules. Determiners and quantifiers do not inflect for plurality; however, numerals may be complex noun compounds, and they appear as the right-most element in a noun phrase. The order of elements within the noun phrase is presented in more detail later.

In Western Sisaala, noun phrase constructions that include the determiners *ɲa* 'the' or *ne* 'these' take the form [HEAD.NOUN DET], as in examples (405)-(407).

The head noun may inflect for plurality; however, the determiner *ɲa* does not, as illustrated in examples (405) and (406).

(405)	kuoro ɲa	'the chief'	1067
(406)	kuorowa ɲa	'the chiefs'	663
(407)	kuorowa ne	'these chiefs'	679

The quantifier *wu* 'all' or 'every/each' also occurs in final position within the noun phrase, following the determiner and the adjective if they are present, as in examples (408)-(407).

(408)	kuorowa wu	'all/every/each chiefs'	702
(409)	haála wu	'all/every/each women'	705

In free speech, there may be final-vowel deletion in the head noun, and the two free morphemes may be fused together, as in (410) and (411) (surface forms appear in [ ], underlying forms in / /).

(410)	[kuorwu]	'every chief, each chief'	703
	/kuorowa wu/		

(411) [haálwu] 'every woman, each woman' 704

/haála wu/

Adjectives follow the head noun that they modify, as in examples (412) and (413).

(412) fila mubi 78

flower ADJ

'small flower'

(413) halla tiro 205

woman ADJ

'mature woman'

However, in noun phrases that include both an adjective and a determiner, the head noun is followed by an adjective, which occurs between the head noun and the determiner. Constructions that do not adhere to this ordering are ungrammatical, as in examples (419) and (420), marked with an asterisk. A limited number of adjectives inflect for plurality, as those in examples (415) to (418).

(414) fila mubi ɲa 79

flower small DET

N ADJ DET

'the small flower'

(415) natʃe muzen-o ɲa 89

foot big DET

N ADJ-SG DET

'the big foot'

(416) natʃɛ-se muzen-sɛ ɲa 88

feet big DET

N-PL ADJ-PL DET

'the big feet'

(417) natʃe mubi ɲa 90

feet little DET

N ADJ DET

'the little foot'

(418) natʃɛ-se mubi-si ɲa 91

feet-PL ADJ-PL DET

'the little feet'

(419) *fila ɲa muzeno *the big flowers 84

flower DET big

N DET ADJ

(420) *muzeno fila ɲa *the big flowers 83

big flower DET

ADJ N DET

Noun phrases consisting of a noun, a determiner, and a quantifier are exemplified in (421) and (422). Quantifiers follow the determiner in the noun phrase.

(421) kuoro-wa ɲa bɛlɛ 1069

chiefs DET two

N-PL DET QUANT

'the two chiefs'

(422) kuoro-wa ɲa buturu 1070

chiefs DET three

N-PL DET QUANT

'the three chiefs'

In examples (423)-(425), I have included noun phrase constructions with more than one adjective and a determiner. Adjectives have a relatively free word order in noun phrases.

(423) fɪlla zoniɛ muzeno ɲa 153

flower green big DET

N ADJ ADJ DET

'the big green flower'

(424) fɪlla muzeno zoniɛ ɲa 154

flower big green DET

N ADJ ADJ DET

'the green big flower'

(425) fila muzɛnse zoniɛ ɲa 155

flower big green DET

N ADJ ADJ DET

'the big green flowers'

A noun phrase that has a possessive element, a determiner, and a quantifier is exemplified in (426), in which the first person possessive element *n* 'my' precedes the head noun *kuoro-wa* ‘chiefs’, which in turn is followed by the determiner *ɲa*, then the quantifier *bɛlɛ* 'both, two'.

(426) n-kuoro-wa ɲa bɛlɛ 674

my chiefs DET two

1SG.POSS-N-PL DET QUANT

'my two chiefs, both my chiefs'

5.2 Pronominal System

Personal pronouns in Western Sisaala mark three persons, that is, first, second, and third. They also mark two numbers, that is, singular and plural. They are not marked for gender. The personal pronouns in Western Sisaala are listed in Table 4.

Table 4

Pronominal System

	Nominate subject	Accusative object
1st person singular	n	-n
2nd person singular	e, ene[10]	-e
3rd person singular	o	-o
1st person plural	a	-a
2nd person plural	é, éne	-é
3rd person plural	ba	-ba

There are two sets of personal pronouns in Western Sisaala: one is the nominative (or subject) set, used just for subjects in the position preceding the verb; the other is the accusative (or object) set, used for objects and obliques. Subject pronouns and object pronouns do not differ in their phonological values; however, whereas subject pronouns can stand alone, object pronouns cannot. They are suffixes that attach to

[10] The second person singular and plural nominative forms, when spoken alone, are /ene/ and the plural /éne/. These forms do not occur before verbs.

the main verb. Possessive pronouns are enclitics that attach to the head noun in a noun phrase and have the same phonological value as personal pronouns.

5.3 Noun Classes

Noun classes are a well-known grammatical feature of Niger-Congo languages. They are found in some form in every branch of the language family (Bendor-Samuel & Hartell, 1989). Historically, noun class systems are semantically based and have usually undergone grammaticalization to varying degrees. Noun class systems typically use classifiers across many semantic oppositions, including humans, animals, plant life, body parts, inanimate objects, shapes, and functional objects and materials. In many cases the classifiers have overlapped semantic oppositions to such a degree that their original boundaries are no longer clear. Williamson and Blench (cited in Heine, 2000) noted of Niger-Congo noun class systems that "the system was clearly grammaticalised, blurring its original semantic basis, as far back as it can be traced. Approximately twenty noun classes occur in conservative languages" (p. 13).

In Niger-Congo languages, classes are marked by singular and plural affixes on the noun. The Gur languages in Ghana have simplified this system in various ways, especially the southwestern Grusi languages, which have no agreements between third person subject pronouns, demonstratives, numerals, and their referent nouns (Naden, 1988). Naden provided samples of Vagla in which "all that remains in VG [Vagla] is a number of not very clearly-defined singular/plural declensions" (Naden, 1988, p. 36):

(427) nɛr / nɛra 'person / people'

bol / bola 'village / villages'

wɛjɛ / wɛjɛzi 'cloth / cloths'

diŋ / diŋri 'tail / tails'

dia / diini 'room / rooms'

(Naden, 1988, p. 123)

Gur languages have full or reduced noun class systems, which generally use suffixes. Classes of nouns are divided into groups with their own endings for

singular and plural. Noun classes in Western Sisaala are divided into classes by their singular and plural suffixes. Their semantic domains today are unclear, and overlap can be seen within each class. Also, surface phonetic variations appear within many classes, and the null marker is present as the singular suffix in a few cases. In the description that follows, I provide the singular, plural, and root forms, as well as the gloss for each example. This list is by no means exhaustive. It contains simply those that I have been able to identify so far, and there are several more that I have not yet processed but that clearly belong to other classes that have not been analyzed yet.

5.3.1 Class 1: *-Ø / -wa*

Class 1 is the largest class of nouns in Western Sisaala. The singular marker in these cases is null ('Ø'), and plural formations are made by adding the suffix *-a* to noun roots, as in examples (428)-(433).

Class 1	Singular	Plural	Root	Gloss
	Ø	-wa		
(428)	ana	anawa	ana-	'father'
(429)	dɛlle	dɛllewa	dɛlle-	'ear'
(430)	haŋbɛlɛ	haŋbɛlɛwá	haŋbɛlɛ-	'bone'
(431)	dɛmmalu	dɛmmaluwa	dɛmmalu-	'leech'
(432)	ʤúʤú	ʤuʤuwa	ʤuʤu-	'tarantula'
(433)	duùni	dunniwa	duuni-	'vulture'

Class 1 formations are also productive in loan words. The forms in (434)-(436) are from English, and the others are borrowings from Twi (437), Ashanti (438), and Dagaare (439).

	Singular	Plural	Root	Gloss
(434)	wɔʧe	wɔʧewa	wɔʧe	'watch'
(435)	lɔlɛ	lɔlɛwa	lɔlɛ	'lorry'
(436)	kɔpu	kɔpuwa	kɔpu	'cup'

(437)	katawie	katawiewa	katawie	'umbrella'
(438)	akutu	akutuwa	akutu	'orange'
(439)	datʃe	datʃewa	datʃe	'brother in law'

5.3.2 Class 2: *-Ø / - V́*

The class 2 nouns also have null as their singular suffix. The plural is typically marked on the root by a high tone on the final syllable, as in examples (440)-(444).

Class 2:	Singular	Plural
	Ø	-V́

Class 2 nouns may follow this pattern, such as in examples (440) and (441). In some nouns, the singular form may be marked with low tone as in (442) and (443). The forms in (443) and (444) show both high tone on the final vowel and degemination.

	Singular	Plural	Root	Gloss
(440)	bɪnna	bɪnná	bɪnna	'feces'
(441)	jɪra	jɪrá	jɪra	'name'

(442)	púrù	púrú	puru	'sock'
(443)	kóllà	kolá	kola	't.z.'[11]
(444)	kazɛkka	kazɛká	kazɛka	'tick'

5.3.3 Class 3: *-a / -(s)e*

Class 3 nouns have the suffixes /-a/ 'singular' and /-e/ 'plural', as in (445)-(463), to mark singular and plural forms. Within this class there are subclasses of nouns in which the geminate consonant is reduced (449)-(452), nasals are inserted, and vowels are nasalized (453)-(456) or a tense vowel in the penultimate syllable is changed to a lax vowel (460) and (461).

Class 3:	Singular	Plural
	-a	-e

Class 3.I forms:

	Singular	Plural	Root	Gloss
(445)	dɛndirra	dɛndirre	dɛndir	'cloud'
(446)	kɛnna	kɛnne	kɛn	'book'

[11] *Kóllà* is a local dish of Ghana referred to as 't.z.', pronounced 'tee zeht' [ti zɛt].

(447)	lɛlla	lɛlle	lɛl	'corpse'
(448)	tapulla	tapulle	tapul	'day'
(449)	palla	pale	pal	'mountain, hill'
(450)	baŋŋa	baŋé	baŋ	'neck'
(451)	wolonná	wólòné	wolon	'afternoon'
(452)	pɛpɛra	pɛpɛrre	pɛpɛr	'mud'
Class 3.II:	Singular	Plural	Root	Gloss
	-a	(-n-) -e		
(453)	basá	banse	bas	'sitting stool'
(454)	básá	bansé	bas	'chair'
(455)	jɛse	jɛnse	jes	'salt'
(456)	hosá	hõnsa	hos	'lizard'
Class 3.III:	Singular	Plural	Root	Gloss
	-a	-se		
(457)	zaka	zaksé	zak	'horse'

(458)	ʤiʤaka	ʤiʤakse	ʤiʤak	'chair'
(459)	daa	dasé	da	'wood, forest'
(460)	kunade	kunadɛse	kunad	'trousers'
(461)	mimini	mimɪnse	mimin	'black ant'[12]
(462)	viɛnna	viɛnsé	viɛn	'ground worm'
(463)	maŋponná	maŋponsé	maŋpon	'butterfly'

5.3.4 Class 4: *VV - V*

Class 4 nouns include those in which the long vowel in the singular is shortened in the plural (Class 4.I), as in examples (464)-(467), or the geminate approximants in the singular are simplified in the plural (Class 4.II), as in (468)-(473).

Class 4.I:	Singular	Plural	Root	Gloss
	-VV-	-V-		
(464)	piíe	pié	pi	yam
(465)	nɛ́niíè	nɛnie	nɛn	finger
(466)	lingwaana	lingwaná	lingwan	Adam's apple/s

[12] Carpenter ant

(467)	uulu	ulu	ulu	navel
Class 4.II:	-CC-	-C-		
(468)	vɛllu	vɛlu	vɛll	well
(469)	pollu	polu	pol	vein
(470)	ɲɛlla	ɲɪla	ɲɛl	horn, tooth
(471)	sɔrro	sɔre	sɔr	frog
(472)	vapɛpɛrra	vapɛpɛra	vapɛpɛr	shoulder
(473)	mekarra	mekárá	mekár	witch

Note also the vowel change from /o/ in the singular form to /e/ in the plural form in example (471).

5.4. Compounding

Compounding is a nominal process in which two words, or parts thereof, are combined to create a new word. I have used Payne's (1997) formal and semantic criteria for distinguishing compound words. Formal criteria include a stress pattern characteristic of a single word, unusual word order, morphology specific to

compounds, and morphophonemic processes characteristic of single words. Semantic criteria include meaning shift in the compound to a more specific meaning or to a completely different meaning than that of the compound's constituents. In Western Sisaala, compounds are very productive and appear as compound forms, diminutives, and numerals. They are formed by the morphophonemic processes characteristic of single words, combining two (or more) roots to form a new stem, as seen in (474) and (475).

(474)	va	+	pona	→	vapona	'dog hair'
	dog		feather			
(475)	yuu	+	binnu	→	yuubinnu	'wet season'
	funeral		black			

However, further investigation reveals that the compounds in (474) and (475) are quite different. Semantically, the meaning of the resulting form in (474) (*vapona* 'dog hair') is derived from the meanings of its component parts (*va* 'dog' and *pona* 'feather'). This is not the case in (475). Note another example, (476), in which

reduction of the first word *bone* 'goat' to *bo* marks a morphophonemic process characteristic of single words, and the semantic interpretation of the resulting form is also specific to the head noun *ɪlla* 'milk'.

(476)	bone	+	ɪlla	→	boɪlla	'goat milk'
	goat		milk			

In Western Sisaala, lexical categories and semantic domains determine whether a compound is formed by the morphophonemic rules of endocentric compound formation, as provided in examples (474) through (476). Bloomfield (1933) and others (Anderson, 1985; Fabb, 2001; Spencer, 1991) have differentiated endocentric and exocentric compounds in the following way:

Endocentric Compounds

- Endocentric compounds are compounds with a head modifier.
- Their head determines the categorical status of the compound.
- Endocentric compounds are typically head initial or final in languages.

- The meaning of the form is semantically derived from the meaning of its component parts.
- Some examples are *streetlight, campsite, bookcase*.

Exocentric Compounds

- Exocentric compounds are compounds in which a head cannot be identified.
- The meaning of the form is not semantically derived from the meaning of its component parts.
- Their meaning must be learned.
- Some examples are *hotdog, blacksmith, strawberry*.

Endocentric compounds in Western Sisaala are characterized by the following features:

- The left element undergoes reduction to first syllable (CV, CVN, CVL where L = lateral).

- The meaning of the form is semantically derived from the meaning of its component parts.
- The position of head depends on the lexical categories of its component parts.
- The plural of compound form is marked on the head noun (the only exceptions are a small number of adjectives that pluralize).
- The noun class to which the resulting compound belongs is the same as that of the head noun.
- Noun compounds are formed from N+N or N+ADJ.

Examples (477) through (484) illustrate noun compounds of a noun and a noun. In these examples, the modifier precedes the head noun.

A. [N + N] N = Modifier + Head

(477)	nõ	+	ɪlla	→	noɪlla	'cow milk'
	cow		milk			

(478)	bone	+	ɪlla	→	boɪlla	'goat milk'
	goat		milk			
(479)	tuwo	+	nonno	→	tunnono	'tree fruit'
	tree		fruit			
(480)	tuwo	+	nono	→	tunono	'tree fruits'
	tree		fruits			
(481)	zinu	+	ponná	→	ziponná	'feather of fowl'[13]
	fowl		feather			
(482)	zinu	+	pona	→	zipona	'feathers of fowl'
	fowl		feathers			
(483)	suwu	+	ponná	→	suponná	'feather of Guinea fowl'
	Guinea fowl		feather			
(484)	suwu	+	pona	→	supona	'feathers of Guinea fowl'
	Guinea fowl		feathers			

[13] Cock or hen

The forms in examples (485) through (489) include endocentric compounds that consist of a noun and an adjective. In these forms, the head noun precedes the modifier.

B. [N + ADJ] N = Head + Modifier

(485)	ŋmɛnna	+	kosokoso	→	ŋmɛnkosokoso
	road		rough		'rough road'
(486)	ŋmɛnna	+	wɪrro	→	ŋmɛnwɪrro
	road		beautiful		'smooth road'
(487)	dɛnna	+	lunna	→	dɛnlunna
	body		hot		'malaria' (lit. 'hot body')
(488)	niɛ	+	fiɛlla	→	niɛfiɛlla
	water		cold		'cold water'
(489)	niɛ	+	loma	→	niɛloma
	water		hot		'hot water'

Some adjectives in Western Sisaala have a plural form. In noun+adjective compounds with adjectives that pluralize, the plural of the compound is marked on the adjective. In these formations, the head noun is the reduced element and can not take a plural suffix. Therefore the plurality of the compound is marked on the adjective, as in examples (490) through (493):

(490)	dúnnà +	fiɛn-na	→	dɔnfiɛnna[14]	'long red snake'
	snake	red-SG			
(491)	dúnnà +	fiɛm-ma	→	dɔnfiɛmma	'long red snake'
	snake	red-PL			
(492)	ʧana +	binn-u	→	ʧanbinnu	'dark moon, new moon'
	moon	black-SG			
(493)	ʧana +	bin-si	→	ʧanbinsi	'dark moons, new moons'
	moon	black-PL			

Exocentric compounds, on the other hand, are characterized by the following features:

[14] A type of snake that is 'not very poisonous and doesn't bite.'

- The meaning of the form is not clearly derived from the meaning of its component parts.
- There is no reduction of the first word.
- The plural of the compound form is marked on the right-most root.
- The noun class to which the resulting class belongs is the same as that of the right-most root.

A. [N + N] N = Root + Root

(494)	foli	+	datwiie	→	folidatwiie	'pig' (lit. ‘white man's mouse’)
	foreigner		mouse			
(495)	bii	+	halla	→	biihalla	'daughter in law'
	child		woman			
(496)	tɔ	+	molla	→	tɔmolla	'east'
	day		butt			
(497)	tɔ	+	ɲuo	→	tɔɲuo	'west'
	day		head			

(498) ʤa + nɛnna → ʤanɛnna 'family'

house somebody

(499) ʤa + narrá → ʤanarrá 'families'

house people

(500) hambisi + mɛ́ná → hambisimɛ́ná 'measles'

children sickness

B. [N + ADJ] N[15]

(501) yuu + binnu → yuubinnu 'wet season'

funeral black

C. [V + V] V[16]

(502) la + di → ladi 'believe'

take eat

Exocentric noun compounds in Western Sisaala are formed by combining nouns and, at least in two cases, a noun + adjective and verb + verb.

[15] This is the only example in the data of a noun + adjective exocentric compound.

[16] This is the only example in the data of a verb + verb exocentric compound.

Compounding is very productive in Western Sisaala and is also present in the formation of diminutives, numerals, and kinship terms, all of which follow endocentric compound formation. The following sections provide examples for each of these formations.

5.4.1 Diminutives

Diminution is the nominal process employed by many languages to indicate smallness, whereas augmentation is the opposite; augmentatives indicate largeness of objects. Payne (1997) noted that "there is an apparently universal iconic tendency in diminutives and augmentatives: diminutives tend to contain high front vowels, where as augmentatives tend to contain high back vowels" (p. 110). Though my field work did not provide data for making assumptions about augmentatives in Sisaala, diminution is productive and is accomplished through compounding of nouns denoting animate objects and the roots *biie ~ bii* 'baby' or *bɛlle ~ bisi* 'babies'. This diminutive element of the compound always follows the head noun denoting the animate object, and all compounds are formed according to the

endocentric compounding rules in Western Sisaala, in which the first root in the compound is reduced to its first syllable, as in (503) through (512):

(503)	va	+	biie	→	vabiie	'small dog'
	dog		baby			
(504)	va	+	bɛlle	→	vabɛlle	'small dogs'
	dog		babies			
(505)	no	+	biie	→	nobiie	'small cow'
	cow		baby			
(506)	no	+	bɛlle	→	nobɛlle	'small cows'
	cow		babies			
(507)	da	+	bii	→	dabii	'small stick'
	stick		baby			
(508)	da	+	bisi	→	dabisi	'small sticks'
	stick		babies			

(509)	tuwo	+	biie	→	tubiie	'small tree'
	tree		baby			
(510)	tuwo	+	bɛlle	→	tubɛlle	'small trees'
	tree		babies			
(511)	garra	+	biie	→	gabiie	'small thief'
	thief		baby			
(512)	garra	+	bɛlle	→	gabɛlle	'small thieves'
	thief		baby			

Some diminutives are formed by compounding more than two roots, as in (513) and (514).

(513)	tuwo+hili+biie	→	tuhilibiie	'small tree branch'
	tree+branch+baby			
(514)	tuwo+hili+bɛlle	→	tuhilibɛlle	'small tree branches'
	tree+branch+babies			

5.4.2 Numerals

Western Sisaala's numerals are based on a decimal numeral system. This system contains free morphemes for the numbers 'one' through 'ten,' as well as 'twenty,' as in examples (515)-(524) and (534). Numeric values greater than ten are expressed in phrases of 'tens-value and ones-value,' such as 'ten and one' for 'eleven,' 'twenty and two' for 'twenty-two,' etc. (see examples (525)-(533) and (536)-(537)). The forms for 'thirty,' 'forty,' 'sixty,' and 'eighty,' are compound forms of two roots, as in 'twenty+ten,' 'twenty+two,' 'twenty+three,' 'twenty+four,' respectively (see examples (538)-(541)). These compound numerals follow the endocentric reduction rule, and compound forms with three words also follow this reduction, as in examples (542)-(544). These forms for 'fifty,' 'seventy,' and 'ninety' consist of the compounds 'twenty+two+ten,' 'twenty+three+ten,' and 'twenty+four+ten,' respectively. Numerals above one hundred are illustrated in examples (545) and (546) and are made up of the phrases 'one-hundred and tens-value and ones-value',

such as 'one-hundred and ten and one' for 'one hundred eleven' and 'one hundred and fifty and one' for 'one hundred fifty-one.'

A. Single roots

(515)	modõn	'one'
(516)	bɛllɛ	'two'
(517)	buturu	'three'
(518)	bana	'four'
(519)	bomoɔ	'five'
(520)	babʊ	'six'
(521)	bape	'seven'
(522)	ʧuri	'eight'
(523)	nɛmɛ	'nine'
(524)	fí	'ten'
(525)	fí aba modõn	'eleven'
(526)	fí aba bɛllɛ	'twelve'

(527) fí aba buturu 'thirteen'

(528) fí aba bana 'fourteen'

(529) fí aba bomoɔ 'fifteen'

(530) fí aba babʊ 'sixteen'

(531) fí aba bape 'seventeen'

(532) fí aba ʧuri 'eighteen'

(533) fí aba nɛmɛ 'nineteen'

(534) mere 'twenty'

(535) mere aba modõn 'twenty-one'

twenty and one

(536) mere aba bɛllɛ 'twenty-two'

twenty and two

(537) mere aba buturu 'twenty-three'

twenty and three

B. Two roots

(538)	mere +	fí	→	mɛrɛfí	'thirty'
	twenty	ten			
(539)	mere +	bɛllɛ	→	mebɛllɛ	'forty'
	twenty	two			
(540)	mere +	buturu	→	mebuturu	'sixty'
	twenty	three			
(541)	mere +	banna	→	mebanna	'eighty'
	twenty	four			

C. Three roots

(542)	mere +	bɛllɛ +	fi	→	mɛbɛlɛfi	'fifty'
	twenty	two	ten			
(543)	mere +	buturu +	fi	→	mebuturufi	'seventy'
	twenty	three	ten			

(544) mere + banna + fi → mebannafi 'ninety'

twenty four ten

D. Forms past one hundred

(545) zolo aba fi aba modõn 'one hundred eleven'

one.hundred and ten and one

(546) zolo aba mebelefi aba modõn 'one hundred fifty-one'

one.hundred and fifty and one

5.4.3 Kinship Terms

Kinship terms seem to be problematic in Western Sisaala because they contain both endocentric compounds that have undergone first-syllable reduction, as those in (547)-(554), and forms that have not, as those in (555)-(558).

A. [N + N] N

(547) bii + halla → biihalla 'daughter in law'

child woman

(548)	bii	+	haala	→	biihaala	'daughters in law'
	child		women			
(549)	hilla	+	balla	→	hɪlballla	'father in law'
	in-law		man			
(550)	hilla	+	baála	→	hɪlbaála	'fathers in law'
	in-law		men			
(551)	ma	+	biie	→	mabiie	'aunt'[17]
	mother		child			
(552)	ma	+	bɛlle	→	mabɛlle	'aunts'
	mother		children			
(553)	ana	+	biie	→	anbiie	'paternal uncle'
	father		child			
(554)	ana	+	bɛlle	→	anbɛlle	'paternal uncles'
	father		children			

[17] Mother's junior sister

The forms in (555) and (556) are compounds that do not reduce to their first syllables.

(555)	nitulu	+	bie	→	nitulbie	'junior sister'
	sister		baby			
(556)	nitulu	+	biisi	→	nitulbiisi	'junior sisters'
	sister		babies			

Kinship compounds with three or more roots reduce the noun in the first position following Western Sisaala's endocentric rule formation, as in (557) and (558).

(557)	ma	+ biie	+ balla	→	mabiieballa	'sister's husband'	
	mother	baby	woman				
(558)	ma	+ bii	+ baala	→	mabiibaala	'sister's husbands'	
	mother	baby	women				

In conclusion, I have used Payne's (1997) formal and semantic criteria to identify compounds in Western Sisaala. I have found that compounds are formed by combining two or more roots. The formation of compounds can be either

endocentric or exocentric in nature. Endocentric compounds adhere to a morphophonemic rule that reduces the first root to its first syllable before the roots are combined. The new stem has a meaning that is derived made from the meanings of the two roots. Exocentric compounds are unmarked and are formed by combining two full roots into one new stem. The stem does not carry the meaning of its two root forms. The semantics of exocentric formations are arbitrary and must be learned by the speaker. Noun compounds are formed from combinations of N + N, N + ADJ, and N + N +N.

5.5 Conclusion

This chapter has presented a portion of Western Sisaala's nominal morphology. Sections 5.1 and 5.2 focused on the structure of the noun and the noun phrase and included the pronominal system. In Sections 5.3 and 5.4., I presented initial research on two aspects of the nominal morphology of Western Sisaala, including the noun class system and compound word formation.

6. CONCLUSION

In conclusion, this thesis represents the initial findings of three months of linguistic fieldwork on Western Sisaala, a language spoken in Lambussie, in the Upper West Region of Ghana. Because this is the first linguistic description of this language, I have attempted to be exhaustive in describing its phonological system, and this work is intended to provide the speakers of Western Sisaala with something pedagogically useful for maintaining their language. I hope it is also useful for the development of a literary culture for those speakers interested in developing written materials in the language. This thesis also describes the situation of the four Sisaala languages in the Sisaala language complex, which are spoken in Northern Ghana and Burkino Faso. This work establishes Western Sisaala as a distinct language in the literature. Finally, I have presented initial work on the morphology of Western Sisaala, describing the noun, the noun phrase syntax, and the nominal morphology.

This work does not represent an exhaustive study of Western Sisaala, and further research needs to be conducted so that a full description of all aspects of its

grammar is completed. Western Sisaala is an endangered language and needs to be fully described before it becomes extinct.

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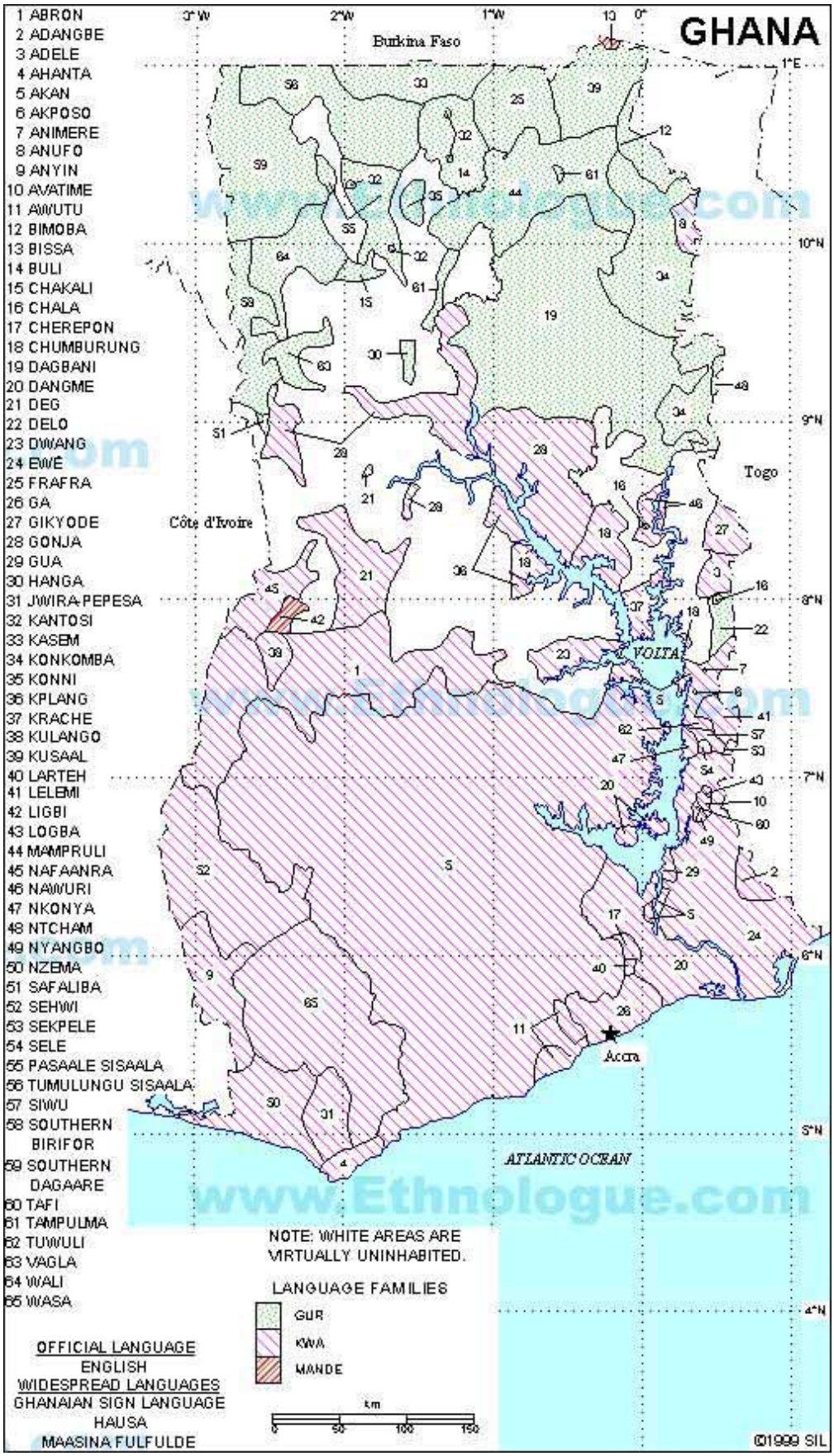
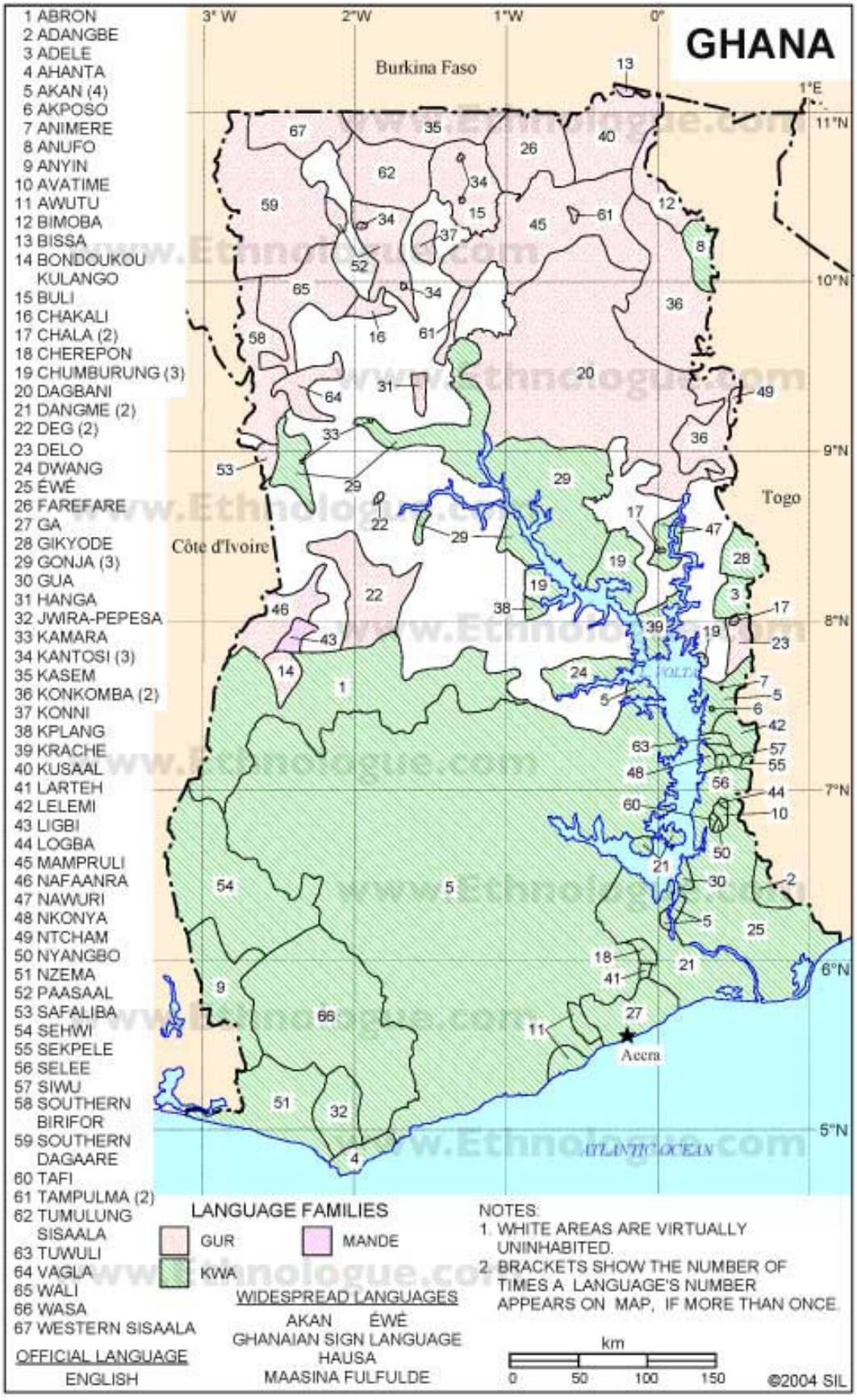
APPENDICES

Appendix A: Language Maps

These two maps are copyrighted materials of 14th and 15th editions of the Ethnologue[18]. The first of the two maps was captured in 2001. At that time, Western Sisaala was not marked as a distinct language on the map. The latter map, from the 15th edition, includes Western Sisaala as number 67.

[18] http://www.ethnologue.com


GHANA
1 ABRON
2 ADANGBE
3 ADELE
4 AHANTA
5 AKAN
6 AKPOSO
7 ANIMERE
8 ANUFO
9 ANYIN
10 AVATIME
11 AWUTU
12 BIMOBA
13 BISSA
14 BULI
15 CHAKALI
16 CHALA
17 CHEREPON
18 CHUMBURUNG
19 DAGBANI
20 DANGME
21 DEG
22 DELO
23 DWANG
24 EWE
25 FRAFRA
26 GA
27 GIKYODE
28 GONJA
29 GUA
30 HANGA
31 JWIRA-PEPESA
32 KANTOSI
33 KASEM
34 KONKOMBA
35 KONNI
36 KPLANG
37 KRACHE
38 KULANGO
39 KUSAAL
40 LARTEH
41 LELEMI
42 LIGBI
43 LOGBA
44 MAMPRULI
45 NAFAANRA
46 NAWURI
47 NKONYA
48 NTCHAM
49 NYANGBO
50 NZEMA
51 SAFALIBA
52 SEHWI
53 SEKPELE
54 SELE
55 PASAALE SISAALA
56 TUMULUNGU SISAALA
57 SIWU
58 SOUTHERN BIRIFOR
59 SOUTHERN DAGAARE
60 TAFI
61 TAMPULMA
62 TUWULI
63 VAGLA
64 WALI
65 WASA
OFFICIAL LANGUAGE
ENGLISH
WIDESPREAD LANGUAGES
GHANAIAN SIGN LANGUAGE
HAUSA
MAASINA FULFULDE
NOTE: WHITE AREAS ARE VIRTUALLY UNINHABITED.
LANGUAGE FAMILIES
GUR
KWA
MANDE
km
0
50
100
150
Burkina Faso
Côte d'Ivoire
Togo
VOLTA
Accra
ATLANTIC OCEAN
3°W
2°W
1°W
0°
1°E
10°N
9°N
8°N
7°N
6°N
5°N
4°N
©1999 SIL


GHANA
1 ABRON
2 ADANGBE
3 ADELE
4 AHANTA
5 AKAN (4)
6 AKPOSO
7 ANIMERE
8 ANUFO
9 ANYIN
10 AVATIME
11 AWUTU
12 BIMOBA
13 BISSA
14 BONDOUKOU KULANGO
15 BULI
16 CHAKALI
17 CHALA (2)
18 CHEREPON
19 CHUMBURUNG (3)
20 DAGBANI
21 DANGME (2)
22 DEG (2)
23 DELO
24 DWANG
25 ÉWÉ
26 FAREFARE
27 GA
28 GIKYODE
29 GONJA (3)
30 GUA
31 HANGA
32 JWIRA-PEPESA
33 KAMARA
34 KANTOSI (3)
35 KASEM
36 KONKOMBA (2)
37 KONNI
38 KPLANG
39 KRACHE
40 KUSAAL
41 LARTEH
42 LELEMI
43 LIGBI
44 LOGBA
45 MAMPRULI
46 NAFAANRA
47 NAWURI
48 NKONYA
49 NTCHAM
50 NYANGBO
51 NZEMA
52 PAASAAL
53 SAFALIBA
54 SEHWI
55 SEKPELE
56 SELEE
57 SIWU
58 SOUTHERN BIRIFOR
59 SOUTHERN DAGAARE
60 TAFI
61 TAMPULMA (2)
62 TUMULUNG SISAALA
63 TUWULI
64 VAGLA
65 WALI
66 WASA
67 WESTERN SISAALA
OFFICIAL LANGUAGE
ENGLISH
LANGUAGE FAMILIES
GUR
MANDE
KWA
WIDESPREAD LANGUAGES
AKAN ÉWÉ
GHANAIAN SIGN LANGUAGE
HAUSA
MAASINA FULFULDE
NOTES:
1. WHITE AREAS ARE VIRTUALLY UNINHABITED.
2. BRACKETS SHOW THE NUMBER OF TIMES A LANGUAGE'S NUMBER APPEARS ON MAP, IF MORE THAN ONCE.
km
0 50 100 150
©2004 SIL
Burkina Faso
Côte d'Ivoire
Togo
Accra
ATLANTIC OCEAN
3° W
2°W
1°W
0°
1°E
11°N
10°N
9°N
8°N
7°N
6°N
5°N

Appendix B: Text Narrative–"The Spider and the Chief"

Interlinear Text Analysis Layout:

FN: Phonemic detail
MM: Morpheme breakdown
MMG: Morpheme by morpheme gloss
LT: Literal English translation

Notes on the text:

In this text there is a battle between a spider and 'the sickness'. This battle is portrayed by the author through song, and in the recording of this story he sings the text marked between '>>' and '<<'. The author reported that he learnt this tale from his mother when he was a child, and the song is from a dialect of Western Sisaala spoken in the 'Chum' village, which she spoke. The form *yɛ* stands for 'something', as in 'the sickness', 'human being', etc. The word for word translation could not be completely reproduced by the author, but were vaguely translated as follows:

Form	Gloss
yɛ	something (in this use, 'the sickness')
woŋ	defeat
ya yehe	song
ya	you
kɛŋ	will be
puo	like pregnant person
bɛlɛ	children
ko	come
ka	will
poŋ	line up
wilu	crying

The following example reproduces the song's tempo:

FN	yɛ	woŋ	ya-yehe
MM	something	defeat	song

FN	yɛ	woŋ	ya-yehe
MM	something	defeat	song

FN	ya	kɛŋ	puo
MM	you	will.be	like.pregnant.person

FN	yɛ	woŋ	ya-yehe
MM	something	defeat	song

FN	ko	bɛlɛ	ko	ka	poŋ	wilu
MM	your	children	come	will	line.up	crying

FN	ko	bɛlɛ	ko	ka	poŋ	wilu
MM	your	children	come	will	line.up	crying

Text 1–The Spider and the Chief–Narrated by Dyiaka (6/25/2003)

FN	wawʊlɛnɛrɛ	aba	ku	baŋ	ʧælændʒi		dɔwo
MM	wawʊlɛnɛrɛ	CONJ	kuoru	3PL-ŋ	ʧælændʒi < Eng		dɔwo
MMG	spider	and	chief	they-cont	challenge		each other
LT	The spider and the chief continue to challenge each other.						

FN	wawʊlɛnɛrɛ	nɛŋala	bé	katomo	dʒa	ane	ba
MM	wawʊlɛnɛrɛ	nɛŋala	be.PST	katomo	dʒa	ane	3PL
MMG	spider	somebody	went	dwarfs	house	and	they
LT	Somebody went to the su-sayers' house and the						

FN	bule	po	buli	oŋ	kuoko	o	
MM	bule	po	buli	oŋ	kuoko	3SG	
MMG	told	him	that	when	comes	he	
LT	soothsayer told him that when he returns he						

FN	bulepa	kuu	e	kuo	buuli	pa
MM	bulepa	kuoro	e	kuoro	buuli	pa
MMG	tell	chief	that	chief	announce	to
LT	should tell the chief that he should announce to					

FN	tɔ	narra	wu	əs	pʊɔli	li
MM	tɔ	narra	wu	əs <Eng	pʊɔli	li
MMG	village/town	people	everyone	as <Eng	sickness	some
LT	all the villagers that a sickness will					

FN	wase	úku	wɪdin	ta-pula	bape	né
MM	wase	úku	wɪdin <Eng	tɔ-PL	bape	né
MMG	want	to.come	within <Eng	days	seven	these
LT	come within the next seven days.					

FN	tapulla	nɛnwu	aku	kɛrri	ka	pe
MM	tapulla	nɛn-wu	(aku	kɛrri <Hausa)	ka	pe
MMG	that.day	people-PL	should	do-well	to	sleep
LT	On that day everybody would do well to sleep					

FN	ʤa	ɔso	nɛnwu	sɪ	ɲanna	pe	no
MM	ʤa	ɔso	nɛn-wu	FUT	ɲanna	pe	no
MMG	house	inside	everybody-PL	should	outside	sleep	no
LT	inside their house. No one should sleep outside.						

FN	baha	bulli	aɲa	wawʊlɛnɛrɛ		wo
MM	ba-ha	bulli	aɲa	wawʊlɛnɛrɛ		wo
MMG	they-when	announced	that	spider		didn't
LT	When this was announced the spider didn't					

FN	mollaniɛ	ka	bule	sede	o	e
MM	mollaniɛ	CONJ	bule	sede	3SG	e
MMG	understand	and	said	must	he	will
LT	understand and said he would					

FN	ʧælɛnʤi	pʊɔli	ɲa	ane	ba	mɛŋ	laŋ
MM	ʧælɛnʤi	pʊɔli	DET	CONJ	3PL	mɛŋ	laŋ
MMG	challenge <Eng	sickness	the	and	they	were	there
LT	challenge the sickness and everyone there heard him.						

FN	aɲaa	tapula	bape	ako	
MM	aɲa-a	tapula	bape	ako	
MMG	there-(stressed)	days	seven	came	
LT	After seven days				

FN	pɛrri	wawʊlɛnɛrɛ	isi	zɪ	pɛ	hadɪse
MM	pɛrri	wawʊlɛnɛrɛ	isi	zɪ	pɛ	hadɪse
MMG	past	spider	got.up	climb	slept	rooftop
LT	past, the spider climbed on to the rooftop and slept					

FN	duo	o	ha	sɪnɛ	pɛ	hadɪse	duo-a
MM	LOC	3SG	ha	sɪnɛ	pɛ	hadɪse	up-(stress)
MMG	up	he	when	climb.up	slept	rooftop	up
LT	there. When he climbed up to the rooftop						

FN	tɔ	kenekene	kofiɛllɛ́	e	pʊɔlo	
MM	tɔ	kenekene	kofiɛllɛ́	CONJ	pʊɔlo	
MMG	weather	became	chilled	and	sickness	
LT	the weather became chilly, and the sickness					

FN	ɲa	n	yi	yila	ako	yɛlla	ɲa	o
MM	DET		yi	yila	ako	yɛlla	DET	3SG
MMG	the		sing	songs	coming	song	the	he
LT	sing songs coming the song. He							

FN	hayiɛ́		pilo	bule	>>	yɛ	woŋ	ya	yehe
MM			pilo	bule					
MMG	is.singing		started	said					
LT	is singing								

FN	yɛ	woŋ	ya	yehe	ya	kɛŋ	puo	yɛ	woŋ	ya
MM										
MMG										
LT										

FN	yehe	ko	bɛlɛ	ko	ka	poŋ	wilu	ko	bɛlɛ	
MM										
MMG										
LT										

FN	ko	ka	poŋ	wilu	<<	ane	wawʊlɛnɛrɛ	isi	
MM						CONJ	wawʊlɛnɛrɛ	isi	
MMG						and	spider	got.up	
LT	and the spider got up,								

FN	ka	bule	á	e	pʊɔlo		á	la	wakonɛɛ
MM	CONJ	bule	á <Eng	e	pʊɔlo		áɲa	la	wakonɛɛ
MMG	and	said	ah!	is	sickness		the	that	coming
LT	and said 'ah!' It is the sickness that is coming.								

FN	o	matiti	>>	yɛ	woŋ	ya	yehe	yɛ	
MM	3SG	matiti							
MMG	he	himself							
LT	He himself (began to sing)								

FN	woŋ	ya	yehe	ya	kɛŋ	puo	
MM							
MMG							
LT							

FN	yɛ	woŋ	ya	yehe	ko	bɛlɛ	
MM							
MMG							
LT							

FN	ko	ka	poŋ	wilu	ko	bɛlɛ	ko
MM							
MMG							
LT							

FN	ka	poŋ	wilu	ko	bɛlɛ	ko	
MM							
MMG							
LT							

FN	ka	poŋ	wilu	<<	ay!	ane	pʊɔlo	
MM								
MMG					aye!	CONJ	sickness	
LT	'Aye!' The sickness							

FN	a	ʧɪ	ah	o	e	ba	bulli	ká	nɪbe
MM	aŋa	ʧɪ	ah <Eng	3SG	e	3PL.POSS	bulli	CONJ	nɪbe
MMG	DET	stood	ah	he	made	them	announce	and	who.else
LT	stood. He made them announce who else								

FN	ka	nibɛrri	mɛn	dunie	numi	a	
MM	CONJ	nibɛrri	LOC	dunie	numi	a	
MMG	and	who else	in	world	this	is	
LT	in this world is						

FN	wolli	isi	a	ʧælɛnʤ	o	ane	o	
MM	wolli	isi	a	challenge <Eng	3SG	CONJ	3SG	
MMG	able	got.up	to	challenge	he	and	he	
LT	able to challenge it. And he							

FN	bi	pili	a	be	vamoɔ	ka	be	yɛ	
MM	bi	pili	a	be	vamoɔ	CONJ	be	yɛ	
MMG	again	started	to	again	moved/walked	and	again	sang	
LT	again started to move and again sang								

FN	>>	yɛ	woŋ	ya	yehe	yɛ	woŋ	ya	yehe
MM									
MMG									
LT									

FN	ya	kɛŋ	puo	yɛ	woŋ	ya	yehe	ko
MM								
MMG								
LT								

FN	bɛlɛ	ko	ka	poŋ	wilu	ko	bɛlɛ
MM							
MMG							
LT							

FN	ko	ka	poŋ	wilu	<<
MM					
MMG					
LT					

FN	ane	wawʊlɛnɛrɛ	bi	isitʃɛ		ka	bɛ	yɛ	
MM	CONJ	wawʊlɛnɛrɛ	bi	isitʃɛ		CONJ	bɛ	yɛ	
MMG	and	spider	again	stood.up		and	again	sang	
LT	The spider again stood up and again sang								

FN	o	titi	>>	yɛ	woŋ	ya	yehe	titi	yɛ	woŋ
MM	3SG	REFL								
MMG	he	himself								
LT										

FN	ya	yehe	yɛ	woŋ	ya	yehe	
MM							
MMG							
LT							

FN	ko	bɛlɛ	ko	ka	poŋ	wilu	
MM							
MMG							
LT							

FN	ko	bɛlɛ	ko	ka	poŋ	wilu	<<
MM							
MMG							
LT							

FN	ane	pʊɔlo	a	bɪ	tʃɛ	baj	dɛn	
MM	CONJ	pʊɔlo	DET	bɪ	tʃɛ	by <Eng	then <Eng	
MMG	and	sickness	the	again	stopped	by	then	
LT	The sickness stopped again, by then							

FN	o	tʃo	kwa	pɛrri	tɔ	ɲa	tiɛssi	to	ane
MM	3SG	tʃo	kwa	pɛrri	tɔ	DET	tiɛssi	to	CONJ
MMG	he	then	came	near	village	the	closer	then	and
LT	he was near the village. Closer								

FN	o	ʧɛ	ka	tuwu	linnu	o	tuwi	dɔn
MM	3SG	ʧɛ	CONJ	tuwu	voice	3SG	lowered	down <Eng
MMG	he	stopped	and	lowered	voice	he	lowered	down
LT	he stopped and lowered his voice							

FN	a	makɛ	o	ne	yɛ	ma	e	wawʊlɛnɛrɛ
MM	to	makɛ	3SG	ne	yɛ	ma	DET	wawʊlɛnɛrɛ
MMG	to	show	he	when	sing	too	the	spider
LT	so that when he sings, the spider							

FN	pi	bini	o	mɛŋ	sɪɛʧɪɛnɛ	to	ane
MM	pi	bini	3SG	mɛŋ	sɪɛʧɪɛnɛ	to	ane
MMG	should	think-that	he	is	far-place	then	and
LT	should think that he is far away. And then the sickness						

FN	o	yɛ	>>	yɛ	woŋ	ya	yehe
MM	3SG	yɛ					
MMG	he	sang					
LT	sang						

FN	yɛ	woŋ	ya	yehe	ya	kɛŋ
MM						
MMG						
LT						

FN	puo	yɛ	woŋ	ya	yehe
MM					
MMG					
LT					

FN	ko	bɛlɛ	ko	ka	poŋ	wilu
MM						
MMG						
LT						

FN	ko	bɛlɛ	ko	ká	poŋ	wilu	<<
MM							
MMG							
LT							

FN	ane	wawʊlɛnɛrɛ	isitʃɛ	ka	bule	e
MM	CONJ	wawʊlɛnɛrɛ	isitʃɛ	CONJ	bule	e
MMG	and	spider	stood-up	and	said	that
LT	and the spider stood up and sang it					

FN	titi	>>	yɛ	woŋ	ya	yehe
MM	REFL					
MMG	himself					
LT	to himself					

FN	yɛ	woŋ	ya	yɛhɛ
MM				
MMG				
LT				

FN	ya	kɛŋ	puo	yɛ	woŋ	ya	yehe
MM							
MMG							
LT							

FN	ko	bɛlɛ	ko	ka	poŋ	wilu
MM						
MMG						
LT						

FN	ko	bɛlɛ	ko	ka	poŋ	wilu	<<
MM							
MMG							
LT							

FN	ɛn	poɔlo	de	kwɔzo	o
MM	ɛne	poɔlo	de	kwɔz-o	3SG
MMG	and	sickness	just	entered-3SG.OBJ	it
LT	And the sickness entered him. It				

FN	kwɔzo	ɲa	né	o	de	lɛ	dákure	ade
MM	entered-3SG.OBJ	DET	né	3SG	de	lɛ	dákure	ade
MMG	entered-him	the	then	he	just	developed	hernia	just
LT	entered him and then he developed hernia. It							

FN	ʧase	mɔ	nane	o	lurri	peke	tó
MM	ʧase	mɔ	nane	3SG.POSS	lurri	peke	tó
MMG	showed	up	big	his	testes	between	then
LT	appear and his testes got swelled up. Then						

FN	o	pɪnó	ada	wuli	é	ba	lo	mɛ	é
MM	3SG	pɪnó	ada	wuli	é	3PL	lo	mɛ	é
MMG	he	slept	just	crying	said	they	help	him	that
LT	he slept and was crying. They told him that								

FN	ba	mo	yɛri	ku	o	ku	lo	mɛ	ba	mo
MM	3PL	mo	yɛri	kuoro	3SG	ku	lo	mɛ	3PL	mo
MMG	they	go	call	chief	he	come	help	him	they	went
LT	they would call the chief and come help him. They went									

FN	yɛrɛ	ku	o	lo	mɛ	ane	tɔpollɛ
MM	yɛrɛ	kuoro	3SG	lo	mɛ	CONJ	tɔpollɛ
MMG	called	chief	he	help	him	and	daybroke
LT	and call the chief at dawn.						

FN	ba	mo	yɛrɛ	ku	ku	kuo	bɛ	bɛ
MM	3PL	mo	yɛrɛ	kuoro	kuoro	kuo	bɛli	bɛ
MMG	they	went	called	chief	chief	came	look	look
LT	They went and called the chief and the chief came and looked							

FN	bɛ	bɛ	bɛ	ka	bule	á	ba	wullɛ	
MM	bɛ	bɛ	bɛ	CONJ	bule	ah<Eng	3PL	wullɛ	
MMG	look	look	look	and	said	ah!,	they	last	
LT	and looked and said, 'ah!' They								

FN	abule	é	nɛnwu	pɛ	tɨ́to	e	kwa	pɛ
MM	abule	é	nɛn-wu	pɛ	tɨ́to	2SG	kwa	pɛ
MMG	announced	that	people-PL	sleep	night	you	want	slept
LT	announced that everyone should							

FN	e	zo	pɛ	ʤa	oso	e	wawʊlɛnɛrɛ	wo
MM	2SG	zo	pɛ	ʤa	oso	e	wawʊlɛnɛrɛ	wo
MMG	you	enter	sleep	house	inside	that	spider	did not
LT	enter a house to sleep. Because the spider did not							

FN	ʤa	oso	pɛnɛ	ɛntɛ	poɔlo	no	bo
MM	ʤa	oso	pɛnɛ	ɛntɛ	poɔlo	no	bo
MMG	house	inside	sleep	that-is-why	sickness	that	had.him
LT	sleep inside, that is why the sickness got him.						

FN	so	o	dɛlle	tarra	ntɛ	poɔlo	ɲa	bo
MM	so	3SG	dɛlle	tarra	ɛntɛ	poɔlo	DET	bo
MMG	so<Eng	he	(ears	strong)	that-is-why	sickness	the	had-him
LT	So since he's stubborn that is why the sickness got him.							

FN	anɲa	poɔlo	ɲa	ma	ʧo	hab-o	anɲa
MM	an-ɲa	poɔlo	DET	ma	ʧo	hab-3SG.OBJ	an-ɲa
MMG	like-that	sickness	the	as	they	had-him	like-that
LT	That the spider had the sickness						

FN	ba	né	wó	ɲɪke	ke	wawʊlɛnɛrɛ
MM	3PL	né	wó	ɲɪke	ka	wawʊlɛnɛrɛ
MMG	they	if	don't	burn	then	spider
LT	if they don't burn him					

FN	mɛŋ	dunniɛ	mɛ	poɔlo		a		
MM	mɛŋ	dunniɛ	mɛ	poɔlo		DET (ɲa)		
MMG	leaves	world	here	sickness		the		
LT	the spider will leave the world the sickness, and it							

FN	sɪ	bɛsɛ	dunniɛ	mɛ	to	ane	ba	isi
MM	FUT	bɛsɛ	dunniɛ	mɛ	to	ane	3PL	isi
MMG	will	spread	world	here	then	and	they	got.up
LT	will spread throughout the world. Then they got up							

FN	tɔ	ɲa	náwuù		saŋŋɛ	haka	ba	ɲɪkɛ
MM	tɔ	DET	ná-wuù		saŋŋɛ	haka	3PL	ɲɪkɛ
MMG	village	the	person-PL[19]		agreed	that	they	burn
LT	the village and everyone agreed that they had to burn							

FN	wawʊlɛnɛrɛ	an	ba	le	marɛ	kekó	ninnu	
MM	wawʊlɛnɛrɛ	an<Eng	3PL	le	marɛ	kekó	ninnu	
MMG	spider	and	they	went	set	wood	fire	
LT	the spider and they went and started a wood fire							

FN	a	bɔ	wawʊlɛnɛrɛ		kamo	yo	hɪ	laŋ
MM	3PL (ba)	bɔ	wawʊlɛnɛrɛ		kamo	yo	hɪ	laŋ
MMG	they	picked	spider		sent.away	threw	into	there
LT	and they picked the spider and threw him into the fire.							

FN	wawʊlɛnɛrɛ	dí	a	muɔlɛ		a	bɪrɛmɛ
MM	wawʊlɛnɛrɛ	dí	a	muɔlɛ		3SG (o)	bɪrɛmɛ
MMG	spider	bent	(into	'ashes')[20]		it	turned
LT	The spider burnt completely into ashes and turned into						

[19] 'Everybody'

[20] 'Burnt into ashes'

FN	tapumá	so	o	ha	muɔle	bɪrɛmɛ		tapumá	
MM	tapumá	so	3SG	ha	muɔle	bɪrɛmɛ		tapumá	
MMG	ashes	so<Eng	he	when	'ashes'[21]	turned		ashes	
LT	ashes. So when the ashes								

FN	o	tapula	buturu	pɛrri	e	báná	
MM	3SG	tapula	buturu	pɛrri	e	báná	
MMG	it	days	three	reach	when	rain	
LT	After three days the rain reached them						

FN	de	ʧase	ko	hɛvvi	a	pa	ŋie
MM	de	ʧase	ko	hɛvvi	a	pa	ŋie
MMG			come	heavy<Eng	it	took	water
LT	and the heavy rain took the water						

FN	ŋie	pa	tapuma	wu	katu	be	fu	a
MM	ŋie	pa	tapuma	wu	katu	be	fu	a
MMG	water	took	ashes	all	sent.down	go	river	it
LT	with the ashes and all were sent down the river.							

FN	katu	he	fu	mɛ	na	fu	ɲa	mɛŋ	tɔ
MM	katu	he	fu	mɛ	na	fu	DET	mɛŋ	tɔ
MMG	sent.down	into	river	inside	see	river	the	inside	village
LT	It was sent down the river into the village								

FN	ɲa	naawu	ko	ɲo	ane	haala	tu	to
MM	DET	narrawu	ko	ɲo	ane	haala	tu	to
MMG	the	people	all	drink	and	women	went.down	to.fetch
LT	and all the people drink because the women went down to fetch the							

FN	ŋiya	a	ka	ko	a	ka	ko
MM	ŋie-ɲa	3PL	ka	ko	3PL	ka	ko
MMG	water-the	they	hold	come	they	hold	come
LT	water. They brought it back						

[21] Like 'ashes', but the consultant could not provide the 'correct' translation. He felt strongly about this, therefore I have noted it where relevant.

FN	naá	ku	ɲo	o	yowo	pɛrri
MM	narra	ku	ɲo	3SG	yowo	pɛrri
MMG	people		drink	it	week	reach
LT	to the people to drink.					

FN	ku	lɪ	dakurɛ	ku	dakurɛa	
MM	kuoro	lɪ	dakurɛ	kuoro	dakurɛ-ɲa	
MMG	chief	develop	hernia	chief	hernia-the	
LT	The chief developed hernia. The hernia went back					

FN	harra	o	haala	ma	e	ba	ma	lobie
MM	harra	3SG.POSS	haala	ma	e	3PL	ma	lobie
MMG	back	his	wives	also	that	they	too	intestines
LT	and his wives they also got large intestines.							

FN	n	dawɛ	ba	ma	lobie	n	dawɛ
MM	n	dawɛ	3PL	ma	lobie	n	dawɛ
MMG	are	paining	they	too	intestines	are	paining
LT	Their intestines are also in pain.						

FN	anɲa	ha	tɪ	dakure	o	powa	duniɛ
MM	ane-anɲa	ha	tɪ	dakure	3SG	powa	duniɛ
MMG	and-that	that	is.why	hernia	it	rampant	world
LT	And that is why hernia is rampant in the world						

FN	numi	minnomi	ede	kolɛ	ko	a	hambuli
MM	numi	minnomi	ede	kolɛ	ko	a	hambuli
MMG	this	now	when	come-out	as	a	young.guy
LT	now. That is why when you come out as a young guy,						

FN	ko	a	tɪnni	e	keŋ	dakure
MM	ko	a	tɪnni	2SG	keŋ	dakure
MMG	come	to	finish	you	have	hernia
LT	you come to finish that you have hernia.					

FN	fes	stori	ɲa	ɛnd	nia
MM	fes	stori	DET	ɛnd	nia
MMG	first	story	the	end	here
LT	The first story ends here.				

Appendix C: Lexicon

Forms which have a question mark in the grammatical category column mark questionable categories. Also, 'no pl' mark forms which do not have a plural counterpart.

Form	Grammatical Category	Gloss
a	1PL, 1PL.POSS	we, our
â	interrogative	what?
aba	conjunction	and
abenê	interrogative	to where?
abrobe	n	pineapple
ahyi	Phrase	no
akutu	n	orange (fruit)
akutuwa	n	oranges (fruit)
alɛ̂ aŋ	interrogative	who?
alo	v	lose, fall, to fall, to lose
alonɛrri	n	airplane
amo	n	tomato, tomatoes
ana	n	father
anawa	n	fathers
anbɛlle	n:compound	paternal uncles
anbiie	n:compound	paternal uncle
anhĩnse	n	father's senior brothers, uncles
anhõ	n	father's senior brother, uncle
antɛnna	interrogative	which?
aŋ	interrogative	who?
atia	n	cashew
atisé	n	cashews
ba	3PL, 3PL.POSS	they, their
ba	n	antelope
baála	n	men
baale	n:det	a man
baale	n	lizards (type of big edible ones)
baavoka	n	soothsayers, sorcerers
babʊ	num	six
balla	n	man, husband

bállá	n	lizard (type of big edible one)
balle	v	hunt; to hunt
bana	num	four
báná	n	rain, sky
bana, dunno	n	rain
baɲina	adj	old
bansé	n	chairs
banse	n	sitting stools
bantʃɛ	n	cassava
bántʃɪlá	n	chest
bántʃɪ́lè	n	chests
baŋé	n	necks
baŋŋa	n	neck
baŋŋabɛnse	n:compound	neck chains
bape	num	seven
barre	v	grow
básá	n	chair
básà	n	mat
basarɛ́	n:det	a chair
bɔ	v	take
bɔɔ	n	grassland
bɔdia	n	plantains
bɔdibɛlle	n:compound:dimunitive	small plantains
bɔdibiie	n:compound:dimunitive	small plantain
bɔdie	n	plantains
bɔdiíà	n	plantain
bɔdiie	n	plantain
bɔllo	v/n?	weak, tired
bɔrro	n	grasslands
bɔsé	n	ducks
be	n	antelope
be	interrogative	what?
bê	interrogative	why?
beberri	n	jumpers
béberu	n	jumper
bɛlɛ	n	children
beli	v	guard; lit. 'looking after it'

bɛllɛ	num	two
bɛná	n	year
bɛnnà	n	toilet, feces
bɛ́nná	n	feces, diarrhea
bɛnse	n	chains
bɛnsé	n	years
bɛnte	n	drum
bɛntesi	n	drums
bérì	v	jump
berra	n	antelopes
bɛrra	n	antelopes
bewá	interrogative	what?
bie	n	thin, child
bié	n	seeds
biè	n	baby
biì	n	baby
biibiie	n:compound?	junior son
biihaala	n:compound?	daughter in laws
biihalla	n:compound?	daugher in law
biihɔ̃n	n:compound?	senior son
biihĩɛ̃nse	n:compound?	senior sons
biiri	n:det	a child
biiwiɛlla	n:compound?	junior sons
bɪnná	n	feces(pl)
bɪnna	n	feces
bínnɛ́	v	think
bɪnno	v	old
bino	v	remember, think
bɪnossa	n:compound	fart, flatulate
binu	adj	darkness
bipole	n	baby
bipolɛ́	n	babies
biru	v	fast, quick
bɪsɛ́	v	pour, to pour
bobɛlle	n:compound:dimunitive	small goats
bobiie	n:compound:dimunitive	small goat
bofɪrulu	n	bread fruit

bofɪruluwa	n	bread fruits
boi	n	duck
boɪlla	n:compound	goat milk
bomoɔ	num	five
boné	n	goats
bonna	n	goat
brum	adj	blue
buɔ	n	grave
bʊɔ	n	cave
buɔne	n	caves
buɔne	n	graves
buɦunsi	n	gnats
buki	v/n?	drunk, boozed
bullo	v	tired
búllù	n	small white worm that invests the skin
bʊmá	n	mosquito
bumma	n	fly
buo	n	hole, grave
buone	n	holes, graves
buse	n	flies
bʊse	n	mosquitoes
busilu	n	Lambussi dialect
buturu	num	three
buu/\lú	n	small white worms that invest the skin
ɔduma	n:compound	tape worms
ɔdunna	n:compound	tape worm
ɔllo	n	bush rat
ɔló	n	bush rats
ɔnno	n	monkey
ɔnsɛ	v	pour, to pour
ɔ́ntúrù	n:compound?	writer
ɔntuuru	n:compound?	writers
ɔse	V	sacrifice
ɔsesɔkko	v	sad
da	n	stick
ʤa	n	house
daa	n	wood (forest)

daase	n	firewood
dabíè	n	stone
dabii	n:compound	small stick
dabisi	n:compound	small sticks
daboɔ	n	stones
dabowiɛlla	n:compound?	gravel
dabʊɔ	n	mound built for cooking from stones
dabʊɔnse	n	mounds built for cooking from stones
ʤaisetʃɪse	n:compound	house ceiling, ceiling
dakuɔ	n	parrot
dakuse	n	parrots
ʤanarrá	n:compound?	families
dandabuuli	n	scar
dandabuuliwa	n	scars
ʤanɛnna	n:compound?	family
daŋkwaala	n	mushrooms
daŋkwalla	n	mushroom
dasé	n	woods
dasé	n	sticks
datʃe	n	brother in law
datʃewa	n	brothers in law
ʤátiie	n	houseland, floor
datwiie	n	mouse
datwo	n	mice
dɔktor	n	medical doctor
dɔlloŋ	adj	light (in weight)
dɔnfiɛmma	n:compound	not very poisonous long red snakes (don't bite)
dɔnfiɛnna	n:compound	not very poisonous long red snake (doesn't bite)
dɔwo	n	colleagues
ʤe	n	crab
débánnõ	n	door
débánnosé	n	doors
dɛlle	n	ear
dɛllɛ	v	wait, float, scooping water for sediments
dɛlle	n	ears
dɛllebɛnse	n:compound	earrings
dɛlleduwo	v	to float

dɛllewa	n	ears
dɛllewa	n	ears
ʤɛllo	adj	broad, wide, large
dɛmmalu	n	leech
dɛmmaluwa	n	leeches
dɛnbie	n:compound	thin body
dɛnbii tɛ́nná	n:compound	thin bodied person
dɛndirra	n	cloud
dɛndirre	n	clouds
dɛnduksé	n:compound	walking sticks
dɛnduku	n:compound	walking stick
dendullu	n:compound	caterpillar
dendulú	n:compound	caterpillars
dɛnkɛ́nna	n:compound	skin
dɛnkɛnné	n:compound	skins
dɛnlunna	n:compound	malaria; lit. 'hot body'
dɛ́nna	n	body
dɛnnamiie	n	flesh
dɛnné	n	bodies
dɛ̀ŋwílà	v	lazy
dɛrrí	adj	shallow
ʤese	n	crabs
dɛsse	v	tall
dɛsso	adj	tall
di	v	eat, win, to eat, to win
di	adj	sharp
dibiɛ	n	flying bird
dibisi	n	flying birds
ʤiʤaka	n	chair
ʤiʤakse	n	chairs
dɪhalle	n:compound	fried soup, stew
díná	v	taste
dɪniie	n:compound	light soup
dɪnse	n	soups
dɪntunnu	v	deaf/mute
dɪparra	n:compound	vegetable soups
dɪparra	n:compound	the vegetable that goes in the 'dɪparra'

dɪse	n	soup
ʤise	n	houses
ʤisetʃɪse	n:compound	houses ceiling
ʤisetʃɪsewa	n:compound	houses ceiling
dɪssanna	v/adj?	dirty
ʤiwalá	n	lizards
ʤiwalla	n	lizard
dobidabwo	n	hail, rain stones
dobie, dobiie	n	drops of water
doma	n	snakes
donna	n	snake
dopuo	n:compound?	rain wind, rainstorm
dorro	n	burn
dubaala	n:compound	brothers in law
dubalIa	n:compound	brother in law
duɔ	locative	up; on top
duɔ	adj	high/on top
duɔ́	locative	above
ʤúʤú	n	tarantula
ʤuʤuwa	n	tarantulas
dúmá	n	snakes
dummi	v	boom
dúnnà	n	snake
dúnnà	n	snake
dunné	n:det	a snake
dunnu	n	rain
dùrrì	v/n?	heal, cure
dúsé	v	put off
dʊsɪɛ	n:compound	rainbow; lit. 'rain knife'
dusú	v	limp
duùni	n	vulture
duuniwa	n	vultures
duusi	n/adj?	strength
duuwo	n	health
dũwɔ	n	python
duwò	adj/n	second
duwõ	locative	above

dúwó	locative	top
dúwò	adj	hard
`ẽ	v	know
ebɛlle	n:compound?	children (sons or daughters)
ebiie	n:compound?	child (son or daughter)
eela	n	breast, mother's milk
ʃiye	n	tomorrow
ʃiyetulaŋ	n	day after tomorrow; lit 'tomorrow next'
e	2SG, 2SG.POSS	you, your
é	2PL, 2PL.POSS	you, your
ela	n	breasts, mother's milks
ene	2SG	you (deictic)
éne	2PL	you (deictic)
errewa	interrogative	how?
ɛrrewa	interrogative	how?
ɛʧiɛ	n	place
fa	v	to run
fállá	n	pito bowl calabash
fállè	n	pito bowls calabash
feli	v	fail
fí	num	ten
fi aba bɛllɛ	num	twelve
fí aba modõn	num	eleven
fiɛlla	n	shape
fiɛllè	n	rest
fiɛllo	adj	moist, damp, wet, cold
fɪffára	n	runner
fiia	n	urine
fila	n	flower (plant)
filawa	n	flowers (plants)
fɪllɛ	v	glitter
fɪrɛ	n	whip
fò	v	bathe, to bathe
fobállá	n:compound	white man
fobié	n:compound	white baby, young man
fobinnu	n:compound	black foreigner
foli	n	foreigner

folidatwiie	n:compound	pig; lit. 'white man's mouse'
folidatwo	n:compound	pigs; lit. 'white man's mice'
fompommá	n:compound	white foreigner, white man
forrɛnse	n	forrest
fu	n	river
fudandabuuli	n:compound	scar; lit. 'sore scar'
fudandabuuliwa	n:compound	scars; lit. 'sore scars'
fuli	n	stomachs
fulí	n	bellies
fulu	n	stomach
funi	n	rivers
fuo	n	river, steam, pond, lake
fùó	n	sore
fuodandabuuli	n:compound	scar; lit. 'sore scar'
fuodandabuuliwa	n:compound	scars; lit. 'sore scars'
fuogiŋgine	n:compound?	beaches
fuogiŋginu	n:compound?	beach
fuone	n	rivers, streams, ponds, lakes
fura	n	sores, cuts
fuwo	n	sore, cut
ga	v	steal
gaane	n	clothes
gaásɛ̀	v	madness, craziness
gabɛlle	n:compound	small thieves
gabiie	n:compound	small thief
gane	n	clothing (plural)
gapuni	n	cotton, cotton trees
gapunnu	n	cotton, cotton tree
gara	n	thieves
garɛ	n:det	a thief
garra	n	clothing (singular)
garra	n	thief
gásùnsé	n	shirts
gasuo	n	shirt

gbábébírrù	n:compound	after sunset[22]
gbanna	n	evening
gbanna lɛrroô	n:compound	dusk (lit. 'evening is bending')
gbarehe	Phrase	to gather something
gbeeka	n	crippled
gbele	v	play, to play
gbɛnu	v	to grow lean, to slim down
gɔŋŋo	n	guinea corn, guinea corns
gɛ̀ngárró	v	madness
gɛ̀ngátɪ́nná	n:compound	crazy person
gɪrra	n	bush
gogɔnse	n	rags
gogɔso	n	rag
gogwarrɔ	n	a dancer
goiyaŋ	n	guava
goiyaŋwa	n	guavas
guotuni	n:compound	kola trees
guotuwo	n:compound	kola tree
haála	n	women, wife, egg
haale	n	a woman
habe	n	palm tree
hadɛnsé	n:compound	roof tops
hadinkɛlle	n	grasshopper
hadinkɛllo	n	grasshoppers
hádɪ́sè	n:compound	roof top
hallawundi	n	kidney
hambie pona	n:compound?	young person's body hair
hambisibelo	n:compound?	childcare
hambisimɛna	n:compound	measles (lit. 'children-sickness')
hambubisi	n	male children
hambulbɛlle	n	male children
hambulbiie	n	male child
hambulɛ	n	male child

[22] Literary, 'when the sun sets and darkness begins to come'.

hambùllí	n	male child
hampoɔla	n:compound?	young handsome man
hampurra	n	cock roaches
haŋbɛlɛ	n	bone
haŋbɛlɛwá	n	bones
haŋbenuwɔ	n:compound	bone marrow (lit. 'oil in the bone')
haŋgunni	n	millipedes
haŋgunnu	n	millipede
hará	n	backs
harra	locative	behind, last, back (humans and animals)
hɔɔ	n	metal
hɔlɔ	n	charcoals
hɔlo	n	charcoal
hɔrɔ	n	metals
hɔró	n	fleas
hɔrro	n	flea
he	v	write
hɛdabie	n	back bones
hɛdabiie	n	back bone
hɛlla	n	sand
hɛzoo	n	ant hills
ɦɛzzo	n	ant hill
ɦíɛ̀	n	red ant (build large wasp like houses)
hiɛlla	n	sand
hiɛnse	v	grow
ɦiɛwa	n	red ants (build large wasp like houses)
hɪlbaála	n:compound	father in laws
hɪlballa	n:compound	father in law
hɪlhaála	n:compound	mothers in law
hɪlhalla	n:compound	mother in law
hilla	n	in law
hillawa	n	in laws
hínsò	n	breath
hɪparra	v	menstruate
ɦise	v	shame
hompuwo	n	cock roach
hõnsa	n	lizards (type of big edible ones)

hosá	n	lizard (type of big edible one)
ɪlla	n	general milk
isaalo	n	sisali language
jɛnse	n	salts
jɛse	n	salt
jɪra	n	name
jɪrá	n	names
ka	conjunction	and
kabasé	n	cobras
kaka	n	water snake
kakse	n	water snakes
kálbi	interrogative	when
kantommo	n	fairies
kantonno	n	fairy
kantonyɪrra	n:compound	soothsayers
kaŋkanawa	n	lions
kaŋkanna	n	lion
kapaliie	n	green tiny long type of snake not poisonous
kapaliiewa	n	green tiny long type of snakes not poisonous
katawie	n	umbrella
katawiewa	n	umbrellas
kawfi	n:no pl	coffee
kazɛká	n	ticks
kazɛkka	n	tick
kɔpu	n	cup
kɔpuwa	n	cups
kelu	n	glue
kɛnkan	adj	often
kɛnkiro	n	place
kɛnna	n	book
kɛ́nna	n	paper
kɛnne	n	books
kɛnné	n	papers
keŋkan	adj	heavy
kɛ́ssà	n	cough
kɪkɛllɛ	v	hurry
kiŋkio	n	wing

kiŋkirro	n	wings
kirru	n	pigs
kiu	n	pig
kiubɛlle	n:compound	small pigs
kiubiie	n:compound	small pig
ko	v	come
kobaa	n	cobra
kokodɪro	n	ginger
kokoré	n	jungles
kokorro	n	jungle
kokubɛlle	n:compound	small donkeys
kokubiie	n:compound	small donkey
kokumu	n	donkey
kokusi	n	donkeys
kolá	n	t.z.'s (local dish)
kóllà	n	t.z. (local dish)
koŋkoŋŋo	n	coconut
koŋkoŋsé	n	coconuts
koŋkurru	n	snail
koŋkuruwa	n	snails
kopɔtɔ	n	coal pot
kopɔtɔwa	n	coal pots
kosokoso	adj	rough
kulukulu	n	turkey
kulukuluwa	n	turkeys
kunade	n	trousers
kunadɛse	n	trousers(pl)
kunasè	n	shorts(pl)
kuŋkulu	n	dust
kuokuo	n:no pl	coco
kuorbaŋɪnna	n:compound	old chief
kuorbaŋɪnnawa	n:compound	old chiefs
kuori	n:det	a chief
kuoro	n	chief
kuorowa	n	chiefs
kuúmó	n	foam
kuuna	n	shorts

kwɔ́lɛ́	v/adj?	noise
ladi	n:compound	believe (lit. 'take and eat')
lamida	n:compound	corn cob
lamidasé	n:compound	corn cobs
lamie, lamiíè, lamíyè		n corn, corns (vegetable)
lamipa	n:compound	corn husk (lit. 'corn leaf')
lamipara	n:compound	corn husks (lit. 'corn leaves')
lamiwasa	n:compound	roasted corn
lamiwasé	n:compound	roasted corns
lɔlɛ	n	lorry
lɔlɛwa	n	lorries
lɛlla	n	corpse
lɛlle	n	corpses
liewa	n	biles
liie	n	bile
liio	v	clean
liire	n	horse fly
lingwaana	n	Adam's apple
lingwaná	n	Adam's apples
linì	v	drip; swallow
linní	n	wind pipes, sound of breathing
linnu	n	wind pipe
lino	v	swallow; swallowed
lirewa	n	horse flies
lobiɛ	n	intestine
lolɛ	v	born; give birth
lorro	adj	nasty
luarra	n	medicine man
lubi	n	intestines
lunnu	adj	deep, dense
lurutɪnná	n:compound	medicine man
lutɪnnawa	n:compound	medicine men
luunni	n	drugs, medicines
luuri	n:no pl	testicles
luuru	n	drug, medicines
ma	n	mother
mabɛlɛ	n	junior brothers

mabɛlle	n:compound	mother's junior sisters, aunts	
mabi	n	junior brother	
mabí	n	step mother	
mabiibaala	n:compound	sister's husbands	
mabiie	n:compound	mother's junior sister; aunt	
mabiieballa	n:compound	sister's husband	
mabisi	n	step mothers	
mahĩnse	n	mother's senior sisters, aunts	
mahõ	n	mother's senior sister, aunt	
make	v	learn, teach, show	
makɛŋti	v	proud	
mala	n	senior brother	
malawa	n	senior brothers	
mangoparra	n:compound	mango tree leaves	
mangotunɛ	n:compound?	mango trees	
mangotuwo	n:compound	mango tree	
mannɛ́	adj/v?	sticky	
mantʃɛnse	n	matches (for fire)	
mantʃɛse	n	match (for fire)	
maŋponná	n:compound	butterfly	
maŋponsé	n:compound	butterflies	
mawa	n	mothers	
mebanna	num	eighty	
mebannafi	num	ninty	
mebannafi aba nɛmɛ		num	ninty-nine
mɛbɛlɛ aba bɛlɛ		num	forty-two
mɛbɛlɛ aba modõn		num	forty-one
mɛbɛlɛfi		num	fifty
mɛbɛlɛfi aba modõn		num	fifty-one
mɛbɛlɛfi aba nɛmɛ		num	fifty-nine
mebɛllɛ		num	forty
mebuturu		num	sixty
mebuturu aba modõn		num	sixty-one
mebuturufi		num	seventy
medé	v	tall	
medi?ara	n	cooker	
medili	n	food	

mediliwa	n	foods	
meditʃoro	n	cooker	
mekárá	n	witches	
mekarra	n	witch	
mekarrɛ	n:det	a witch	
mɛ́ná	n	sickness for children	
mɛnna	n	vagina	
mɛnne	n	vaginas	
mɛnsɛ	n	noses	
mere	num	twenty	
mere aba bɛllɛ	num	twenty two	
mere aba modõn		num	twenty-one
mɛrɛfí	num	thirty	
mɛrɛfi aba bɛlɛ	num	thirty two	
mɛrɛfí aba modõn		num	thirty-one
metuɔ	n	kaata	
miisɛ	n	nose	
mimini	n	black ant; carpenter ants	
mimɪnse	n	black ants; carpenters ants	
mo	v	go	
móbie	n	money	
moɔ	v	went	
moɔmoɔ	adj	slow (lit. 'slow slow')	
modõn	num	one	
modunne	n	113	
moduwo	n	tail	
moɦó	v	bitter	
moiwa	n:no pl	rice, rices	
molla	adj	low, under, anus, buttocks	
moma	n	mud fish	
momarro	n	mud fishes	
mono	v	live	
motonetʃune	n:compound	helmets (lit. 'motor hats')	
motonetʃuwo	n:compound	helmet (lit. 'motor hat')	
motozinna	n:compound	motorbike rider, motorbike riders	
mubie	v/adj?	young	
mukilu	n	buttocks	

muo	n	sea
murá	n	seas
muzeno	adj	big
n	1SG	I
na	v	see
ná	n	leg
ŋa	DET	the
naaba	n	grandfather
naabawa	n	grandfathers
naase	v	fight
nabele	n	shin
nabéle	n	shins
nabinsi	n	knees
nabinu	n	knee
nagbélí	n	shin
nagbelli	n	shins
nahá	n	grandmother (maternal or paternal)
naháwa, nahawa		n grandmothers (maternal or paternal)
nahine, náɦine	n	thigh
náɦuo	n	thighs
nakuɔro	n	calves
nakuɔrra	n	calf
nálaŋ	v	bright
naluru	n	root
naluuri	n	roots
namasuksi	n	peppers, pepper plants
namasukú	n	pepper, pepper plant
namballa	n	someone who hunts, hunters
namballo	n	hunter
namballo	n	cat
namballobɛlle	n:compound	small cats
namballobie	n:compound	small cat
namballowa	n	cats
namɛnse	n	meats
namiie	n	meat
ŋaŋawolla	n:compound	morning star
nandowo	n	friends

nanduwo	n	friend	
nane	n	legs	
nanidaburri	n:compound?	nail	
nanidabuúri	n:compound?	nails	
naniíè	n	toe	
naniié, naníe	n	toes	
nanipurra	n:compound	rings (for finger)	
nantʃɪwʊ, nantʃɪwɔ		n:compound	smoked meat
nantʃobɪnna	n:no pl	maggot, maggots	
nantʃʊli	n:compound?	latters	
nantʃʊlu	n:compound?	latter	
nantʃʊwo	n	fly	
nantʃʊwse	n	flies	
nanwobinnu	n:compound	catfish	
nanwotʃɪwʊ, nanwotʃɪwɔ		n:compound	smoked fish
nanwulledɛlla	n:compound	spider web	
naŋwolɛ	n	fishes	
naŋwolla	n	fish	
narra	n	people	
narrawu	n	everybody	
nase	n	legs	
ɲásé\	n	mirror	
ɲásɪ̀sè	n	mirrors	
naßine	n	thigh	
naßuo	n	thighs	
násúké	n	ankle	
násúksì	n	ankles	
nasuwo	n:compound	lame (lit. 'dead leg')	
nátásúlì	n:compound?	shoe	
nátàsúsé	n:compound?	shoes	
nátáwá	n	sandals	
nátáwà	n	sandal	
natʃe	n	foot, sole of foot	
natʃɛse	n	feet, soles of feet	
nawolɛwa	n	spiders	
nawollɛ	n	spider	
nawulledɛlle	n:compound	spider webs	

ɲɔ	n	grass
nɔbuɔ	n	rocks
nɔbuyɛ	n	rock
ɲɔhɪlé	n:compound	hays (lit. 'dry grasses')
ɲɔhɪlla	n:compound	hay (lit. 'dry grass')
nɔnne	n	scorpions
nɔnno	n	scorpion
ɲɔo	n	cow
ɲɔsé	n	grasses
nɛ	interrogative	where?
nɛ́	v	hear
nè	v/n?	see
ne	interrogative	where?
ne duwo	n	right hand
ne gwoɔ, ne gwoan		left hand
nɛ̂	interrogative	where?
negutɔko	n	elbow
negutɔksi	n	elbows
nɛgutuksi	n	elbows
nɛgutuku	n	elbow
nɛ́ɦie	n	arms (between shoulder and elbow)
nɛ́ɦiie	n	arm (between shoulder and elbow)
ɲɛlla	n	horn, tooth
nɛmɛ	num	nine
nene	n	cows
nenibaala	n	thumbs (lit. 'men fingers')
neniballa	n	thumbs (lit. 'man finger')
nɛnie	n	fingers
nɛ́niíè	n	finger
nɛnna	n	somebody
nɛnnipɪrra	n:compound	rings (for finger)
nɛnɲu	n:no pl	potato, potatoes
nɛnse	n	hands
neŋala	n	somebody
neo	v	see, to see
nèrí	v/n?	see
nɛsánnà	n	arm (from elbow down)

nɛ́sánsé	n	arms (from elbow down)
nɛse	n	arm
nɛsse	n	fight
nɛ́sse	n	hand
nesuksé	n	wrists
nesuku	n	wrist
netʃaale	n	palms
netʃalla	n	palm
netʃune	n	hats
netʃuwo	n	hat
ɲibɛlle	n:compound	father's junior brothers
ɲibii	n:compound	father's junior brother
nibinnu	n	black man, human beings
nibipona	n:compound	hair (pl)
nibiponna	n:compound	hair (sg)
nibiponna	n:compound	feather
nie	n	water, interest (from bank loan)
nicfiɛlla	n:compound	cold water
niella	n	fog
ɲiɛlle, ɲɛlle	v	dry, to dry
niɛloma	n:compound	hot water
ɲiibuli	n:compound?	spring of water
niie	adj	water
ɲiiedɪulli	n:compound	faucet
ɲiiedɪulliwa	n:compound	faucets
ɲiilá	n	dew
niipuná	n:compound?	swamp
niipunase	n:compound?	swamps
niisulu	n:compound?	flood
niitʃurii	n:compound?	waterfalls
niitʃuru	n:compound?	waterfall
nikuli	n:compound	short human being
ɲɪla	n	horns, teeth
ɲɪlle	n	glitter
nimo	v	sour
ninne	n	lights, fires, candles
ninno	n	fire, light

ninnowa	n	fires, lights
ninnu	n	light, fire, candle
ɲirra	n	maternal uncle
ɲirra bɛlle	n:compound	sister's children, brother's children's cousin
ɲirra biie	n:compound	sister's child, brother's children's cousin
ɲirrawa	n	maternal uncles
nitʃole	n	lovers
nitʃolli	n	likers
nitʃollu	n	liker
nitʃolo	n	lover
nituhiɛnse	n:compound?	senior sisters
nitulbie	n:compound?	junior sister
nitulbiisi	n:compound?	junior sisters
nitulhɔ́	n:compound?	senior sister
nituli	n:compound?	junior or senior sisters
nítulu	n:compound?	junior or senior sister
niye	n	water
ɲiyɛ	n	waters
nõ	n	cow
ɲo	n	grass
nobɛlle	n:compound	small cows
nobiie	n:compound	small cow
noɪlla	n:compound	cow milk
nokɛnna	n:compound	lip
nokɛnne	n:compound	lips
nónnò	n	fruit, pimple
nónó	n	fruits, pimples
nopóná	n:compound	moustaches
nopónnà	n:compound	moustache
nuɔ	n	mouth
ɲuɔ	v	drink
nùhò, nuwo	n	head
ɲuma	v/n?	blind
nùne\/	n	heads
ɲunŋa	n	toad
ɲuŋe	n	toads
ɲuŋɛ	n:det	a toad

nuó	n	mouth
nuor	n	mouth
nuose	n	mouths
nuowase	Phrase	smoke
nupona	n	hair (pl)
nuponna	n:compound	hair
nupónna	n	hair (sg)
ɲurra	n	crocodiles
nuwɔ	n	oil, fat (in body)
nuwɔ	n	mouth, beak of bird
nʊ̃wɔ́	n	mouth
nʊ̃wɔ̃	n	crocodile
ɲuwɔ	n	crocodile
nuwo	n	oil
nuwo	n	oil
nũwõ	n	oil
ɲuwo	n	crocodile
ɲuwo	n	head
nʊ̃wõ	n	oil
ɲuwowɛ	n:compound	headache (lit.'head pain')
ŋmáná	n	okras
ŋmánɛ̀	v	complain, to complain
ŋmánnà	n	okra
ŋmɛnkosokoso	n:compound	rough road
ŋmɛnna	n	rope
ŋmɛnse	n	ropes
ŋmɛnwɪrro	n:compound	smooth road
ŋmomo	v	sweet
ŋmowe	v	beat
ŋmówʊ\	v	beating
ŋniɛ	n	father
ŋniɛwa	n	fathers
ŋufállá	n:compound?	cup
ŋúfállɛ̀	n:compound?	cups
o	3SG, n	he, she, it, yes
õ	v	know
obio	interrogative	ripe?

ofɛllo	adj	ripe
ofɛllo	interrogative	ripe?
ofié ɲiye	v	pus (lit. 'it has water')
okɛɛle	n	small monkeys (some variety)
okɛlle	n	small monkey (some variety)
ombinnu	adj	black
omo	n	monkey, monkeys
ompommá	adj	white
onduwo	n:no pl	seed, seeds (to be planted)
onfɛlla	v/adj?	new
onfiɛlla	adj	cold
onfiɛnna	adj	red, ripe, violet, orange
onlonna	adj	hot
ontolotolo	adj	warm
onwɪllu	adj	empty
onyɛlla	n	seller
onyɛlle	n	sellers
onyɛyɛlla	n	sellers
owakatɪrrɛ	n	big monkey (variety like human being)
owakatɪrrewa	n	big monkeys (variety like human beings)
pa	n	leaf
pala	n	hill
pale	n	hills
pale	n	mountains, hills
palla	n	mountain, hill
parra	n	leaves (general)
parra	n	menstruation
patru	n	petrol
pɔnnʊ	n	burn
peku	n	pig
pekubɛlle	n:compound	small pigs
pekubiie	n:compound	small pig
pekuwa	n	pigs
pemú	n	tilapia (flat fish pl.)
pemù	n	tilapia (flat fish)
pɛpɛra	n	mud
pɛpɛrre	n	muds

pɛrrɛ	n:no pl	injure, wound
pibɛlle	n:compound	small sheep (pl)
pibiie	n:compound	small sheep
pié	n	yams
piíe	n	yam
piito	n	shorts
piluksi	n	chameleons
piluku	n	chameleon
pini	n	tadpole
piniwa	n	tadpoles
pɪnno	v	sleep
pinsu	n	sheep
pinsuu	n	sheep.pl
pípiíè	n	small earthen pot for food
pípísi	n	small earthen pots for food
pɪto	n	pito (local alcohol)
pítòbiie	n:compound	small shorts
pitowa	n	shorts(pl)
pó	v	guard
pocolo	v/n?	sick, disease
pollu	n	vein
polu	n	veins
pona	n	animal
pona	n	feather
póna	n	feathers
poolù	v	it's windy
porrɛ	v	soak, soft
porro	adj/v?	soft
posa	n	animals
puɔ	n	air
púllù	n	vein
púlú	n	veins
puo	n	wind
puo punsi	n	pregnancy
púrú	n	socks
púrù	n	sock
sabɔla	n:no pl	onion, onions

sakma	n	skin rashes
sɔ́	v	smell
sɔkusi	n	walls
sɔkwie	n	wall
sɔre	n	frogs
sɔrrɛ	n:det	a frog
sɔrro	n	frog
sɛ́mɛ	n	gold
sɛɲɛɲɛnne	v	to lie, will lie, will tell lies
sɛrra	v	slippery
sɛsse	v	wash
sɪ	v	will, said
sɪbie	n:compound	eye balls
sibiɛ	n	Bombara bean
sibiiɛ	n	Bombara beans
sɪ́biie	n:compound	eyeball
sie	locative	in front, eyes, first
sie	n	knife
sié	n	eyes
siɛ	n	first, eyes
siɛ	n	eyes
síé	n	knife
síè	n	eye
sɪgli	v	quiet/silent
sii	n	knife
siíbié	n:compound	Bombara beans
siíbíè	n:compound	Bombara bean
siiɛ	n	eye
siìé	n	eye
siiyɛ	n	eyes
sɪkɛltummi	n:compound	sugar canes (lit. 'stalks that they chew')
sɪkɛltummu	n:compound	sugar cane (lit. 'stalk that they chew')
sɪkkusi dabie	n:compound	ribs
sɪkkusi dabiie	n:compound	rib
sɪkli	n:no pl	sugar, sugars
sɪmɛ	v	know
sɪnkan	n	groundnuts (peanuts)

sɪnkan bie	n	groundnuts nut (peanuts)
sɪnkan biie	n	groundnuts nuts (peanuts)
sɪnna	n	drinks (often used to refer to pito)
sɪpona	n:compound	eye hairs (eyebrow and eyelash)
sɪponnà	n:compound	eye hair (eye brow and eyelash)
sisalas	n	Sisala people
sisali	n	Sisali tribe
so	n	thorn
solla	n	soup of fruit seed (in Maggie cubes)
somɛ	v	to bake
sominu	adj	yellow
soola	n	soups of fruit seed (in Maggie cubes)
sorro	n	thorns
sosoma	n	baker
sosomawa	n	bakers
sowɔ	v	death
sowɛ	v	die
sowi	n	bush rats
sowu	n	bush rat
storyɛllahalla	n:compound	store woman
storyɛllahallabiie	n:compound	small store woman
suhaala	n:compound	Guinea fowl eggs
suhalla	n:compound	Guinea fowl egg
sullí	n	sweat
sullu	v	slippery
suni	n	Guinea fowls
supona	n:compound	feathers of Guinea fowl
suponná	n:compound	feather of Guinea fowl
suùwò	n	death
suwo	n	death
suwu	n	Guinea fowl
súwú	v	full
swana	n	African chair(?) fruits, beans
swána	n	African chair(?) fruits, bean
sware	v	rot, to rot
ʧá	n	broom
ʧaana	n	local guitar, local lamp

ʧala	n	blood
tampɛliwa	n	red ants (on tree, they bite)
tampɛlli	n	red ant (on tree, they bite)
ʧaná	n	moon, months
ʧanbinnu	n:compound	dark moon, new moon
ʧanbinsi	n:compound	dark moons, new moons
ʧanse	n	moons, months
ʧaŋponse	n:compound	twilights, whole moons, full moons
ʧaŋpummá	n:compound	twilight, whole moon, full moon
ʧaŋwolá	n:compound	stars
ʧaŋwollà	n:compound	star
tapʊ	n	full day (24 hours)
tapulbe	n:compound	when?
tapʊle	n	full days
tapulla	n:compound?	day
tápúllá	n	morning
tapulle	n:compound?	days
tapuma	n	ash
ʧáré	n	comb
ʧáréwá	n	combs
tásè	n	bowl
ʧásé	n	brooms
tásùwà	n	bowls
tɔ	n	day
tɔdummí	n	earthquake, shaking of world/earth
tɔkúrú	n:compound	window
tɔkuruwa	n:compound	windows
tɔliila	n:compound	dry season
tɔmo	n	beards
tɔmolla	n:compound	east
tɔ́ní	n	bows
tɔnno	n	beard
tɔŋuo	n:compound	west
tɔplʊɔ	n	day break
tɔpule	n	days
tɔpullenuɔ	n:compound	dawn, day break (lit. 'day mouth')
tɔ́púllò	n	day

tɔsé	n	tobaccos
tɔwɔ	n	tobacco
tɔwɛ	v	fuck
ʧɔ́wɪ́llà	v	anger
tɔzɪ̀gsú	n	earthquake, shaking of world/earth
ʧe	n	liver, local instrument for plastering, anger
ʧɛffulafuni	n	lungs
ʧɛffulafunnu	n	lung
tɛmbi	interrogative	when
tɛn	n	time
ʧɛne	n	livers
tɛnna	n	sand
tɛnna	n	soil
ʧɛrrɛ	n	time
ʧɛse	n	local instruments for plastering
ʧeʧekuuno	n	heart
ʧeʧekuúnò	n	hearts
tie	n	land
tiɛ	n	ground
ʧiɛ	n	tomorrow
ʧiɛ	n	place
tiene	n	lands
tɪ́kɛ́	v	touch
ʧine	v	carry
tɪnná	n	somebody
tiro	adj	mature[23]
ʧɪ̄sè	n	ceiling
ʧɪsewa	n:compound	ceilings
tɪto	n	night
tɪtowa	n	nights
ʧɪwi	v	smoke, to smoke (meat, fish, etc...)
tobie	n	girl
tobiɛ	n	female child

[23] Certain fruits. Also, people who are mature enough to marry (18yrs).

tobiie	n	female child
tobisi	n	girls
tobisi	n	female children
ʧoɔ	n	dawadawa
tohɛme	n	arrows
tohɛnna	n	arrow
toiyɪrra	n:compound?	young beautiful lady
ʧokunnɛ	n	hearts
ʧokunnu	n	heart
ʧollu	v	love, like
tomma	n	a work
ʧona	n	nut
ʧonó	n	grinding mill
ʧose	n	dawadawa
tubɛlle	n:compound	small trees
tubiie	n:compound	small tree
tudɛlla	n:compound	bee's nest
tudɛlle	n:compound	bee's nests
tufaale	n:compound	calabash trees
tufalla	n:compound	calabash tree
tuhiíli	n:compound	tree branches
tuhili	n:compound	tree branch
tuhilibɛlle	n:compound	small tree branches
tuhilibiie	n:compound	small tree branch
tukɛkɛro	n:compound	bee's wax
tukɛkɛrra	n:compound	bee's waxes
ʧulaʧula	adj	sharp, pointed
tullubaála	n:compound?	son in laws
tullùballa	n:compound?	son in law
ʧùlo	v	stupid, foolish
tuluwumpu	n:sg/pl	snake, snakes (short and poisonous)
tummu	v	chew
tumukunni	n:compound	tree trunks
tumukurru	n:compound	tree trunk
tune	n	trees
ʧune	n	shadow
tuni	n	trees

ʧuni	n	rabbits
tunnono	n:compound	tree fruit
tunono	n:compound	tree fruits
tunónó	n	general fruits
tunono bio	n	ripe (general) fruit
tunono fɛllo	n	ripe (general) fruit
ʧunsi	n	shadows
ʧunu	n	rabbit
tupá	n:compound	leaf
tupara	n:compound	leaves
túrá	n	bees, honeys
turi	v	write
ʧuri	num	eight
turrɛ	v	itch
ʧùrrú	n	dysentery
tuùní	n	trees
ʧuuni	n	rabbits
ʧuunu	n	rabbit
tuuwo	n	bee, honey
tuùwó	n	tree
tuvie	n:compound	bee hive
tuvinni	n:compound	bee hives
ʧuwɔ	n	clay
tuwɔsé	v/n?	vomit
tuwi	v	get down
tuwo	n	tree
túwó	n	grove, group of trees
túwó	n	bow
twie	n	grove, group of trees
ulu	n	navels
uulu	n	navel
va	n	dog
vabɛlle	n:compound	small dogs
vabiie	n:compound	small dog
vagɪrru	n	bracelets
vagɪru	n	bracelet
vanluro	n	arm pits

vanluuwo	n	arm pit
vapɛpɛra	n	shoulders
vapɛpɛrra	n	shoulder
vapona	n:compound	dog hair
vaponna	n:compound	dog hairs
varɛ	n:det	a dog
vasé	n	dogs
vátʃò	n	shoulder
vátʃòsé	n	shoulders
vɛli	n	wells (drinking wells)
vɛllu	n	well (drinking well)
vɛlu	n	wells (drinking wells)
viɛnna	n	ground worm
viɛnsé	n	ground worms
vilambuku	n	beetle
vilambukuwa	n	beetles
vɪlle	n	whips
vɪrke	n	fan
vɪrkewa	n	fans
vítɛ̀ksi	n	large earthen pots for cooking
vítɛ́kké	n	large earthen pot for cooking
voti	v	vote
vumuuo	n	dragon fly
vumuʊra	n	dragon flies
vunvudɛlla	n:compound	wasp nest
vunvudɛlle	n:compound	wasp nests
vunvuo	n	wasp
vunvurra	n	wasps
waa	negative	not
waasɛ	v	look for
wàrrá	n	fever
wawʊlɛnɛrɛ	n	spider
wawʊlɛnɛrɛwa	n	spiders
wɔtʃe	n	watch
wɔtʃewa	n	watches
wi	v	cry
wie	adj	tense

wiila	n	pain
wiilɛ	v/n?	sick
wio	v	in pain
wiraa	adj	clear
wɪsa	n	garlic
wise	n	god, sun
wise dɛzzorɛ	n	west (where the does in)
wise dɪpuni	n	east (where the sun comes out)
wɪsɛnna	n	brain
wɪsɛnne	n	brains
wisetʃiɛ	n	god's place (heaven)
wólòné	n	afternoons
wolonná	n	afternoon
wombaŋŋa	n	day, noon
wu	n	all
wumpuli	n	field, open place
wumpulli	n	fields, open places
wumpulli	n	flat
yallawa	n	father's sisters, aunts
yallla	n	father's sister, aunt
yɛ	v	sing
yɛle	n	sellers
yɛlla	n	seller
yɛlla bɛlle	n:compound	brother's children, sister's children's cousin
yɛlla biie	n:compound	brother's child, sister's children's cousin
yɛllɛ	n	sell
yɪrra	n	name
yɪrra	v	call
yiye	v	sing, to sing
yu	v	dip
yukse	v	lose
yuo, yuu	n	funeral
yuubinnu	n:compound	wet season
zaa	n	today
zaa gbánnà	n:compound	today evening
zaa tápúllá	n:compound	today morning
zaa wolonna	n:compound	today afternoon

zabɛlle	n:compound	small horses	
zabiie	n:compound	small horse	
zaka	n	horse	
zaksé	n	horses	
zátámma	n	small pox	
zɛ̀nsé	n	xylophone	
zibɛlle	n:compound	small chickens	
zibiie	n:compound	small chicken	
zihaála	n:compound	fowl eggs	
zihalla	n:compound	fowl egg	
zimi	n	fowls	
zinne	n	kitchens	
zinno	adj/v?	heavy	
zɪnnu	adj	big	
zinnu	n	fowl	
zipona	n:compound	feathers of fowl (cock or hen)	
ziponná	n:compound	feather of fowl (cock or hen)	
ziro	n	kitchen	
zolo	num	one hundred	
zolo aba fi	num	one hundred ten	
zolo aba fi aba modõn		num	one hundred eleven
zolo aba mebelefi aba modõn		num	one hundred fifty-one
zolo aba modõn	num	one hundred one	
zoniɛ	n	green	
zoniíè	adj	green	
zuku	v	thick	