

**THE SYLLABLE STRUCTURE AND SYLLABLE BASED
MORPHOPHONEMIC PROCESSES IN GAWWADA:
BASED ON MORAIC MODEL REPRESENTATIONS**

BY: FIREW GIRMA

A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE
STUDIES, ADDIS ABABA UNIVERSITY IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTER OF ARTS IN LINGUISTICS

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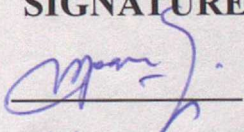
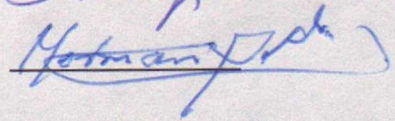
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FACULTY OF HUMANITIES
DEPARTMENT OF LINGUISTICS AND PHILOLOGY

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Abstract

The Gawwada are a small ethnic group in Ethiopia who inhabit the Omo region west of Lake Chamo River and North East of the Konso, and speak a language of the Cushitic family known as Gawwada.

This thesis deals with the syllable structure of Gawwada in light of the Moraic model and discusses the sound pattern, basic syllable types, syllable constituents, phonotactic constraints and syllabification, as well as syllable-based morphophonemic processes.

Unlike the previous studies made by Harageweyn (2002) and Geberew (2003), Gawwada has thirty consonant and five vowel phonemes. Among the thirty consonant phonemes, five of them, /b/, /χ/, /h/, /g/, and /z/, are newly identified in this study. The language has also eight basic syllable types: V, VV, VC, CV, CVV, CVC, VVC, and CVVC. In addition, it has a syllable template of optional onset and coda, and obligatory nucleus. Besides, closed versus open, light versus weight, syllable types and mono, bi and multi-syllable have been identified. The study also pointed out that in Gawwada, word initial and final positions do not allow cluster of consonants. Consequently, the inexistence of word initial clusters has made them to be out of moraic considerations because of the claim that syllable onsets do not contribute to syllable weight as they are assumed to have no moraic value. Contrary to this, word final clusters do contribute to syllable weight bearing a mora. During the analysis, sequences of three consonant clusters (tri-consonants) have been re-syllabified so as to make them permissible sequences by reducing them to sequences of two clusters at word medial positions.

Finally, the moraic model, apart from its basic aim, which is solving syllable related issues such as vowel and consonant length, and light and heavy segments, has also shown its strength by treating and explaining the morphophonemic changes such as

assimilation, deletion and reduplication in light of the phonotactics of the language.

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Symbols and Abbreviations

V	Vowel & Verb
Vr	Verb
C	Consonant
X	Skeletal slot
U	Phonological Utterance
I	Intonational phrase
ø	Phonological Phrase
c	Clitic Group
ω	Phonological Word
Σ	Foot
σ	Syllable
O	Onset
R	Rhyme
C	Coda
N	Nucleus & Noun
LC	Long Consonants
μ	Mora
μ'	Unaffiliated mora
>	Greater than
<	Less than
→	Becomes
*	Incorrect
I.P.A	International Phonetic Association
SIL	Summer Institute of Linguistics
/ /	Phonemic Representation
[]	Phonetic Representation
— C	Pre consonantal slot
C —	Post consonantal slot
vl	voiceless

vd	voiced
SG	Singular
M	Masculine
IMP	Imperative
1	First person
2	Second person
3	Third person
PL	Plural
CL	Compensatory Lengthening
Ø	deletion
/	in the environment of
α	A slot for a segment
β	Beta

Chapter one: Introduction

1.1 Background of the study

1.1.1 The people

The Gawwada are a small ethnic group in Ethiopia who inhabit the Omo region west of Lake Chamo River and North East of the Konso (Black 1976:222). (See also www.ethnologue.com). The people and their language are known as Gawwda. According to the 2007 population and housing census of Ethiopia, there are 68,000 Gawwadas in both (Konso and Derashe) Weredas¹. They live in Southern Nations, Nationalities and Peoples' Regional State (Bender 1971:187 & 1976:8). The region was known until 1991 as Gamo Gofa, a name often still encouraged (Tosco 2009). The Gawwada people live in sixteen Kebeles of Konso and Derashe Weredas. Among these, seven Kebeles (Gawwada, Garagama, Guma, Qarqarte, Turuba, Wolango and Eyana) belong to Konso Special Wereda and the other nine Kebeles belong to Derashe Wereda, a place on the northern part of Konso. Many Gawwadas are bilinguals. Regarding the nature of bilingualism, Black (1976:222) states as follows:

Many Gawwada are reported to be bilingual in Konso and their own language, which they call páko káwwate, 'language (=mouth) of the Gawwada.' Attested data on Gawwada varieties includes some sixty words by Fleming (1965), about a hundred words by Bender (1971: 250), and several hundred words each of Gawwada varieties of the villages of Dalpe:ne and išárkuta by myself.

The Gawwada people are surrounded by Omotic and Cushitic speaking groups. (See the map adopted from Konso Special Wereda Office of Finance & Economic Development on page 3). The neighbors of the Gawwada are the Konso

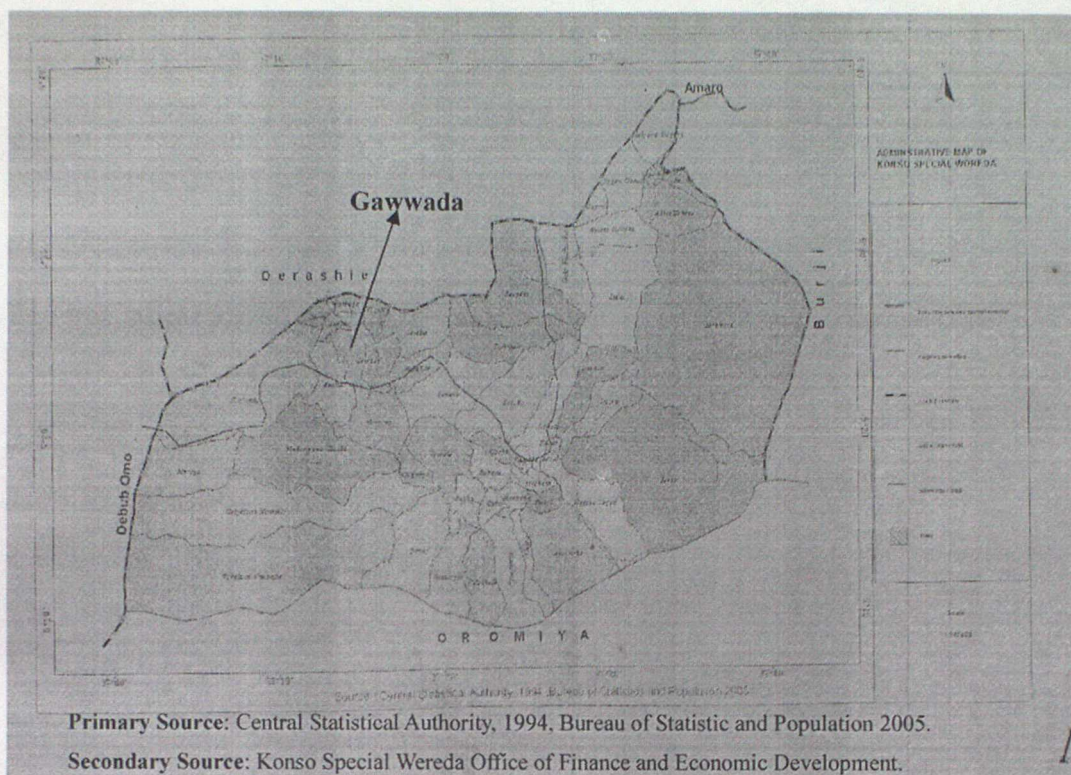
[1. Wereda is higher than Kebele, the lowest administrative unit, in terms of administrative division. Kebele is hierarchically the smallest administration division.

and the Derashe to the south-west and north respectively and the Tsamako to the south, and Burji to the East.

The area consists of undulating hills, deciduous forests on mountains and lies at about 1,600-1,700 meters above sea level approximately between 5° 25'N latitude, 37° 14'E longitude ([www. world.livingsources.org/vocabulary](http://www.world.livingsources.org/vocabulary)). Most Gawwada live in the lowland area to south west of Konso town, which is characterized by poor and uneven rainfall.

The main economic and socially relevant activities are farming and cattle keeping. Life develops around the social and cultural values related to these two activities. However, the Gawwada's food production is based on agriculture. They cultivate crops such as sorghum, maize and, to a lesser extent, bean and pea, edible leaves of wild plant called *Talhoo* 'traditional cabbage' on a house hold basis.

The relations of the Gawwada with their neighbors are presently peaceful. In the past there had been conflict with the members of the Konso group because they have been under the administration of Konso Wereda; the Konso are much larger than Gawwada's in number. However, they have formed social relation with the people of Konso and to some extent with the Ts'amakko people through market transaction, adjacent-farming and grazing land as well as and intermarriage.



1.1.2 The Language

Gawwada is one of the least known languages of Ethiopia. The people call the language by different names; *Paako*, *Gawwada*, *Gawata*, *Kawwada* and sometimes *zalle*. However, Geberew (2003), Tosco (2009) , and (www.ethnologue.com) substantiated that Gawwada 'mouth of Gawwada' is a well recognized and accepted nomenclature of the language by the speakers. It is a member of the "Werizoid group" under the East Cushitic division of the Cushitic family. Graziano (n.d) in his unpublished work entitled 'A Grammar of Ts'amakko' noted that the linguistic relation of Ts'amakko and the other Dullay languages is not paired by an ethnic relation. This implies that the relationship of the Ts'amakko people with other Dullaic group of people is not based on ethnic identity. However, with regard to their language, Gawwada as one of the member of Dullaic group, shares linguistic features with other Dullaic group of languages in general and with Ts'amakko in particular.

Regarding the internal classification of the group, Black (1976:171), quoting Bender (1971:187), states as follows; “Werizoid refers to an East Cushitic as subgroup consisting of such poorly attested dialects as Werize, Gobeze, Gawwada, and Tsamai (Tsamai)”. At the time, there is no clear linguistic evidence that the hypothesis that these poorly attested dialects can form a subgroup known as ‘Werizoid’ as claimed by Bender (1971:171).

However, Bender (1976:187) in his research on the neighboring Konso and Gidole from 1970-72, came up with the idea that Werizoid dialects constitute a single language and Gawwada is best considered as a third division of East Cushitic distinct from Highland East Cushitic (or Burji-Sidamo) and Lowland East Cushitic. In this new claim, Bender generalized and grouped what he previous called “poorly attested dialects” as a single language without giving much detail. His classification of Gawwada as a member East Cushitic separate from Highland and Lowland Cushitic group languages is still the most widely accepted one.

Black (1976:222), on the other hand, argued that Werizoid dialects have been attested under a variety of names which can be grouped under three major tribal divisions: Gawwada, Tsamako, and Ala. He also claimed that the term Werize and Gobeze are other names of Gawwada language to refer to extreme northern and southern varieties respectively. Werize represents the speech of the Werizoid (the northern variety) people who live north of the Gawwada, from the Weyto River East to near the town of Gidole. On the other hand, Gobeze refers the southern variety. These are also other names such as Waráse and Ko:pase referring to the entire area of Werize and Gobeze respectively.

Another perspective forwarded on the genetic classification of the language is that of Mauro Tosco (2009). Tosco claims that Dullay is a direct offspring of East Cushitic group. Besides, he has presented the works of Hayward (1978) and Ehret (1974, 1976) adding a new proposal which says, “...within East Cushitic, Dullay forms a

genealogical subgroup with the isolated (and now possibly extinct) Yaaku language in Kenya''. Tosco (2009) also agrees with Hayward's classification which suggested that Dullay and Yaaku to be called 'Transversal Southern Low Land East Cushitic'. Regarding the genetic classification of the language, (www.ethnologue.com) reports that lexically, Gawwada share 78% with Bussa and 73% with Ts'amakko. This high lexical similarity of Gawwada with the two languages shows that they are genetically related.

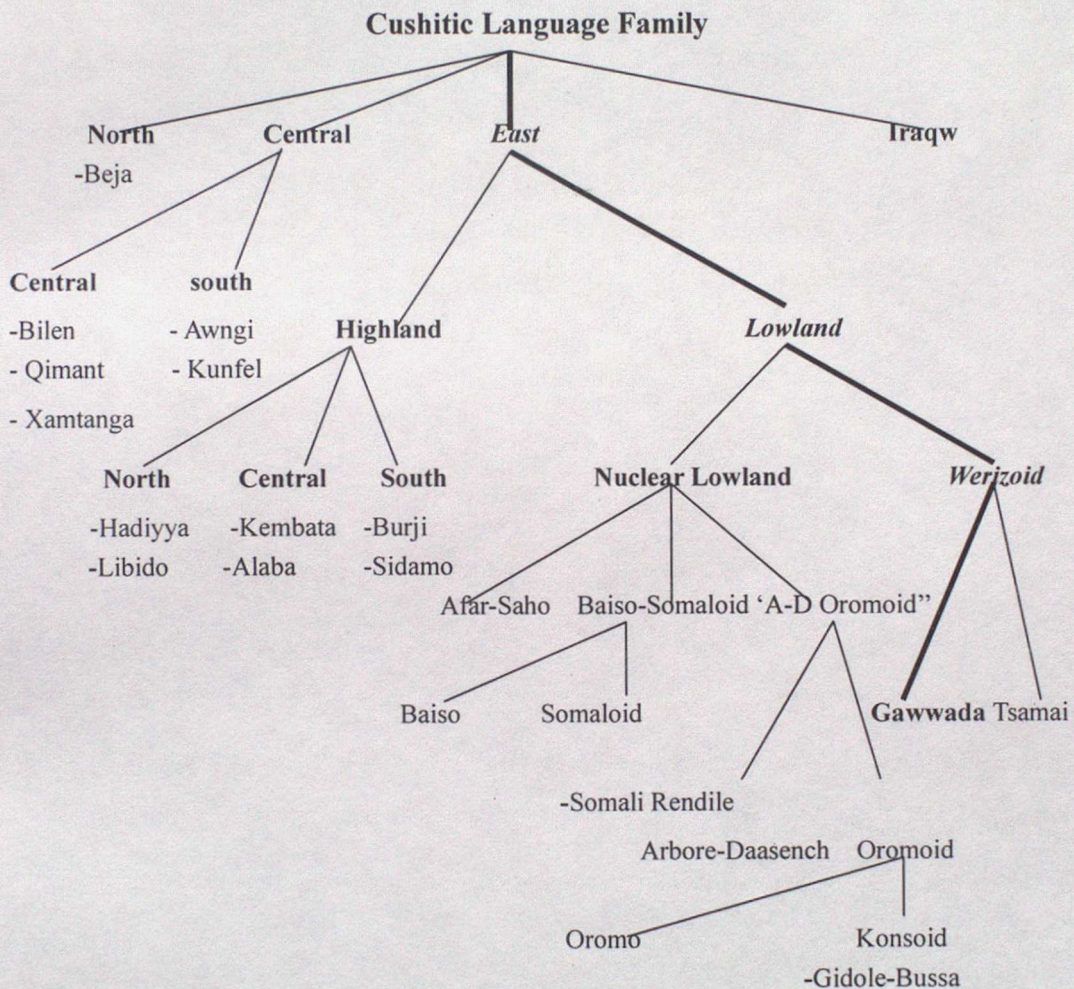


Diagram 1: The Family tree of Cushitic Languages: adapted from (Bender 1976:187)

1.2 Rationale of the study

The common grounds for the study of any language in general and its phonological aspects in particular will not be out of the following considerations. First, when the language is endangered or least studied. Second, phonological aspects such as syllable structure will contribute much in the study of specific languages system (grammar). The third common ground is going to be the application/testing of linguistic theories on specific languages. Following the above common grounds, I have proposed to study Gawwada syllable structure paving ways for the study of the full description (grammar) of the language.

Gawwada is still in the category of least known Ethiopian languages although it is not in the category of endangered languages. Despite the fact that Gawwada has many speakers, it is possible to say that almost nothing has been done so far except some sketches on the phonology, morphology, syntax and sociolinguistics of the language. The phonological aspect of the language is particularly unfolded and requires an indepth study as the basis for the full description of the language.

This research intends to investigate the syllable structure of Gawwada by describing, identifying and organizing its sound pattern so as to contribute to our knowledge of the phonology of the language. The central motivation of studying the syllable structure of the language is to better understand the phonological issues surrounding the sound pattern, syllable structure and morphophonemic processes. I believe that studying the syllable structure of Gawwada will be interesting from a theoretical point of view, namely from the moraic theory of syllable structure. Generally, this study tries to explore: what the possible syllable structures of the language are, how the syllable structure of Gawwada can be represented in light of the moraic model, what the impermissible syllable structures of the language look like, how do light and heavy syllables are formed in light of the moraic models, and what other features of the syllable structure are exhibited in the morphophonemic processes of the language.

1.3 Objectives of the study

The general objective of this study is to describe, analyze, and interpret the syllable structure of Gawwada in light of the moraic model of syllable structure representation with the following sets of specific objectives.

- identify the possible syllable structure of the language;
- investigate some syllable related issues such as vowel and consonant length, gemination, and syllable weight
- describe the phonotactics of the language;
- analyze the syllable-based morphophonemic processes of Gawwada

1.4 Limitation of the study

Phonology largely comprises of phonotactics (restrictions of the patterning of sounds in the words of any given language), phonological processes, syllable structure, segmental and supra-segmental features. However, due to logistic problems, this study is limited to the study of the syllable structure of Gawwada from a theoretical perspective.

1.5 Significance of the study

This research work is believed to have the following contributions:

- it is useful for pedagogical purposes, i.e. preparing text books, compiling dictionaries, literacy materials, ethno cultural documentations for speakers of the language.
- the finding may contribute as a source for typologists, theoreticians who are interested in the areas of descriptive and comparative study of Lowland East Cushitic Languages in general and the “Werizoid group” in particular.

1.6 Previous studies on the language

Previous studies on Gawwada show that it is one of the least studied languages of Ethiopia. This doesn't mean that nothing has been done on the language. There are some works though they are sketches on the morphological, comparative, and sociolinguistic aspects of the language. Among the works, Black (1976) in his article entitled "Werizoid" identified twenty-four consonants and five vowel phonemes. Black's work on phonological and morphological aspect of the language paved the way to other researchers in giving clue about the sound pattern of Gawwada. He has also discussed some aspects of the morphology of Gawwada such as negative and positive aspects of the verb and gender, and genitive case markers of the nouns.

On the area of sociolinguistics, Wedekind (2002), in his sociolinguistics survey entitled 'updating linguistics map', tried to update some of the common features of Ethiopian languages that have been published in 1993 by Ethnologue. He also updated the map by setting eight procedures. Based on these procedures, he expanded the previous sketch by adding little-known groups of languages including Gawwada. Geberew (2003), in his unpublished thesis entitled, "Morphology of Gawwada", touched upon some aspects of Gawwada phonology and morphology. Like Black (1976), he identified twenty-four consonants and five vowel phonemes. Regarding the syllable structure of Gawwada, Geberew described the language as a non-branching onset and coda.

Tosco (2009) also conducted comparative sketch entitled 'Loan words in Gawwada, a Cushitic Language of Ethiopia'. In his comparative work, he focused on the numeral system of the language.

This study differs from the previous studies in the number consonant phonemes it has identified. According to this study, there are five more consonant phonemes as compared to previous studies made by Black (1976) and Geberew (2003). See the

details in Chapter Two below. Besides, the current study utilizes a theoretical model known as moraic in order to explain the phonological facts of Gawwada in relation to the syllable structure representations and constraints.

1.7 Methodology

The research has been conducted following the standard linguistics procedures of data collection: elicitation, transcription, analysis, and interpretation. The data are elicited from the native speakers (informants) of the language, recorded by Digital Audio Recorders (Philips, Sony & Olympus), and speech analyzer software (which is prepared for phonology data recording by SIL 2005). The purpose of using speech analyzer is to clearly identify sounds by converting into IPA sound reader and to investigate some suprasegmental features of the language. After this, the data have been analyzed and presented in the light of descriptive procedures of general linguistics. Then, a theoretical model of moraic have been employed to interpret and explain the facts of Gawwada in some detail.

1.8 Theoretical framework

1.8.1 The syllable

As Blevins (1995:207) stated, the role of syllable in phonological theory has become more significant with each passing decades. Syllables are structural units providing melodic organization to such strings. In other words, melodic organization is based for the most part on the inherent sonority of phonological segments where the sonority of a sound is roughly defined as its loudness relative to other sounds produced with the same input energy.

According to Durand (1990:198), the syllable needs to be recognized as a unit that forms syllable structure. The trend of the definition of syllable is one of the controversial as there is no agreed phonetic definition. For example, Pike (1943) defines a syllable as "... a single units of movement of the lung initiator which includes but one crest of speed". The same author proposed other comparable definition of syllable stating as "relative loudness of the phonemes, sonority, prominence (made up same of these), and be a chance in stress or pitch". In terms of its organization, syllable can be viewed as a suprasegmental (beyond segment) structure hierarchically and relative loudness, sonority and prominence, having arrangements of consonants and vowels or vowels only, and structured into onset, rhyme (nucleus and coda) and coda itself.

Duanmu (2008:36) also forwarded the following statement about syllable. He said that 'The phonetic definition of syllable is notoriously difficult'. He argued that a common view is: "syllable is a prominence peak, but the definition says little about where syllable boundaries are". Among the definitions, the one which is forwarded by Ladefoged (1982:221) is still considered as a monumental. He stated that syllable is the sonority of a sound and the sonority of a sound is its loudness relative to that of other sounds with the same length, stress, and pitch. Supporting Ladefoged, Blevins (1995:207) stated that syllable is the phonological unit which organizes segmental

melodies in terms of sonority. The very nature of syllable according to Blevins is that syllable is part of phonological units in which segmental melodies are organized by their own sonority level. An early researcher Saussure (1915) cited in Cairns and Feinstein (1982:207) stated as follow, ‘there is a general tendency for the “sonority” of segments to increase as one moves from syllabic margins to the peak of the syllable’. This means that the sonority of a syllable increases from the beginning of the syllable to the peak, and decreases from the peak to the end of the syllable as shown in the below diagram.

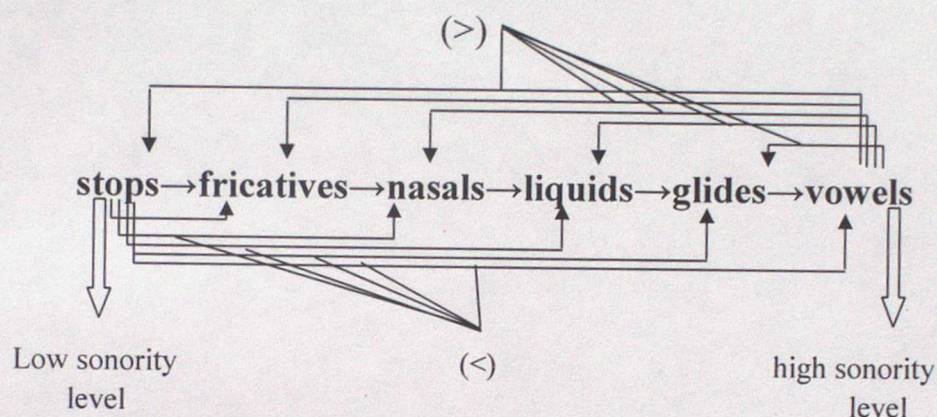


Diagram 2: Sketch of the sonority hierarchy of sounds:

Adapted from Cairns and Feinstein (1982:207)

The signs ‘<’ and ‘>’ indicate ‘less sonorous than’ and ‘more sonorous than’ consecutively. As shown in Diagram 2, for example, stops are less sonorous than fricatives or fricatives are more sonorous than stops. Cairns and Feinstein (1982:208) further added that sonority principle which claims that “the least sonorous segments will be most preferred at the syllabic margin”.

There is also quasi-independent but, parallel definition of syllable proposed by Rocca and Johnson (1999:248) who considered syllables as an ingredient of segments in which a high sonority segment flanked by segments of lower sonority.

In fact, syllable is not the higher level or unit in phonology. Fudge (1999) showed that

syllable is found at the last stage of phonological hierarchy proposed by Nespor and Vogel (1986) cited in Fudge (1999:274). The phonological hierarchy as proposed by Nespor and Vogel has seven stages each of which has to be treated as separate and distinct from the other. The seven phonological units are shown in Diagram 2 below as given by Fudge (1999:274).

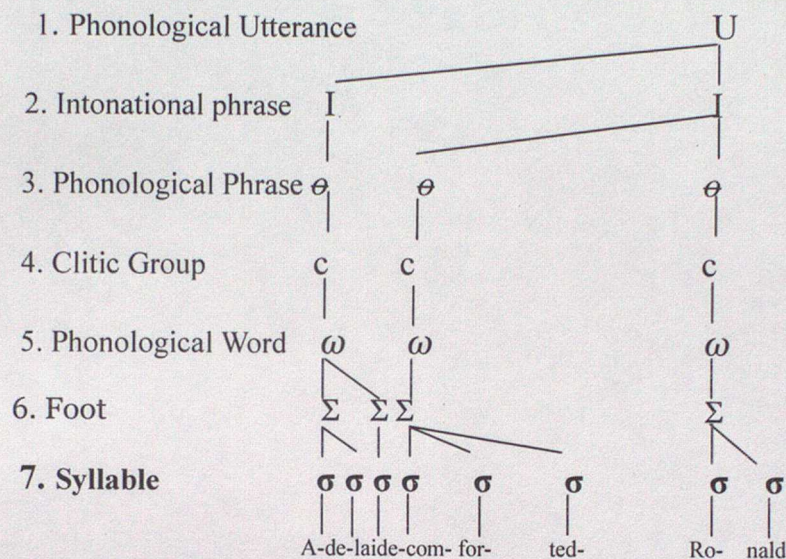


Diagram 3: The seven phonological units of Nespor and Vogel's prosody hierarchy (Fudge 1999:274)

1.8.2 Moraic model and its major claims

“The notion of Mora, or weight unit, is a traditional one, recognized in virtually every school of linguistics” according to Broselew (1995:188). The concept, as Broselew stated, arose from the study of languages in which two adjacent segments in syllabic rhyme may carry different pitches or in which the position of stress, accent, or tone depends on an opposition between light (CV) syllable and heavy (CVV or CVC) syllables.

Trask (1996:226) defined mora as ‘A phonological unit larger than a single segment but typically smaller than a syllable’. In the same way, Duanmu (2008:8) defined the notion of mora as an alternative unit for measuring syllable weight (or length). In Rocca and Johnson’s (1999:695) work, the notion of mora is presented as follows:

Traditionally, a basic unit of classic versification, also used in the phonological analysis of Japanese. Now also an alternative to skeletal slots, conventionally represented by the Greek letter “μ” (“mu” [mju] in English).

According to Topintzi (2008:147) the basic consideration in moraic theory will be the following:

Moraic theory standardly syllabifies geminates in a coda-onset configuration whereby the coda bears a mora. Initial geminates pose a serious problem for the theory since word-initially no coda exists to host the first half of the geminate.

Moraic being as a syllable structure representation model was proposed first in Hayman (1984; 1985) and McCarthy and Prince (1986) having just one kind of unit, as in X-tier theory but instead of representing a segment, this unit represents the notion of mora. In this sense, mora has a dual function. The first is, it represents the well-known contrast between light and heavy syllables: a light syllable usually has one syllable and hence one Mora, whereas the heavy syllable has two moras. The second claim is Mora is counted as a phonological position just as in the earlier theories (CV and X-tier), along segments in normally represented as being doubly linked.

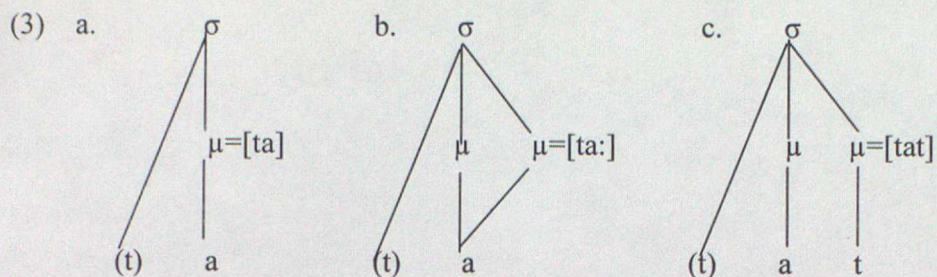
1.8.2.1 Its major claims

According to Hagberg (2003:3), “The fundamental claim of moraic theory is that the only element intervening between the syllable node and the segmental root node is the mora”. The basic argument for the existence of mora stems is many languages can make weight distinction between syllables that contain two moras from those that have only one. Mora counts as bearer of both the opposition between heavy (bimoraic) and light (monomoraic) syllables, and the equivalence of various types of heavy syllables for languages that treat all types of heavy syllables as equivalent.

Besides, Hayes (1989:352) strongly claim that, “Moraic theory is not a segmental theory, as there is no level at which segment count is depicted” hence in this regard it is different from CV and X-tier models. This is mainly due to segment structures are supported by compensatory lengthening. It is suitable for the formal description of the prosodic form unlike the two prosodic theories (CV and X-tier theories) according to McCarthy and Prince (1986). In fact, as Hayes (1989:252-3) also suggested:

...moraic theory posits partly language-specific prosodic structures, which vary according to a language's criterion of syllable weight. ...Languages that exhibit a syllable weight distinction typically also have a vowel length distinction, and vice versa.

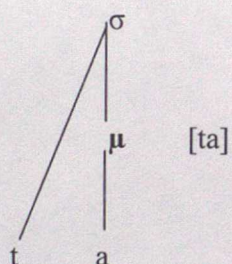
Further more, Lawrence (2006:1) claimed that “Mora does not recognize and give special status to the syllable which contains neither an onset nor a rhyme rather any syllable can contain one or more than one moras”. For further illustration, see the examples below presented by Hayes (1989:352).



The number of moras in a syllable depends on whether the syllable is light or heavy. For instance, in (3a) the syllable is light because it contains one mora. In (3b) and (3c), the syllables are heavy since they contain more than one mora.

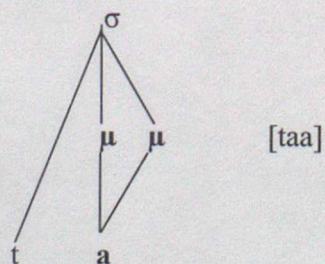
The following are moraic conventions (Ehala 2003: 59) and the conventions are demonstrated by examples.

Convention I: short vowels having one mora

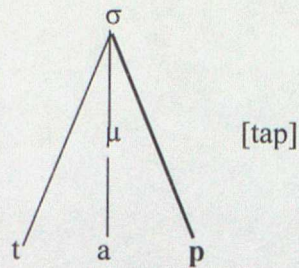


In convention I, the existence of one mora is due to the shortness of a vowel which says that at least a syllable must constitute one mora.

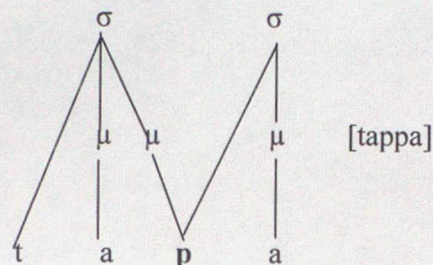
Convention II: long vowels have two moras



Convention III: short consonants are morales



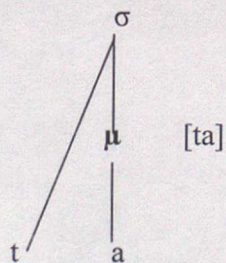
Convention IV: long consonants/geminates have one mora



An important point in the above conventions is that long vowels and geminate consonants are represented differently. Even though both are long segments, long vowels have two moras and doubly linked to one syllable. However, geminate consonants have one mora and linked to two separate syllables.

Convention V: glides are morales

Convention VI: segments in syllable onsets are morales

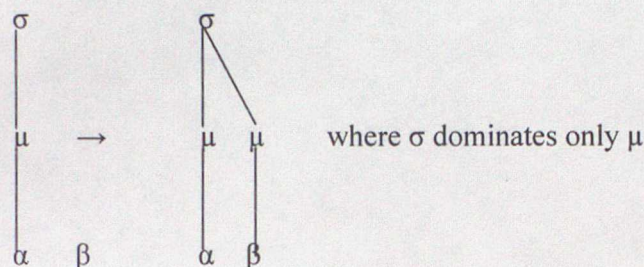


This convention is regarded as among the basic claims of the moraic model i.e. segments at the onset position of a syllable are morales.

The other point of departure from CV and X-tier models is that moraic model has introduced the concept of weight by position. Rocca and Johnson (1999:704) defined weight by position as: "A procedure involving the structural projection of a mora

from a coda consonant...". Gordon (2006:6) quoting Hayes (1989) claimed that: "moraic theory assumes that coda weight is parameterized; some languages assign a mora to syllable-final (coda) consonants by the Weight by Position parameter, while others do not". The argument made by Rocca and Johnson, as well as Gordon is that the concept of weight by position is a language specific phenomenon hence will not be expected to exist in all languages. The schematic representation of weight by position is given by Hayes (1989:256) as follows:

Weight by position



Hayes (1989: 256-7) assumed that prevocalic consonants must be parsed as nonmoraic onset elements, and thus he excludes them out of weight by position. He also suggested that the idea in weight by position works typically for languages in which CVC counts as heavy. He also found out that Lardil language is among non weight by position languages in which CVC is considered as light. This means that weight by position is obviously a language specific parameter.

1.8.2.2 How is moraic different from CV and X-tier models

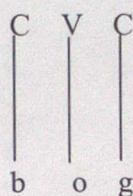
As a consequence of this reanalysis of the prosodic structure, two alternative prosodic theories are presented in the literature: the theory of syllable structure, whose primitives are the skeletal units (x-tier), the syllable constituents (O, R, N, C) and the syllable (σ), and the moraic model, which replaces the skeletal units and the syllabic constituents by moras.

The primary theoretical status in Moraic model as stated in (McCarthy & Prince 1986, 1988, 1990a, 1990b, Archangeli 1989; Hayes 1989; Itô 1989) excludes the internal constituents (C, V and X) of previous non-linear models proposed by (Clements &

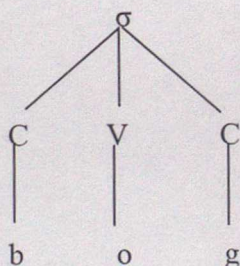
Abel (2010:10), quoting Rubach (2001:228) stated the areas of focus among different accounts for the CV syllable structure representation model as follows, “The CV theory of Clements and Keyser assumes the vowels and consonants have V and C slots respectively”. Based on the claims of CV model, let us see how the model represents the C and V slots. Thus, the Gawwada word *bog* ‘kill 2SG. M. IMP’ is represented as follows:

(1) CV SKELETON

a. before syllabification



b. after syllabification



What is very important from the above representations is that syllabification must reconcile to conflicting sources of constraint: from bottom-up, each segment should be suitable for syllable peak or margin; and top down, the syllable must have certain structures. In any language, C and V either go into their determined position or remain unparsed.

An alternative to CV theory of syllable structure, first proposed in Hyman (1982), is timing (skeletal tier) expressed by replacing CV tier by “x” which does not distinguish consonants and vowels. Rocca and Johnson (1999:204) suggested that

timing tier (x-tier) is made up of abstract 'timing units', which associate with bundles of features to indicate their length. In addition to this, they also proposed the importance of this autosegmental model in which short segments are associated with one timing unit and long segments are associated with two. Contrary to these, a single timing unit can also doubly associated with two values of a feature. In support of this statement, Rubach (2001) cited in Abel (2010:11) stated as follows:

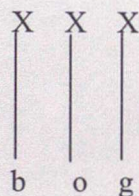
The X theory of Levis does not distinguish between vocalic and consonantal slots.

Both are represented identically as X-slots. The distinction between vowels and consonants is made solely in terms of syllable structure: vowels are assigned the nucleus node N, while consonants are linked to the syllable node N'' if they are in the onset and to the rhyme node N' if they are in the coda.

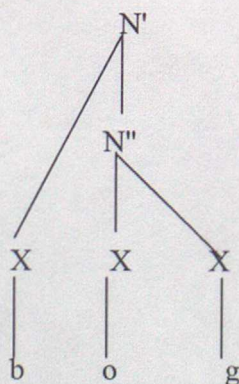
Based on the X-tier syllable representation model, the structure is presented as follows:

(2) X-SKELETON

a. before syllabification



b. after syllabification



These representations in both (CV and X-tier) models (will) take us to present logical plausible arguments how do moraic model differ from these models and in what ways

does the model represent syllable structure.

Hayes (1989) claims that skeletal units are empirically unnecessary because compensatory lengthening does not take place systematically whenever a segment is deleted leaving an empty position behind, but only comes along in certain positions, which, not accidentally, always have moraic value.

Differently from the two (CV and X-tier) models, in the case of moraic theory, the only segments which are eligible to receive a mora are those in the syllable rime, the relevant domain of weight in most cases (Hyman 1985, Hayes 1989). One can assume each unit in the syllable rhyme which means, the first vowel and all other following segments constitute a Mora. But, syllable onsets seem not contribute to syllable weight because they are assumed to have no Moraic value. In some languages, syllable weight depends exclusively on vowel length, while in others coda consonants add weight to syllable (Broselow, Chen and Huttman 1997:47). Using this approach, moras do not merely represent a segment (as X did) but play two different roles: they count as phonological positions (i.e., they are phonological units) and also represent the contrast between light (monomoraic) and heavy (bimoraic) syllables.

The proponents of moraic model regard the model as superior to the one that claims the existence of a X-tier and CV models of syllable structure. This is because, moraic representation does not only capture the duality of some segments (e.g. long segments) but justifies the phonological processes that involve syllable weight (compensatory lengthening) in better ways.

Generally, contrary to CV and X-tier models, the motivation behind moraic model is that, although no linguistic process has ever been found in which the total number of segments within a syllable is counted, nevertheless many languages exhibit counting of a subset of the segments of each syllable: the moras. It is also a different and new model of the syllable structure representation in which according to Hayes (1989) is

based on syllable weight and doesn't recognize either the onset or the rhyme constituents. Regarding this, Hagberg (2006:n.p) remarked that:

Onset elements are directly dominated by the node and not assigned a Mora (weight unit, represented by μ) while the remaining rhyme (nucleus and coda) are assigned Morae because they contribute to syllable weight.

1.8.2.3 Why moraic is chosen to explain syllable constraints

of Gawwada

As in many languages, in Gawwada, segmental and autosegmental features such as vowel and consonant length, gemination, compensatory lengthening, syllable weight (light and heavy), and weight by position features exist. The existence of these features in many languages has been debatable because of the following reasons. First, the earlier syllable structure representation models (CV and X-tier) stayed several decades being cores in phonological theories without solving these segmental and autosegmental related difficulties. Second, after the introduction of moraic model, many phonologists preferred and recommended this model in their phonological studies of languages because it solves and represents the syllable structure of languages better than CV and X-tier models to some extent. Finally, in Gawwada, moraic model is found to explicitly capture the cross-linguistic generalization: only segments delete in coda position trigger lengthening of an adjacent segment.

1.8.2.4 The shortcomings of moraic model

Moraic model has its own shortcomings. Davis (1999:94) claims that initial geminates may be moraic in some languages and may not in others. Davis gives evidence that an Austronesian language, Trukese, permits nouns that consist of an initial geminate followed by a short vowel. Some examples are given below in (4).

- (4) a. [tto] 'clam (sp)'
 b. [kkæ] 'taro (sp)'
 c. [čča] 'blood'

d. [ssɔ] 'thwart of a canoe'

According to the same author, in Trukese initial geminates are moraic. Contrary to this, Hume et al. (1997) argued that in Leti (another Austronesian language) initial geminates are not moraic due to some words that lack an initial geminate followed by a short vowel like [tto].

Another linguist Ehala (2003:77) suggested that the dependency of moraic theory on segmental structure in treating weight can be seen as there is yet no satisfactory theory of calculating syllable weight from the segmental structure of syllables. For Ehala, moraic theory will best if it incorporates and represents segmental length. This is because there are more combinations of segmental length that can be attested possibilities of syllable weight.

Further more, Broselow (1995:199) presented a strong argument about inconsistencies of moraic model claiming that:

A number of devices have been used to account for moraic inconsistencies, including rule ordering, formation of complex moras, multileveled representations in which a segment may be moraic on one level, nonmoraic on another, and the exemption of certain processes from a strict reliance on mora count.

Besides, Archangeli (1991), cited in Broselow (1995:199), argues that the moraic inconsistencies are due to its major claims. For instance, she said: 'analysis of Yawelmani, Weight-by-Position is conceived of as a phonological rule whose application can be delayed until fairly late in a derivation'. She provides an argument which is, in Yawelmani, mapping of CVC root to a morphological template consisting of a bimoraic syllable results in lengthening of the root vowel i.e. CVVC. According to Archangeli, the coda consonants do not count as moraic since they don't fill the second mora position of the template. Hence, weight-by-position is not (as might plausibly be assumed) an automatic consequence of incorporating a consonant into the syllable coda.

Chapter Two

General Description of the Phonology of Gawwada

In this chapter, an attempt was made to sketch all the sounds of Gawwada. This chapter is accordingly compiled in the following way. First, an attempt was made to describe consonants of the language, their distribution, clusters, and some other aspects of the consonant sounds. Second, vowel phonemes were described on the basis of vowel describing parameters. The language or the dialect chosen in this study is Gawwada because the researcher is unable to identify which one is the language or dialect. The transcription of the sounds is made using the standard I.P.A symbols.

2.1 Consonants

2.1.1 Inventory of phonemes

Black (1976) and Geberew (2003) identified that Gawwada has 24 consonants. In contrary to this, Haregeweyn (2002) came up with one additional phoneme, i.e. voiced velar implosive /g/. However, agreeing with all consonant phonemes identified by the three authors, this study has identified five additional consonant phonemes. These are: voiced bilabial stop /b/, voiceless uvular fricative /χ/, voiceless pharyngeal fricative /h/, voiced uvular ejective stop /gʼ/, and voiced implosive fricative /z/.

This study revealed that Gawwada has 30 consonant phonemes. This number is consistent with that of the Dullaic group of languages. See the work of Horsch (2006) entitled: "Suggesting an Orthography for the Dullay Language Cluster" for the consistency of the number of Gawwada consonant phonemes with Dullaic groups.

		Bilabial	Labiodental	Dental	Alveolar	post alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosives	VI	p			t				k			ʔ
	Vd	b			d				g			
Nasal	Vd	m			n		ɳ					
Liquid					r							
					l							
Fricative	VI		f		s	ʃ			x̣	χ	ħ	h
	Vd				z							
Glides		w			j							
Ejectives		p'			t'			tʃ'	k'			
Implosives		ɓ			ɗ				ɡ	ɠ		

Table 1: Consonant phonemes of Gawwada

Gawwada's obstruent phonemes include the seven stops: /p/, /b/, /t/, /d/, /k/, /g/ and /ʔ/; eight fricatives /f/, /s/, /z/, /ʃ/, /x̣/, /χ/, /ħ/ and /h/, and eight ejectives and implosives phonemes /p'/. t'/. /tʃ'/. /k'/. and /ɓ/. /ɗ/. /ɡ/. /ɠ/ respectively. The non obstruent (sonorant) phonemes are: the nasals /m/, /n/ and /ɳ/, glide phonemes: /w/ and /j/, and the only lateral and trill phonemes in the language are /l/ and /r/ respectively.

Description of the Consonant Phonemes

The description of consonants can be made by looking the full range of environments in which an element (most often a segment) can occur. The phonological context of environment, according to Trask (1996:131), is 'the position in the speech chain in which a segment (or sometimes a larger unit) appears: all the preceding and following

material within some relevant domain, such as a syllable, a word or a phrase'. Based on this, the description and distribution of Gawwada phonemes has been made in the following way: the phonemes are described by voicing conditions (state of vocal folds), place and manner articulation, and the distribution of these phonemes is made in terms of word initial, medial and final positions.

The data below show the consonant phonemes of the language.

- (1). /p/ [p] Voiceless bilabial pulmonic stop

Examples:	/pu ^o di/	'be jealous'
	/paggo/	'language or mouth'
	/pahikko/	'lake'
	/kappurakko/	'fox'

- (2). /f/ [f] Voiceless labiodental pulmonic fricative

Examples:	/filajje/	'flea'
	/fuuga/	'blow'
	/tafo/	'heap'
	/gafko:/	'clan'

- (3). /b/ [b] Voiced bilabial pulmonic stop

Examples:	/bebo/	'reputation'
	/bog/	'kill 2SG. M. IMP'
	/gilbajjo/	'knee'
	/si:bbi/	'sweated'

- (4). /p̣/ [p̣] voiceless bilabial ejective stop

Examples:	/p̣ ^a ari ^a fo:/	'sorghum'
	/fu:p̣ ^a ale/	'flute'
	/ḍap̣ ^a ambakko/	'guilty'
	/ṭip̣ ^a i/	'shacked'

- (5). /m/ [m] voiced bilabial pulmonic nasal

Examples:	/me:ʔi/	'to harvest'
	/ma:ji/	'damp'

- /gamfo/ 'edge'
/d'ihami/ 'tried'
- (6). /n/ [n] voiced alveolar pulmonic nasal
- Examples: /nono/ 'brain'
 /nagalačči/ 'followed'
 /t'inna/ 'he labor'
 /gollan/ 'nine'
- (7). /w/ [w] voiced bilabial pulmonic glide
- Examples: /waawe/ 'saliva'
 /wadi/ 'speed'
 /ba:ɖawi/ 'continued'
 /xinawe/ 'stink, smell (bad)'
- (8). /t/ [t] voiceless alveolar pulmonic stop
- Examples: /tu:ɖidi/ 'beat'
 /tuʔadi/ 'kept'
 /tire/ 'liver'
 /uffate/ 'bladder'
- (9). /d/ [d] voiced alveolar pulmonic stop
- Examples: /deme/ 'eyelash'
 /dungo/ 'pupil (of eye)'
 /di:go/ 'bile'
 /ri:bdo/ 'tendon'
- (10). /t'/ [t'] voiceless alveolar ejective stop
- Examples: /t'u:lula/ 'narrow'
 /git't'awo/ 'bedbug'
 /g'it'e/ 'cutting'
- (11). /ɖ/ [ɖ] voiced alveolar implosive stop
- Examples: /ɖilango/ 'a kind of pancake'
 /ɖobatte/ 'temperate'

- /liadi/ 'hidden'
/donadi/ 'dipped'
- (12). /s/ [s] voiceless alveolar pulmonic fricative
Examples: /safahe/ 'dew'
/so:hise/ 'green mamba'
/ga:se/ 'spider'
/gorse/ 'taste (of food)'
- (13). /z/ [z] voiced alveolar pulmonic fricative
Examples: /izzah/ 'tree'
/giize/ 'season'
/gaʔaza/ 'all'
/mahnaʔizi/ 'shorten'
- (14). /ʃ/ [ʃ] voiceless palatal pulmonic fricative
Examples: /ʃohe/ 'washed'
/ʃori/ 'cinnamon'
/ʃegaf'e/ 'roasted wheat or barley'
/hogʔaf'e/ 'full'
- (15). /x/ [x] voiceless velar pulmonic fricative
Examples: /xigadi/ 'played'
/xaxambakko/ 'powerful or hero'
/maxe/ 'property'
- (16). /χ/ [χ] voiceless uvular pulmonic fricative
Example: /χahte:/ 'Caterpillar or new moon'
/eχte/ 'eye'
/aχaga/ 'I'm present'
/ʔugaxe/ 'egg'
- (17). /h/ [h] voiceless pharyngeal pulmonic fricative
Examples: /horisi/ 'snore'
/hakka/ 'grand mother'
/hirhisisi/ 'unload'

- /ʃohe/ 'washed'
- (18). /k' / [k'] voiceless velar ejective stop
- Examples: /k'ure/ 'breakfast'
- /k'ubi/ 'closed'
- /mok'orko/ 'barren (of land)'
- /k'ak'e/ 'gossiped'
- (19). /tʃ' / [tʃ'] Voiceless palatal ejective affricate
- Examples: /tʃ'ekki/ 'plugged'
- /tʃ'immi/ 'sank'
- /gatʃ'tʃ'e/ 'teff a type of cereal'
- /ma:tʃ'tʃ'ure/ 'sickle'
- (20). /g/ [g] Voiced velar pulmonic stop
- Examples: -/garro/ 'half'
- /gawwaʔago/ 'thunder'
- /oʃongo/ 'cold'
- /bog/ 'kill 2Sg. M. IMP.'
- (21). /r/ [r] Voiced alveolar pulmonic trill
- Examples: /raʔambakko/ 'sour'
- /harharkoo/ 'rhinoceros'
- /ʔorhe/ 'milk'
- /sor/ 'run 2.SgM. IMP.'
- (22). /ʔ/ [ʔ] Voiceless glottal pulmonic stop
- Examples: /ʔawwo/ 'dusk'
- /ʔardʊ/ 'ox'
- /oʃoʔno/ 'odor'
- /magaʔi/ 'become sour'
- (23). /h/ [h] Voiceless laryngeal pulmonic fricative
- Examples: /hajde/ 'fat'

- | | | |
|--|---------|-----------|
| | /huddo/ | 'yoghurt' |
| | /hu:zi/ | 'this' |
| | /jaha/ | 'who?' |
- (24). /l/ [l] voiced, alveolar, pulmonic lateral approximant
- | | | |
|-----------|-----------|---------|
| Examples: | /laxi/ | 'knead' |
| | /la:fi/ | 'cough' |
| | /ʔelho/ | 'well' |
| | /lalad'e/ | 'cloth' |
- (25). /j/ [j] voiced, alveopalatal, pulmonic glide
- | | | |
|-----------|-----------|--------------------|
| Examples: | /ji'eto/ | 'food' |
| | /ji:i/ | 'ate' |
| | /mi:ʔaje/ | 'child' |
| | /baj/ | 'say 2Sg. M. IMP.' |
- (26). /ɓ/ [ɓ] Voiced bilabial implosive stop
- | | | |
|-----------|------------|----------|
| Examples: | /ɓad'ami/ | 'escape' |
| | /ɓad'wi/ | 'add' |
| | /nuɗɓad'i/ | 'save' |
| | /xiɓɓe/ | 'lip' |
- (27). /ɗ/ [ɗ] Voiced velar implosive stop
- | | | |
|-----------|------------|------------|
| Examples: | /ɗ'inte/ | 'our door' |
| | /ɗ'ag'i/ | 'boil' |
| | /ɗ'uɗad'e/ | 'labor' |
| | /abag'i:/ | 'heard' |
- (28). /ɠ/ [ɠ] Voiced uvular implosive stop
- | | | |
|-----------|---------|-------------|
| Examples: | /ɠawto/ | 'new' |
| | /ɠo:ɠi/ | 'wring out' |
| | /dɔɠi/ | 'carried' |
| | /jo:ɠi/ | 'grinded' |

(29). /k/ [k] voiceless velar pulmonic stop

Examples: /kase/ 'here'
 /sike/ 'pointed'
 /kurre/ 'name'
 /ɣarakko/ 'gray'

(30). /ɲ/ [ɲ] voiced palatal pulmonic nasal

Examples: /fɲɲa/ 'a strap used for yoke'
 /sɲɲi/ 'race'
 /ɲari/ 'threatened'

2.1.2.1 The newly identified consonant phonemes

As it is mentioned above in the distribution of consonant phonemes, this study identified five additional phonemes. The phonemes are: /b/, /ɣ/, /h/, /ɣ/, and /z/. The distribution of these consonants in different positions within a word was given above under section 2.1.1. Now, we look at the evidence in terms of the minimal pair test. For the following suspicious pairs, minimal pairs and near-minimal pairs will be shown below.

(1). /b/ and /p/

/bogi/ 'killed'
 /pogfi/ 'destroyed'
 /bude/ 'victory'
 /puʔe/ 'to fell down'

(2) a. /ɣ/ and /h/

/ɣa:re/ 'fish'
 /hare:/ 'donkey'

b. /ɣ/ and /x/

/ɣa:re/ 'fish'
 /xaro:/ 'dog'

- c. . /x/ and /k/
 /χa:re/ ‘fish’
 /ka:re/ ‘wood/tree’

- (3). /h/ and /ʔ/
 /ħa:nte/ ‘wife’
 /ʔande/ ‘water’

- (4). /ɢ/ and /ʔ/
 /ɢo:f/ ‘scratch’
 /ʔo:f/ ‘rub’

- (5). /z/ and /s/
 /gaʔaza/ ‘all’
 /geʔasi/ ‘need (V)’
 /izzaħ/ ‘three’
 /issali/ ‘agree’

Based on the above evidence we conclude that the consonant sounds /b, x, ħ, ɢ and z/ are phonemes in Gawwada.

2.1.3 Minimal pairs and near minimal pairs

A simple technique was used for finding out whether two phonetic types are contrastive: a native speaker is asked whether two words constituting a potential minimal pair are pronounced identically or differently through minimal pair test system. Minimal pairs are sounds that occur in the same environment in words having different meanings. It is a parameter arranged in a way to identify phonological oppositions between phonemes of any language that are phonetically somehow close. Based on this parameter, I demonstrated the minimal and near minimal pairs which I found in Gawwada. Below are Gawwada consonant minimal pair oppositions which I found and arranged randomly other than in section 2.1.2.1 are: /p/ and /b/, /p/ and /m/, /m/ and /n/, /t/ and /d/, /k/ and /g/, /s/ and /n/, /s/ and /l/, /t/ and /tʔ/, /t/ and /n/, /m/ and /w/, and /f/ and /n/, /x/ and /k/, /t/ and /tʔ/, /b/ and /f/, /r/ and /n/, and /r/ and /l/.

See the lists of pairs below:

1. /p/ and /b/

/pog'i/	'destroyed'
/bogi/	'killed'
/pu?e/	'to fell down'
/bude/	'victory'

2. /p/ and /m/

/maj/	'bury'
/paj/	'say 2SG. M. IMP'

3. /m/ and /n/

/amo/	'neck'
/ano/	'1 SG'

4. /t/ and /d/

/hajte/	'there'
/hajde/	'fat'
/gawto/	'new'
/xawdo/	'butcher'
/bati/	'disappear'
/wadi/	'accelerate'

5. /k/ and /g/

/kuma/	'thousand'
/guma/	'black'
/ak:i/	'took'
/agi/	'pick'
/kase/	'here'
/ga:se/	'shadow'
/sike/	'hook'
/gige/	'to pull'

6. /s/ and /n/
- | | |
|--------|------------|
| /ise:/ | '3 SG FEM' |
| /ine:/ | '1 PL' |
7. /s/ and /l/
- | | |
|--------|--------|
| /qas/ | 'cut' |
| /qa:l/ | 'sing' |
8. /t/ and /t'/'
- | | |
|----------|------------|
| /tire/ | 'liver' |
| /t':ire/ | 'man/male' |
9. /t/ and /n/
- | | |
|-------|--------|
| /ato/ | '2 SG' |
| /ano/ | '1 SG' |
10. /m/ and /w/
- | | |
|-----------|----------|
| /ʃadʹami/ | 'escape' |
| /ʃadʹawi/ | 'added' |
11. /ʃ/ and /n/
- | | |
|----------|----------|
| /ʔaw,ʃi/ | 'cooked' |
| /ʔawni/ | 'only' |
12. /x/ and /k/
- | | |
|---------|----------|
| /xar:o/ | 'dog' |
| /ka:ro/ | 'toward' |
13. /t/ and /t'/'
- | | |
|---------|---------------|
| /fati/ | 'vomit' |
| /fat:i/ | 'vomit: once' |
14. /b/ and /f/
- | | |
|-------|---------------|
| /ʃab/ | 'tie(V)' |
| /χaʃ/ | 'come/arrive' |
15. /r/ and /n/
- | | |
|--------|----------|
| /karo/ | 'toward' |
|--------|----------|

/ʔano/ '1 SG'

16. /r/ and /l/

/suro/ 'rope

/ful:ɔ/ 'gourd'

2.1.4 The Distribution of Consonant Phonemes

This section addresses the distribution of Gawwada consonant phonemes in words and cluster formation. The discussion is made as follows:

First, the consonant phonemes appear in the first columns. The second column gives examples at the initial position. The third column presents examples in intervocalic position while the fourth column illustrate examples at final position within a word. The fifth column shows the consonants at pre-consonantal position (C-); in the sixth, and last, column the phonemes shown in post-consonantal position (-C). Second, the order of consonant phonemes is based on their manner of articulation presented in Table 1 above and in the following order: plosives, nasals, liquids, fricatives, glides, ejectives, and implosives.

See the distribution of consonant phonemes on the table below.

The distribution of Gawwada plosives					
Sound	initial	medial	final	-C	C-
/p/	/paŋko:/ 'python'	/xupin/ 'five'	---	---	/aspitte/ 'snow'
/b/	/bebo/ 'reputation'	/sibbi/ 'sweated'	/ga:b/ 'afraid(V)'	/ga:bgo/ 'fear'	/gilbajjo/ 'knee'

/t/	/tire/ 'liver'	/luhte/ 'thumb'	---	---	/hulto:/ 'servant'
/d/	/deme/ 'eyelash'	/higgade/ 'to play'	---	---	/ri:bdo/ 'tendon'
/k/	/kase/ 'here'	/sike/ 'pointed'	---	---	/perkitte/ 'shoulder blade'
/g/	/garro/ 'half'	/gawwa?ago/ 'thunder'	/bog/ 'kill' 2 SG.M.IMP	/sagmo/ 'honey'	/o,ŋongo/ 'cold'
/ʔ/	/ʔardo/ 'ox'	/maga?i/ 'become sour'	/G'a ʔ / 'cook'	/ofoʔno/ 'odor'	/halʔuk'aa/ 'guinea corn?'

Table: 2 The distribution of Gawwada plosives

As it is illustrated in table 2 above, in Gawwada, all plosives do occur at word initial, medial and post-consonantal positions. Only the voiced plosives /b/, /g/ and /ʔ/ occur in all positions and within a word at pre and post consonantal positions. Plosives such as: /p/, /t/, /d/, and /k/ do not occur at word final positions. In addition to these, plosives such as /p/, /k/ and /d/ do not occur as the first member of a cluster while the rest of the plosives do. In contrary to this, all plosives do occur at post-consonantal position. Further more, it is possible to make two generalizations about the distribution of Gawwada plosives. The first is that all plosives in Gawwada do occur at initial, medial and post-consonantal positions. The second generalization is only /b/, /g/ and /ʔ/ plosives that can frequently appear in all positions.

The distribution of Gawwada nasals					
Sound	initial	medial	final	-C	C-
/m/	/me:ʔi/ 'to harvest'	/gamfo/ 'edge'	---	/gamfo/ 'edge'	/irmatte/ 'termite'
/n/	/nono/ 'brain'	/ʔanda/ 'wide'	/xubbin/ 'five'	/ʔanda/ 'wide'	/arno:/ 'knowledge'
/ɲ/	/ɲari/ 'threatened'	/fuɲɲa/ 'a strap used for yoke'	---	----	---

Table: 3 The distribution of Gawwada nasals

As can be seen from the distribution of Gawwada nasals in Table 3 above, all nasals do occur at word initial and medial position. /n/ is one of the most frequently occurring nasals in all positions followed by /m/ which is absent at word final position. However, the distribution of /ɲ/ is restricted to word initial and medial positions. Again, the distributions of nasals lead us to make the following generalizations. The occurrence of all Gawwada nasals at word initial and medial position, and the absence of /ɲ/ at word-finally, at pre and post consonantal positions are clearly observable.

The distribution of Gawwada liquids					
Sound	initial	medial	final	-C	C-
/l/	/lalade/ 'cloth'	/lalade/ 'cloth'	/ d il/ 'burn(tr)'	/ʔelho/ 'well (n)'	/hawle/ 'monument'
/r/	/raʔambakk o/ 'sour'	/xarro/ 'male dog'	/sor/ 'run 2SG.M.IM p'	/harharko:/ 'rhinoceros'	/agradai/ 'explained'

Table: 4 The distribution of Gawwada liquids

The illustration made on the above table definitely tells us that both Gawwada liquids /l/ and /r/ occur at all positions.

The distribution of Gawwada fricatives					
Sound	initial	medial	final	-C	C-
/f/	/filajje/ 'flea'	/tafo/ 'heap'	/xaf/ 'come/arri ve?'	/gafko:/ 'clan or race'	/wejfanakko/ 'bull'
/s/	/soʔo/ 'salt'	/ga:se/ 'spider'	/ʔeris/ 'prepare'	/mesgitte/ 'juniper'	/gorse/ 'taste'
/z/	---	/gaʔaza/ 'all'	---		/birze/ 'honey beer'
/ʃ/	/ʃori/ 'cinnamon'	/baʃo/ 'agriculture field'	/ʔaʃ/ 'go/walk'	/iʃte/ 'shoulder blade'	/pʰarʃaʔo:/ 'millet'
/x/	/xigadi/	/maxe/	/dix/	/noxte/	---

	‘played’	‘property’	‘count’	‘head’	
/χ/	/χahte:/ ‘Caterpillar of new moon’?	/axaga/ ‘present 1SG. M.’	---	/ex̣te/ ‘eye’	---
/h/	/hayto/ ‘place’	/hirhisi/	---	/ʃahtakko/ ‘chameleon’	/hirhisi/ ‘to unload’
/h/	/hajde/ ‘fat’	/huddo/ ‘yoghurt’	---		/xelho/ ‘peer’

Table: 5 The distribution of Gawwada fricatives

As shown in Table 5 above, in Gawwada all fricatives can appear at word initial and medial position. It is only /z/ which does not appear at word initial position and less infrequent in other positions as well as compared to other fricatives. Fricatives such /ʃ/, /s/ and /f/ can appear at all positions while the rest of the fricatives do not. On the other hand, only /x/ and /χ/ fricatives do not appear at post consonantal position.

The distribution of Gawwada glides					
Sound	initial	medial	final	-C	C-
/w/	/wadi/ ‘speed’	/wa:we/ ‘saliva’	---	/ʔawʃi/ ‘cooked’	---
/j/	/ji’eto/ ‘food’	/mi:ʔaje/ ‘child’	/baj/ ‘say 2SG. M. IMP’	/g’ojne/ ‘meal time between launch-dinn er’	---

Table: 6 The distribution of Gawwada glides

As it is shown in Table 6 above, both glides in Gawwada appear at word initial, medial and pre-consonantal position. At the same time, they are absent at post

consonantal position. However, different from the common distributional behavior the glides show, it is only /j/ that can appear at word final position.

The distribution of Gawwada ejectives					
Sound	initial	medial	final	-C	C-
/p'/	/p'ariɸaɸo:/ 'sorghum'	/ɸu:p'ale/ 'flute'	---	---	/ihu:hu:rp'i/ 'to be wrinkled''
/t'/	/t'u:lula/ 'narrow'	/ɸit'e/ 'cutting'	---	---	/xejt'a/ 'be handsome'
/tʃ'/	/tʃ'ekki/ 'plugged'	/gatʃ'tʃ'e/ 'teff a kind of cereal'	---	---	---
/k'/	/k'ure/ 'breakfast'	/k'ak'e/ 'gossiped'	/hok'/ 'full(V)'	---	/sonk'o/ 'a kind of harp'

Table: 7 The distribution of Gawwada ejectives

As it is shown in Table 7 above, Gawwada ejectives frequently occur at word initial and medial position. But, ejectives such as /p'/. /t'/ and /tʃ'/. and /tʃ'/. do not occur at word final and post-consonantal position respectively. In addition to this, it is only /k'/ which appear at all except pre-consonantal position. In Gawwada, ejectives do not appear at pre-consonantal position at all.

The distribution of Gawwada implosives					
Sound	initial	medial	final	-C	C-
/b/	/baɗami/ 'escaped'	/xiɓbe/ 'lip'	---	---	/naɗɓadi/ 'saved'
/ɗ/	/ɗilango/ 'a kind of pancake'	/baɗi/ 'hidden'	/ɗixaɗ/ 'think'	---	/ɗinninde/ 'poisonous snake'
/g/	/ginte/ 'out door'	/guɗaɗe/ 'labor'	---	---	/songɗite/ 'nail'
/ɠ/	/ɠit'e/ 'cutting'	/ɗoɠ'i/ 'carried'	---	---	/isɠe/ 'louse'

Table: 8 The distribution of Gawwada implosives

As the above table depicts, all implosives occur at word initial, medial and post consonantal position. In contrary to this, all implosives of Gawwada are absent at pre-consonantal position. Besides, it is only the implosive /ɗ/ that can appear at word final position. This implies that there is a clear pattern that implosives in Gawwada do not occur at pre-consonantal position and before consonants except /ɗ/.

Generally, regarding the distribution of consonant phonemes of Gawwada, generalization can be made in four ways. First, all consonants appear at word medial position. Second, except the fricative /z/, all consonant phonemes do occur at word initial position. Third, word final consonants are infrequent followed by pre-consonantal and post-consonantal positions. In other word, except the plosives /b/, /g/ and /z/, the nasal /n/, liquids /l/ and /r/, fricatives /f/, /s/, /ʃ/ and /x/, the glide /j/, the ejective /k'/, and the implosive /ɗ/, all other consonants do occur at word final position followed by pre-consonantal plosives /b/, /g/ and /z/, nasals /m/ and /n/,

liquids /l/ and /r/, fricatives /f/, /s/, /ʃ/, /x/ and /χ/, glides /w/ and /j/, and the implosive /ɗ/. In Gawwada, post-consonantal consonants are somewhat infrequent with the exception of plosives such as /p/, /b/, /t/, /k/, /g/ and /ʒ/, nasals /m/ and /n/, liquids /l/ and /r/, fricatives /f/, /s/, /z/, /ʃ/, /h/ and /ɦ/, ejectives /p'/, /t'/, /k'/, /g/ and /G'/. The fourth and last generalization about Gawwada consonant distribution is that though the infrequency of consonants at pre-consonantal position is obvious, ejectives and implosives are the only category which shows a clear pattern in not appearing pre-consonantal position.

2.1.5 Consonant length/gemination

Traditionally the notions of consonant length/gemination regarded as a separate entities in naming but as similar entities in function. For instance, Fox (2000: 41) quoting Swadesh (1937) noted as follows: “long consonants can be analysed in three different ways: as allophonic variants, as separate phonemes, or as sequences of identical phonemes (gemimates)”.

See the distribution of long or geminate consonants below.

1.	/ss/	[s:]	/ga:sse/	‘spider’
			/issunde/	‘they’
2.	/dd/	[d:]	/ʃuddi/	‘cover (V)’
			/addurre/	‘cat’
			/si:ddo/	‘tail’
			/huddo/	‘yoghurt’
3.	/rr/	[r:]	/irrawo/	‘rain’
			/kurre/	‘hive’
			/k’orri/	‘rusted’
			/irraffi/	‘lie down’
			/iraffi/	‘sleep’

4.	/ll/	[l:]	/ufallo/	'drizzle'
			/hullo/	'horse'
			/dolle/	'hump (of cow)'
5.	/nn/	[n:]	/innakko/	'fly'
			/t'inna/	'labored'
			/dinni/	'cured'
6.	/ɲɲ/	[ɲ:]	/fuɲɲa/	'a strap used for yoke'
			/suɲɲi/	'race'
7.	/tt/	[t:]	/uratte/	'cloud'
			/aspitte/	'ice'
			/xatte/	'fire'
8.	/jj/	[j:]	/xajjo/	'wind'
			/li:ʔajjo/	'moon'
			/o:ɟajje/	'sun'
9.	/ff/	[f:]	/iffaɖami/	'eclipse'
			/faffatto/	'girawa...
			/iffori/	'split'
			/fiffalde/	'ant'
10.	/ww/	[w:]	/G'awwo/	'insects'
			/gawwaʔago/	'light'
			/dawwo/	'snake'
11.	/mm/	[m:]	/irmmatte/	'termite'
			/c'i:mmi/	'sink'
			/c'amme/	'branch'
12.	/bb/	[b:]	/si:bbi/	'perspires'
			/abbija/	'uncle'

		/abba/	‘father’
13.	/kk/ [k:]	/gefakko/	‘old’
		/akki/	‘he took’
		/fikke/	‘hate (N)’
14.	/t’t’/ [t’:]	/gat’t’o/	‘hair’
		/hit’t’e/	‘root’
		/gut’t’ango/	‘stump’
15.	/k’k’/ [k’:]	/č’ok’k’olo	‘mud’
		/manak’k’e/	‘obstacle’
		/sak’k’e/	‘belt’
16.	/dđd/ [d’:]	/ixadđi/	‘flew’
		/godđe/	‘bride price’
17.	/č’č’/ [č’:]	/gač’č’e/	‘teff’
		/ič’č’ekki/	‘pierce’
18.	/p’p’/ [p’:]	/t’ip’p’i/	‘shake’
		/t’up’p’i/	‘stir’
		/t’ip’p’i/	‘shake’
		/t’ip’i/	‘wink’
19.	/zz/ [z:]	/izzañ/	‘three’
20.	/gg/ [g:]	/higgade/	‘to play’
		/ʔaggo/	‘life’
		/ʔago/	‘migrate or new comer’
		/daggi/	‘swim’
21.	/bb/ [b:]	/ebbe/	‘fruit’
		/xibbe/	‘lip’
		/atubbi/	‘thresh’
22.	/ff/ [f:]	/irraffi/	‘lie down’
		/iraffi/	‘sleep’
23.	/pp/ [p:]	/guruppe/	‘crow’
		/kuppakko/	‘pot (for water)’

Out of thirty consonant phonemes, twenty-three of them can appear as long or geminate consonants. Besides, all long or geminate consonants occur at word medial position but not at word initial and final position.

2.2 Vowels

2.2.1 Vowel inventory

Gawwada employs the most common vowel system i.e. the five-vowel system. In terms of vowel parameter, the vowels of Gawwada can be described as close, close-mid, and open (tongue height), and front, central and back (tongue position).

	Front	Central	Back
Close	i		u
Mid	e		o
Open		a	

Table 9: Vowel phonemes of Gawwada

2.2.2 Description of vowel phonemes

Below are vowel phonemes of Gawwada described and illustrated with examples.

1. /i/ [i] close, front vowel (It appears in all positions within a word.)

Example: /ija/ 'say'
/inne/ 'penis'
/file/ 'a kind of flute'
/hu:zi/ 'this'

2. /e/ [e] close-mid, front vowel (It appears in all positions within a word.)

Example: /emmi/ 'saw'
/ergo/ 'message'
/gereʔi/ 'stole'
/bebo/ 'reputation'
/mo:re/ 'market'

3. /a/ [a] open, central vowel (It appears in all positions within a word.)

Example: /ali:de/ 'speech'

/ango/	‘jaw’
/ʃande/	‘ear’
/abba/	‘father’

4. /u/ [u] close, back vowel (It appears in all positions within a word.)

Example: /ulsedi/ ‘dream (v)’

/uḏango/	‘bad smell’
/tullo/	‘cough’
/gaspu/	‘wheat’

5. /o/ [o] close-mid, back vowel (It appears in all positions within a word.)

Example: /oʃalala/ ‘soft’

/oskille/	‘traditional oven’
/ʃohi/	‘grown’
/borto/	‘barley’
/bajjo/	‘to say’

As it is displayed above, all Gawwada vowel phonemes occur at word initial, medial and final positions.

2.2.3 Vowel length

The following examples illustrate the long vowels of Gawwada.

- /ii/ [i:] /i:ttuki/ ‘point’

/li:li/ ‘melte’

/ʔugi:/ ‘drink’
- /ee/ [e:] /e:/ ‘yes’

/re:hi/ ‘stigmatize’

/go:le:/ ‘animal’
- /aa/ [a:] /a:warikko/ ‘stone’

/ma:xe/ ‘thing or material’

/aja:/ ‘false’ or talk’

- | | | | | |
|----|------|------|-------------|-----------------------------|
| 4. | /uu/ | [u:] | /u: d'ammi/ | 'sick' |
| | | | /u:gula/ | 'big traditional basket' |
| | | | /tu:ritte/ | 'story' |
| | | | /ʃu:me/ | 'leader' |
| 5. | /oo/ | [o:] | /o:ʔe/ | 'daughter' |
| | | | /lo:hi/ | 'change (v)' |
| | | | /mo:k`ak`e/ | 'smile' |
| | | | /hojso:/ | 'clear (land for planting)' |
| | | | /arno:/ | 'knowledge' |

Again, in Gawwada, all long vowels occur at word initial, medial and final position except the close- back- long vowel /u:/. As far as our data shows there is no word with a long /u:/ vowel.

2.2.4 Minimal pairs for vowels

Gawwada has some meaning contrastive vowel phonemes. The following pairs of words will demonstrate the contrast.

- (1). /i/ and /u/

Example: /t`ip`p`i/	'shake (v)'
/t`up`p`i/	'stir'

- (2). /i:/ and /u:/

Example: /gi:de/	'obligation'
/gu:de/	'surprising'

- (3). /i/ and /a/

Example: /geʔa/	'search'
/geʔi/	'shout'
/gisadi/	'beg'
/gasadi/	'aske'

- (4). /e/ and /o/

Example: /ʃu:re/	'cabbage'
------------------	-----------

/ʃu:ro/	‘a pot cover made from dried pumpkin’
/ise/	‘they HONORING’
/iso/	‘he’

(5). /a/ and /e/

/hajde/	‘fat’
/hojɔe/	‘red’

(6). /a/ and /o/

/tazan/	‘seven’
/tozon/	‘one’

Chapter Three

Syllable structure and syllable representation in Gawwada

3.1 Introduction

In this section, an attempt is made to briefly discuss the syllable structure constituents and syllable representation in the context of Gawwada phonology. In addition to these, syllable related issues such as the role of syllable within Gawwada phonology, and types of syllable will be discussed in light of the developments in auto-segmental theoretical framework, i.e moraic theory of syllable structure.

3.2 Basic syllable types

Gawwada has eight types of basic syllables. These are: V, VV, VC, CV, CVV, CVC, VVC, and CVVC. The number of syllable type is consistent with that of Geberew (2003). See the details of syllable types in the table below.

No	Types of syllable	Examples	Gloss
1	V	/e.e/	'ok'
2	VV	/oo.ze/ /ee/	'daughter', 'yes'
3	VC	/is.ʒe/	'louse'
4	CV	/ti. za.di/	'keep'
5	CVV	/k'oo. ze/	'explosion'
6	CVC	/zaw.ni/	'only'
7	VVC	/ooʒ.aj.je/ /aaw.rik.ko/	'sun' 'stone'
8	CVVC	riib.do\	'muscle fiber'

Table 10: Basic syllable types in Gawwada

3.3 Syllable structure

3.3.1 Constituents of the syllable

Syllable has a structure in which its constituents generally grouped as syllable edge (left edge or onset/ right edge or coda) and syllable peak (nucleus). The basic syllable structure constituents are onset, nucleus (rhyme) and coda. However, these constituents of a syllable may have different internal hierarchical structures. For instance, there is onset-rhyme (onset-rime) model which is a typical representation of the internal syllable structure. In syllable, there is a core constituent nucleus which contains the vowel and the preceded element onset. Furthermore, McMahon (2002:105), as cited in Abel (2010), stated that "The only compulsory part of the syllable, and hence its head, or most important, defining unit, is the nucleus...Both onset and the coda are optional constituents, and each, if filled, will contain one or more consonants". See the diagram of universal syllable template below.

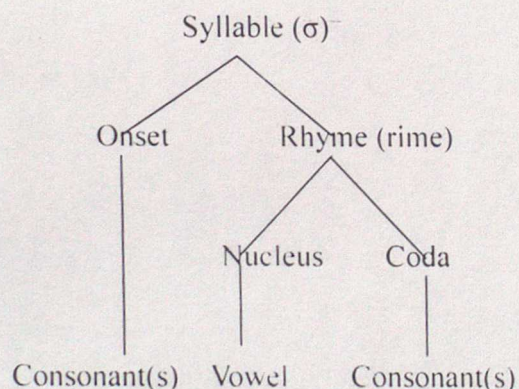


Diagram 4: The Universal Syllable Template (Adapted from Yule (2006:47) and McMahon (2002:105) cited in Abel (2010: 36))

Kessler and Treiman (1997), on the other hand, claim that onset and coda can generally be considered as margins of a syllable onset-rime structure when it should separate the syllable into two major constituents in which the onset stand alone as it is on the left while the rime constitute nucleus and coda on the right. Whereas body-coda syllable structure treats the onset and nucleus as the body of a syllable on the left and separately construct the coda on the right position. See below the

onset-rime and body-coda syllable structure representations.

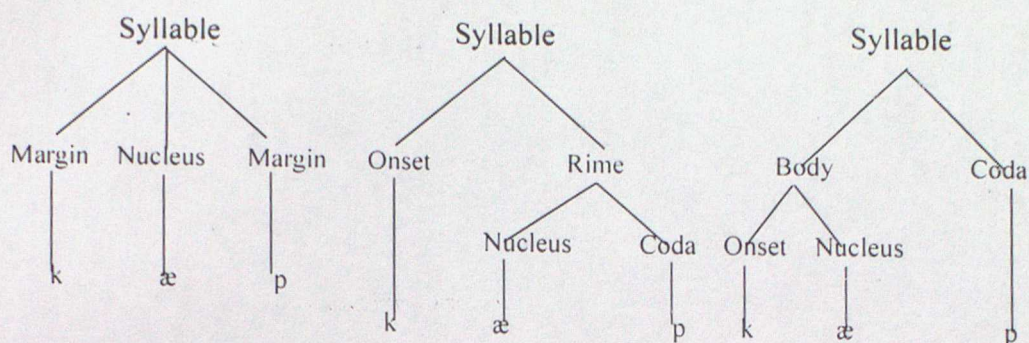


Diagram 5: Flat onset-rime and body-coda representation of syllable structure Kessler and Treiman (1997: 297))

3.3.2 The role of syllable

According to Kenstowicz (1994:250), syllable plays the following three main roles:

1. It is a natural domain for the statement of many phonotactic constraints
2. Phonological rules are often more simply and insightfully expressed if they explicitly refer to the syllable, and
3. Several phonological processes are best interpreted as methods to ensure the string of phonological segments is parsable into syllables.

The first argument made by Kenstowicz regarding the role of syllable is to refer to the limitations on the distribution of sounds and sound sequences. The sound sequences could be initial, medial and final positions of a word or phrase. For instance, in Gawwada, having a string of two consonant clusters is impossible at word initial and final positions of a word or phrases whereas the same string of consonant cluster is possible at word medial position. See further discussions in sections 4.2 and 4.3. The second role is syllables can be expressed in simple and clear ways by phonological rules. The third significant role of syllable in any phonological discussion is about methods that ensure unparsable segments to be parsable into phonologically meaningful syllables.

3.4 Phonotactic constraints, principles and syllabification

Trask (1996:227) defined phonotactic as “the set of constraints on the possible sequences of consonant and vowel phonemes within a word, a morpheme or a syllable in a given language”. Trask also noted that constraint in phonotactics of language is, “any statement, in some particular framework or description, which prohibits some derivation, process, structure or combination of elements which would otherwise be allowed”. From this definition, we can deduce that a phonotactic constraint of a language means the restrictions on the pattern of sounds at different positions within syllables.

In Gawwada, any consonant that begin a word can be followed by any vowel and these vowels can be followed by any consonant. As mentioned in Section 3.1.4 above, in Gawwada word initial and final clusters are not possible while word medial clusters are possible. A sequence of three consonant clusters is impermissible at any positions within a word.

Based on the phonotactic constraints mentioned above, we shall illustrate the well-formed and ill-formed medial clusters in Table (10) below. The first row in the table indicates the first members of such clusters while the columns indicate the second members. The sign ‘+’ indicates the pair of clusters in the row/column which are well-formed. Other than the first row and column, the rest bold shaded and ‘-’ marked are ill-formed pair of clusters.

	p	d	k	k'	ɡ	ɓ	ɗ	t'	ɗ	p'	h	z
b	-	+	-	-	+	-	-	-	-	-	-	-
m	-	-	-	-	-	-	-	-	-	-	-	-
n	-	+	-	+	+	-	-	+	+	-	-	-
f	-	-	+	-	-	-	-	-	-	-	-	-
t	-	-	-	-	-	-	-	-	-	-	-	-
tʃ	-	-	-	-	-	-	-	-	-	-	-	-
ɡ	-	+	-	-	-	-	-	-	-	-	-	-
ʔ	-	+	+	-	-	-	-	-	-	-	-	-
l	-	+	-	-	-	-	-	+	-	-	+	-
s	+	-	+	-	-	-	+	-	-	-	-	-
r	-	+	+	-	+	-	-	-	+	+	+	+
j	-	+	-	-	-	-	-	+	+	-	+	-
ʃ	-	-	+	-	-	-	-	-	-	-	+	-
w	-	+	-	-	-	-	-	-	-	-	+	-
x	-	-	-	-	+	-	-	-	-	-	-	-
χ	-	-	-	-	-	-	-	-	-	-	-	-
h	-	-	-	-	-	-	-	-	-	-	-	-
ñ	-	-	-	-	-	-	-	-	-	-	-	-

Table 11: Gawwada's medial consonant clusters

As illustrated in the above table, in Gawwada all consonant phonemes, except /p/, /d/, /k/, /k'/, /ɡ/, /ɓ/, /ɗ/, /t'/, /ɗ/, /p'/, /h/ and /z/ occur as first entry cluster at word medial position. On the other hand, all consonant phonemes except /tʃ/, /j/, /x/, /χ/ and /w/ occur as first entry cluster at word medial position.

Regarding the distributional frequency of these medial clusters an attempt has been made to describe them by rating the frequency of occurrence. The basis of generalization made for distributional frequency of medial clusters is the 1,500 words collected from fieldwork. Accordingly, 1=indicates least available, 2= somewhat available, 3= available, 4= frequent, 5= very frequent, and >5= most frequent. See the distributional frequency of medial consonant clusters in the table below.

<i>Medial clusters</i>	<i>Example</i>	<i>Gloss</i>	<i>Frequency</i>
/bg/	/riibdo/	'tendon'	2
/bg/	/gaabgo/	'fear'	>5
/nd/	/gfanda/	'wide'	>5
/nk'/	/sonk'o/	'a kind of harp'	3
/ng/	/songfitte/	'nail'	2
/nt'/	/gant'ajje/	'thorn'	2
/nd/	/gfinninde/	'poisonous snake'	1
/gd/	/garrehogdido/	'firewood'	4
/ʔd/	/gorroʔde/	'algae'	2
/ʔk/	/toʔkusa/	'the one'	2
/ld/	/faffalde/	'ant'	4
/ld/	/galɗiiti/	'bud'	1
/lh/	/xelho/	'peer'	1
/sp/	/aspitte/	'ice'	1
/sk/	/oskille/	'traditional oven'	>5
/sg/	/isge/	'louse'	1
/rd/	/sabardi/	'(be) obstructed'	1
/rk/	/perkitte/	'shoulder blade'	>5
/rg/	/harge/	'infant'	4
/rd/	/ʔardo/	'ox'	1
/rp'/	/ihu:hu:rp'i/	'to be wrinkled'	2
/rh/	/harharkoo/	'rhinoceros'	3
/rz/	/birze/	'traditional beer'	1

/jd/	/hajde/	'fat'	>5
/jt'/	/xejt'a/	'be handsome'	3
/jh/	/hajhitto/	'guest'	1
/jk/	/xariʃkoo/	'bubbled grain'	2
/ʃh/	/hoʃhaʃaʃa/	'(be) whisper'	2
/wd/	/alawde/	'sister'	>5
/wh/	/ɢawho/	'human'	2

Table 12: The distributional frequency of medial consonant clusters

As shown in the above table, medial clusters such as /bg/, /nd/, /sk/, /rk/, /jd/ and /wd/ occur most frequently. On the other hand, the /nɢ/, /nd/, /ld/, /lh/, /sp/, /sɢ/, /rd/, /rd/, /rz/ and /jh/ medial clusters are the least frequent clusters in the language. Besides, the /r/, /n/ and /d/, /h/, /k/ occurs frequently as first and second member of medial clusters respectively.

3.4.1 Principles

There are syllable principles based on the phonotactic constraints or restrictions in the language with respect to its syllable or word internal boundary. As (Pulgram (1970 and Hyman (1975) cited in Abel (2010:40) listed, there are universal principles proposed by Pulgram to determine syllable structure. Only two of these principles are useful for the purpose the present discussion: namely,

the principle of maximal open syllabicity and

the principle of maximal coda and maximal onset.

Let us see these two principles from the point of view of Gawwada phonotactic constraints. For instance, there are many words in the language that are difficult to determine their exact syllable boundary such as /hajhitto/ 'guest', /gaabgo/ 'fear', and /ɢanda/ 'wide'. However, using the aforementioned principles, it is possible to determine their syllable boundary. Let's start applying the principles.

PRINCIPLE I: A syllable boundary is inserted after every vowel (or diphthong) of a word. Based on this principle, the above words will have the following forms **ha.jhit.to**, **gaa.bgo** and **ɢa.nda**. Since any

syllable carries at least one nucleus vowel, onset syllables should also fulfill the obligation levied by this principle.

PRINCIPLE II: If the syllable cannot be kept open because the consonants that would form the onset of the next syllable do not occur in word-initial position, do not reduce the onset to a permissible word-initial shape rather it must be detached from it and transferred to the preceding syllable as coda, thus closing the syllable.

Hence, in all re syllabified words, onsets of the next syllables are clusters (**jh**, **bg** and **nd**) which are again impossible in the language so for the second time they are re syllabified as **haj.hitto**, **gaab.go** and **ḡan.da**. Generally, these three words are syllabified as **haj.hi.tto**, **gaab.go** and **ḡan.da** form CVC.CV.CCV, CVVC.CV and CVC.CV syllable types respectively. Moreover, long consonants and vowels as in /hajhitto/and /gaabgo/ needs syllable representational treatment which will be addressed in the next chapter.

3.4.2 Syllabification

Trask (1996:345) defined the syllabification process as “analytical procedure for dividing a phonological representation into a well-defined sequence of syllables”. So, syllabification is another viewing method of segmental constraint simplifier because its basic idea relies on the well-formed ness of syllable sequences. About syllabification, Kenstowicz (1994:269), citing McCarty (1979a), noted the following:

An alternative view has emerged according to which at least a rudimentary organization into syllables holds levels of phonological representation. ... continuous syllabification comes from successive steps in the derivation, each of which requires a reparsing of the phonemic string.

Based on this, syllabification can be seen as a very useful process to represent syllable positions following certain steps. Supporting this, O’Grady and Dobrovosky (1987) cited in Abel (2010:42) stressed that syllabification has basic steps in which syllables are associated to nucleus, then to onset and coda. This is because syllabification and

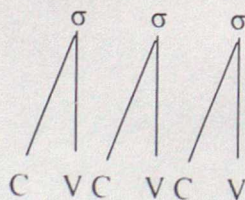
other phonological discussions are best applicable if they are observed according to the rules of specific languages. This means syllabification steps may vary from one language to the other. See the syllabification processes in Gawwada in the examples below.

STEP 1. The first step is to find the nuclei of the syllables in the word. For example, let us see the CVCVCV syllable type in the language i.e. /holasi/ 'reply (v)'. There are three vowels, and since vowels are usually nuclei, there are three nuclei, and thus, three syllables. Therefore, at this point, we have the following structure:



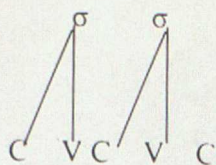
Now, we have to decide which consonants are onsets, and which consonants are codas so we have to move to the second step.

STEP 2. This step basically relies on onset which is first part of the syllable, that part preceding the rhyme and typically consisting of all consonants preceding the vowel. In languages such as English, it is usually best to give every syllable where possible so if we give every syllable an onset, we have the following structure:

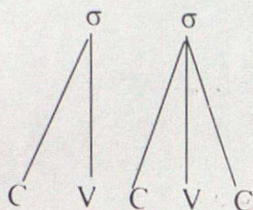


In the above structure, every segment is syllabified.

STEP 3. Coda, in most views of syllable structure, is the right part of a syllable which follows the nucleus and which contains any syllable-final consonants. Examine the word /salah/ 'four' with CVCVC structure.



Now, we have a consonant that is not associated to some syllable structure. Therefore, we can associate it to the end of the final syllable position.



Since this consonant is at the end of the syllable, it is considered as a coda.

3.5 Common syllable shapes and Gawwada syllable template

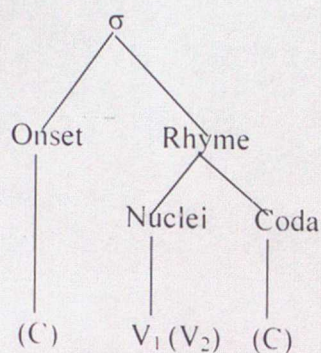
With respect to the syllable aspects of the language, of course, the sound pattern of a language means the syllable aspect of that language. Hyman (1975:188) cited in Abel (2010) states as follow, 'whenever languages have syllable types other than CV- the commonest syllable in world's languages, complications arise in the exact determination of syllable boundaries'. CV is regarded as a core and exists in all natural languages. Hagberg (2006: np) identified a range of syllable type inventories (CV, V, CVC, VC, CCV, CCVC, CVCC, CCVCC and VCC). However, as Hyman stated, there is no agreement with regard to these syllable types boundary. Abel further referring Hyman noted that there is an intimate relationship between word structure and syllable structure. Supporting this relationship Abel (2010:39) forwarded the following statement.

Ideally, the same sequential constraints which operate at the beginning of a word should be operative at the beginning of a syllable, even if this syllable is word-internal. Similarly, the same sequential constraints which operate at the end of a word should be operative at the end of a syllable.

This means that there is a direct plausible relationship between the two (syllable

and word) structure, constraints and boundary. Having the above points in mind, let us see the basic facts in Gawwada i.e. syllable constraints.

In Gawwada the maximum number of consonants that are allowed at syllable initial and final positions is one. So, the language's syllable starts with one onset consonant and ends with one coda consonant. In this case, Gawwada syllables can also start with a vowel hence no more obligatory consonant at onset position. Accordingly, the maximum syllable template of Gawwada is as follows:



As you can see from the syllable template above, Gawwada has a non-branching onset and coda. At the same time, the sequence of two non-identical vowel phonemes is impermissible in the language.

3.6 Types of syllable

As Hagberg (2006: np) identified, there are ranges of syllable type inventories (CV, V, CVC, VC, CCV, CCVC, CVCC, CCVCC and VCC) in which significant number of the world's languages draw their syllables into different categories. In the context of these syllable inventories, we shall consider the notion of closed and open syllables as in CVC and CV, and the notion of syllable weight, i.e. heavy and light as in CVC (in some languages for example, Amharic) and CV types respectively. At the same time, syllable types can be also grouped into *mono syllabic* as in for instance CV, CVC, CVVC *bi syllabic* as in V.V, VV.V, VV.CV and *multi syllabic* as in VV.CV.CCV, VC.CV.CV, CV.CCV.CV, CV.CV.CV syllable categories.

3.6.1 Closed *versus* Open

Trask (1996:74) defined closed syllable as, “a syllable which ends in one or more consonants”. According to him, all the syllables occurring in the English words /kʌt/, /eɪm/, /hændl/, and /kəm'pæniən/ are closed while the syllables of /mɜ:mə/ are closed in a rhotic accent but not in a non-rhotic accent. As opposed to closed syllable, open syllable is a syllable which ends in a vowel with no following consonant or which lacks a coda..

3.6.1.1 Closed syllable types in Gawwada

Gawwada has very few closed syllables. See examples of closed syllables in the table below.

Types	Gawwada word	Gloss
CVC.CV	/ʔaw.ni/	‘only’
CVVC	/soor/	‘run 2SG.M.IMP’
VC.CV	/is.G'e/	‘louse’
VVC.VC.CV	/oog.aj.je/	‘sun’

Table 13: Closed syllable types in Gawwada

As shown above in Table 13, Gawwada has four closed syllable types: CVC, CVVC, VC and VVC. The CVC syllable type frequently appears in words that have second person masculine imperative forms. As compared to open syllables, closed syllables are less frequent in the language. Below is the structure of closed syllable in the diagram.

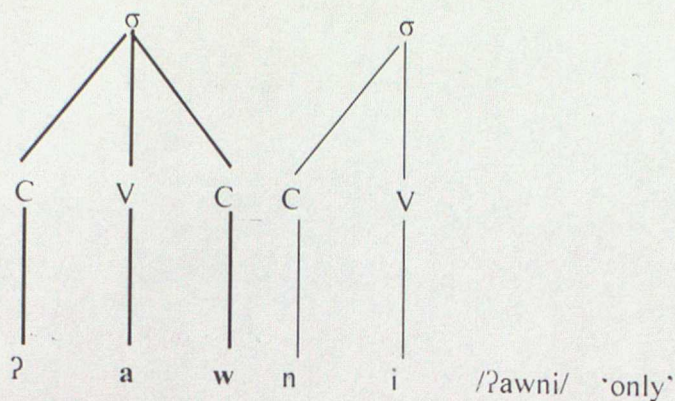


Diagram 6: The structure of closed syllable in Gawwada

In Diagram 9 above, the first syllable is a closed syllable. In Gawwada, sequences of two or more closed syllable types never appear in a word. When we have closed syllables in a word, at least one of the syllables must be open or the word by itself should be mono syllabic.

3.6.1.2 Open syllable types in Gawwada

With the exception of syllable types in section 3.3.1.1, all other syllable types are open in the language. See below the examples of open syllable types.

Types	Gawwada word	Gloss
V.V	/e`e/	‘ok’
VV.V	/oo.e/	‘daughter’
CV.CV.CV	/ti.ʔa.di/	‘keep’
CV.CVV	/ʔa.lii/	‘tell’

Table 14: Open syllable types in Gawwada

As one can see from Table 14 above, there are four types of open syllables in the language. These are: V, VV, CV, and CVV. All these syllable types occur very frequently across word boundary with the exception of VCCV type.

Accordingly, the structure of open syllable looks like in the diagram shown below.

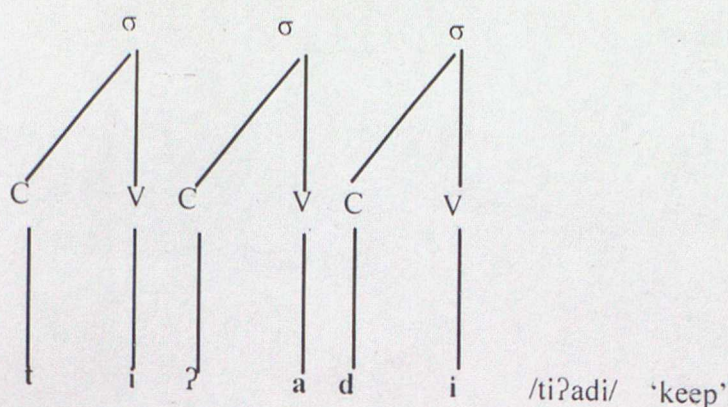


Diagram 7: The structure of open syllable in Gawwada

3.6.2 Weight (light versus heavy)

The second type of syllable category is based on weight (light and heavy). Regarding syllable weight, Gordon (2006:1) has the following to say:

While the exact definition of syllable weight is elusive, it may be defined very broadly as that property which differentiates syllables with respect to their prosodic behavior. The difficulty in explicitly defining syllable weight lies in determining which prosodic aspects of language fall under the rubric of weight.

Gordon further noted that there is no consensus on exactly which phenomena of phonology contribute to syllable weight. For instance, in Latin, stress is prominently among those phenomena considered to involve syllable weight. Gordon also identified that the domain of weight, however, is not limited to stress rather it touches phenomena that are potentially sensitive to the weight of syllables include poetic metrics, compensatory lengthening, tone assignment, quantitative aspects of syllable structure, and reduplication.

Nonetheless, syllable weight seems to be a language-specific matter since (C)VC syllables, for example, pattern as heavy syllables in some languages (at least word-finally) and light in others. Let us examine the notion of syllable weight

from the perspective of Gawwada syllables.

- (1) a. /k'or/ 'rust!' CVC
b. /k'orri/ 'rusted' CVCCV

The first syllable in (a) is heavy in the language for three reasons. First, since syllable onset doesn't contribute to syllable weight, the first vowel and the next consonant constitute a mora. As Hall (2006: 114) also stated, the CVC like in (a) is heavy because heavy syllable may have a short vowel, but one or more coda consonants. Second, it is not a language in which closed syllables are light and prohibits moraic codas. As one can see in (a), the coda consonant doesn't prohibit from bearing mora as in (b). This means that, as the case in (b), closed syllables in disyllabic words are heavy and attract stress. Third, bimoraic syllables are heavy and the coda consonant in (a) has long consonants which contribute to syllable weight as in (b).

In Gawwada, we have also other heavy syllables such as VV and VC, as in /oo.e/ 'daughter' and /is.G'e/ 'louse' respectively.

Apart from light and heavy syllables, there is also one weight manifestation, which is super heavy syllable. Mulugeta (2001:43), referring to McCarthy (1982), Goldsmith (1990), and Hayes (1989), stated that CVVC and CVCC syllable types have been treated as super heavy syllables. Furthermore, mulugeta noted, citing McCarthy and Prince (1990) that, 'the occurrence of "superheavy" syllables (CVCC and CVVC) by positing a bimoraic syllable followed by a final extrametrical syllable consisting of only the onset bit of the syllable'. Although super heavy syllables are few in their occurrence, they do exist in Gawwada. For example, the CVVC type as in /soor/ 'run 2SG. M. IMP', / and /riib.do/ 'fiber (of human body)' cases in point. However, the CVCC super heavy syllable type doesn't exist in Gawwada because consonant clusters are impermissible at syllable final position.

3.6.3 Mono, bi, & multi-syllable words

Mono syllable words are the one which consists of a single syllable. On the other hand, Bi and Multi syllable words can also be defined as words which have two and more than two syllables respectively.

3.6.3.1 Mono syllable words

Gawwada has only three types of mono syllable words: V, CVC and CVVC. Consider the examples below.

- | | | | |
|--------|------|--------|---------------------|
| (2) i. | V | /e:/ | 'yes' |
| ii. | CVC | /bog/ | 'kill 2SG. M. IMP.' |
| iii. | CVVC | /soor/ | 'run 2SG. M. IMP.' |

As shown in the above examples, the CV syllable type doesn't exist in mono syllable words of Gawwada.

3.6.3.2 Bi or Disyllable words.

In Gawwada, there are eighteen types of bi-syllable words.

Examples:

- | | | | |
|------|--------|-----------|-------------|
| (3). | V.V | /e.e/ | 'ok' |
| | V.CVV | /a.jaa/ | 'talk (n)' |
| | VV.V | /oo.ʔo/ | 'daughter' |
| | VV.CV | /oo.ʔe/ | 'son' |
| | V.CV | /a.ra/ | 'knew' |
| | V.CVC | /i.laj/ | 'together' |
| | CV.CVC | /ba.raj/ | 'when' |
| | VC.CV | /is.ʔe/ | 'louse' |
| | VC.CVV | /ol.laa/ | 'village' |
| | CVV.V | /k'oo.ʔe/ | 'explosion' |

CV.CVV	/ʔa.li:/	‘told’
CVV.CVV	/bii.soo/	‘flower’
CVVC.CV	/diis.te/	‘cooking pot (earthen ware)’
CV.CV	/go.ra/	‘there’
CVV.CV	/gli.de/	‘obligation’
CVC.CV	/ʔaw.ni/	‘only’
CVC.CV	/bog.gi/	‘killed’
CVC.CVV	/hul.too/	‘servant’

Contrary to mono syllable words, CV syllable shape is somewhat frequent in bi-syllable words of the language though they are not as much frequent as in multi-syllable words.

3.6.3.3 Multi-syllable words

Gawwada has the following sets of multi syllable words.

Examples:

(4). V.CV.CV	/a.la.di/	‘talk (v)’
V.CV.CVV	/a.ba.g`ii/	‘heard’
V.CVV.CV	/a.lii.de/	‘speech or discourse’
V.CVC.CV	/a.ɖaw.ra/	‘prohabited’
VV.CVC.CV	/aa.xit.te/	‘leaf’
VC.CV.CV	/al.ga.sa//	‘able to voice’
VC.CVC.CV	/aw.ruk.ko/	‘black sharp stone’
CV.CVC.CV	/ʔa.rak.ko/	‘gray’
VC.CV.CVC.CVC.CV	/ak.ka.dam.bak.ko/	‘stool’
CV.CV.CVC.CV	/ha.la.lak.ko/	‘dove’
CVV.CVC.CVC.CV	/ɖuu.gam.bak.ko/	‘(be) fair’
CVC.CV.CVC.CV	/ʔor.ša. ʔad.do/	‘rhinoceros’

CVC.CVVC.CV	/baj.ʃiit.te/	'a kind of itch'
CVC.CVC.CV	/kup.pak.ko/	'a kind of pot'
CVC.CVC.CV.CV	/xin.naw.sa.ɸi	'smelled'
CV.CV.CV.CV.CV.CV	/ho.go.ro.ki.ča.za.sa/	'funny'

As it is displayed above, in Gawwada, there is at least one CV syllable shape which is one of the worlds most frequent and common syllable type in all multi-syllable words.

3.6.4 Gawwada syllable structure

Mulugeta (2001:14), citing Clement and Keyser (1983), stated that any consonant followed by a vowel is considered as basic syllable type. This is to refer to the worlds most frequent syllable type that exists in all human language grammars. Based on this syllable type, Clement and Keyser (1983:29) have identified four types of syllable inventories which are common to all human languages. These are:

Type I: CV

Type II: CV, V

Type III: CV, CVC

Type IV: CV, V, CVC, VC

The three syllable inventories (Type II, III, and IV) are derived from Type I by the rules that dictate:

- I. Delete syllable initial C.
- II. Insert syllable final C.

Accordingly, the aforementioned syllable inventories can be interpreted as:

- a. Type I is considered as inderivable root. Both rules can not operate on this inventory.
- b. Type II is derived from Type I by the rule I. After the deletion of initial C from CV, we get the V.
- c. Type III is derived from Type I by the rule II. Inserting C after CV results CVC.

d. Type IV is derived from Type I by the rules of I and II.

Gawwada is a Type IV language for two reasons. First, in all human languages, CV syllable type is very frequent syllable type. Second, by applying both rules, we can derive the other syllable inventories such as Type IV. Since Type IV constitutes all the basic syllable types that are common to Gawwada, the language can be considered as a member Type IV.

3.7 Data and Analysis

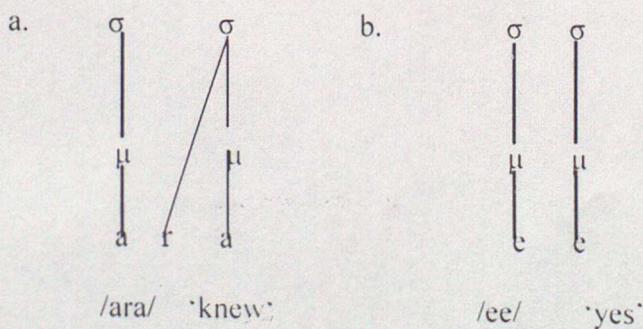
In this section, the syllable structure of Gawwada is discussed in light of moraic model presenting the major claims of the model. According to Hagberg (2006:3), the fundamental claim of moraic theory is that the only element intervening between the syllable node and the segmental root node is the mora. Besides, Hagberg noted that the syllable contains neither an onset nor a rhyme. Instead, every syllable contains one or more mora (μ). Examine the moraic conventions proposed by Ehala (2003:59) and stated in Section 1.8.1.4 above, which is repeated here for convenience.

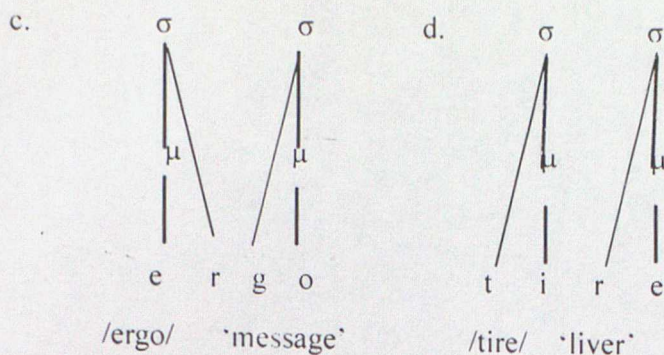
I. Monomoraic shape of syllables

Ehala (2003) argued that short vowels have one mora. This implies that every syllable can hold at least one short vowel that is a bearer of mora. This will lead us to conclude that each syllable in a word has one mora. Some examples from Gawwada presented below.

- (5)
- | | | |
|----|---------|-----------|
| a. | /a.ra/ | 'knew' |
| b. | /e.e/ | 'yes' |
| c. | /er.go/ | 'message' |
| d. | /ti.re/ | 'liver' |

Accordingly, the moraic representation of these examples will be:





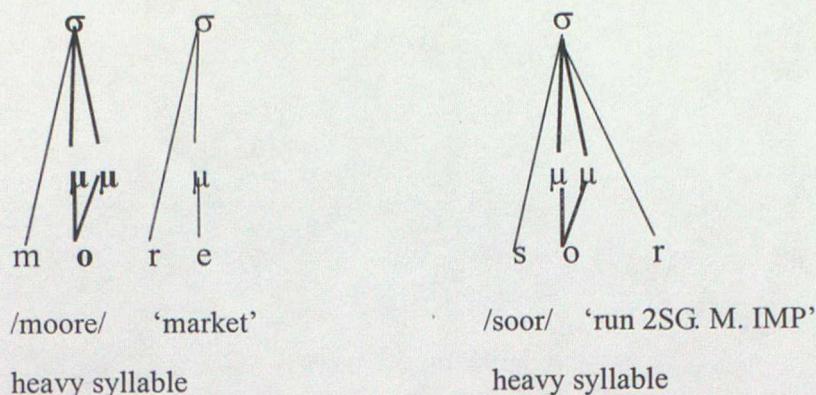
As it is shown on the above representations, in (a) it is clearly seen that Gawwada's simple nucleus with non branching syllable or rhyme is a monomoraic by its nature. In addition to this, the vowel in the first syllable of (a) is underlyingly moraic hence the vowel is directly dominated by non branching mora, then by its syllable. At the same time, both syllables in (b) are monomoraic with V.V shapes. Besides, the second syllable in (a) and (c), and both syllables in (d) are monomoraic with CV shapes. The only VC monomoraic shape is the first syllable of (c).

II. Any syllable with long vowels is bimoraic (has two mora)

As it is mentioned earlier, bimoraic syllables are heavy hence they involve syllable weight. Beside the heaviness of long vowels, the moraic model by itself is motivated by solving questions related to segment length such as vowel length. With this consideration, Gawwada vowel length is presented below in the following representations.

- (6) a. /moo.re/ 'market'
b. /soor/ 'run 2SG.M. IMP.'

Their moraic representation will be:



As can be seen from the above representations, the first syllable in (a) has a CVV shape while in (b) the shape has CVVC. Both (a) and (b) are bimoraci (heavy) syllables. In (a), the σ node of the first syllable has dominated two mora and each mora has dominated one long segment. In addition, the initial non-syllabic segment /m/ is associated with the σ node. The same is true in (b) except the final non-syllabic segment /r/ which is associated to the either σ node.

III. Any long or geminate consonant has one mora

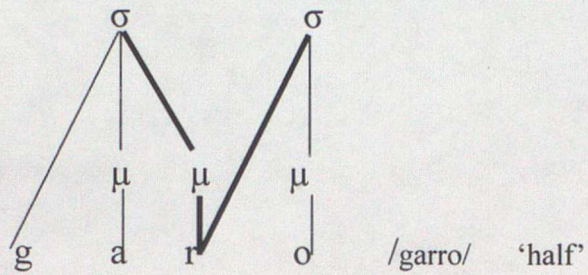
Treating long consonants under geminates, Hayes (1989:254) claimed that geminates almost always bear a mora. He further noted that the surface double linking of a geminate is derived by the rules of syllabification and not present in underlying forms. In addition to this, the moraic representation of geminates is structurally distinct from that of long vowels. Regarding this Cohn (2003:77) stated the following: "...in contrast to a timing unit approach to consonant geminates, where the representations for long vowels and geminates are completely parallel with both equaling two units". See the moraic representation of Gawwada long/geminate consonants below.

- (7)
- a. /garro/ 'half'
 - b. /zaggo/ 'life'
 - c. /zago/ 'opposite of dwell or inhabit'
 - c. /irraffi/ 'lean'

- /iraffi/ 'slept'
 d. /t'ip'p'i/ 'shake hands'
 /t'ip'i/ 'wink'

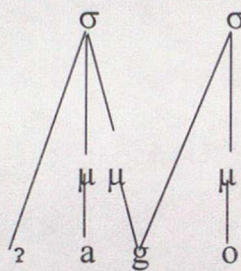
Moraically, their representation is as follow:

a.



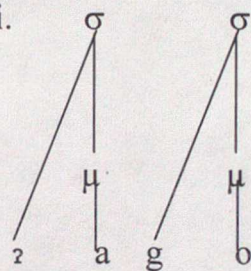
b.

i.



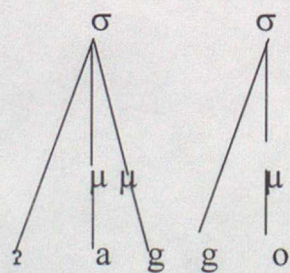
/raggo/ 'life'

ii.

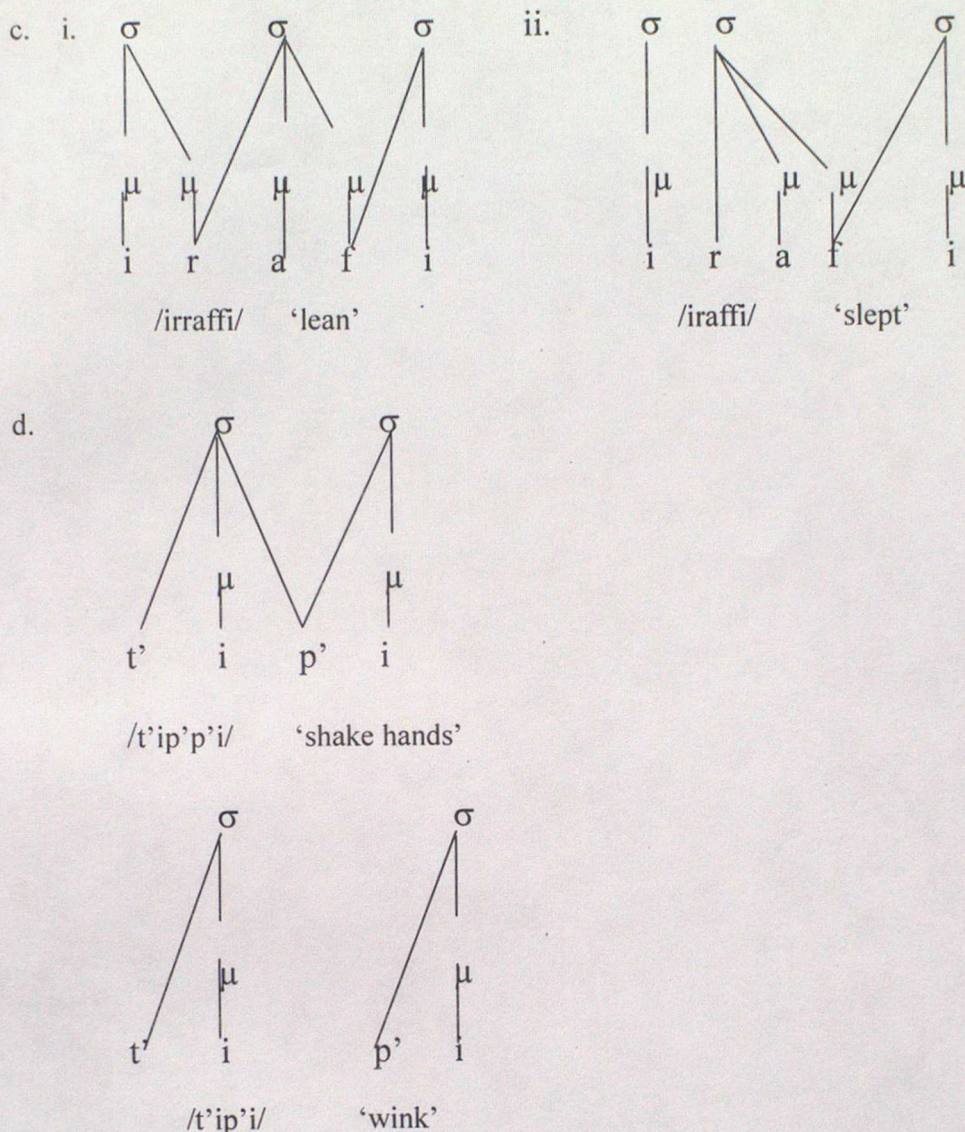


/rago/ 'OPP. of dwell or inhabit'

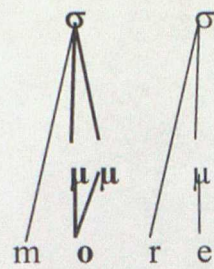
iii.



Singleting the geminate coda

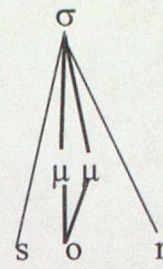


As it is shown above, in (a), the long consonant /rr/ have meaning contrastive segment form /r/. It also involves in the weight bearing phenomena i.e. extra-syllabicity. In the same way, in (b) and (d), the geminate consonants have brought weight as in (a). In all (a, b and d) representations, the coda of the first syllable became the onset of the second syllable. In addition to this, in (biii), the process of singleting has been applied to show the geminated consonants /rr/ in (bi). It can be also coda in the first syllable and onset in the second syllable underlyingly. However, in (c), the representation is quite different. In Gawwada, both geminates and long consonant can appear at once in a word. In fact, it is difficult to separate which one is the geminate and which one is



/moore/ 'market'

heavy syllable



/soor/ 'run 2SG. M. IMP'

heavy syllable

As can be seen from the above representations, the first syllable in (a) has a CVV shape while in (b) the shape has CVVC. Both (a) and (b) are bimorac (heavy) syllables. In (a), the σ node of the first syllable has dominated two mora and each mora has dominated one long segment. In addition, the initial non-syllabic segment /m/ is associated with the σ node. The same is true in (b) except the final non-syllabic segment /r/ which is associated to the either σ node.

III. Any long or geminate consonant has one mora

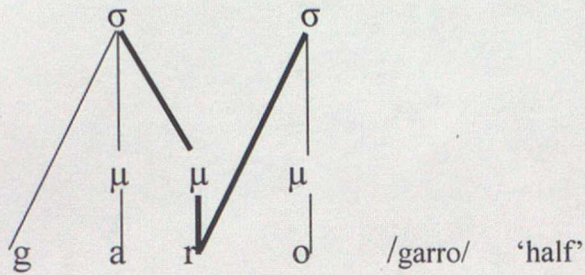
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- (7)
- a. /garro/ 'half'
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 - c. /ʔago/ 'opposite of dwell or inhabit'
 - c. /irraffi/ 'lean'

- /iraffi/ 'slept'
- d. /t'ip'p'i/ 'shake hands'
- /t'ip'i/ 'wink'

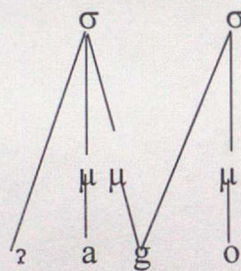
Moraically, their representation is as follow:

a.



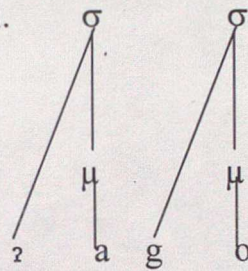
b.

i.



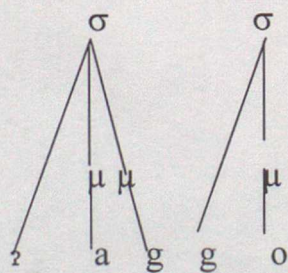
/raggo/ 'life'

ii.

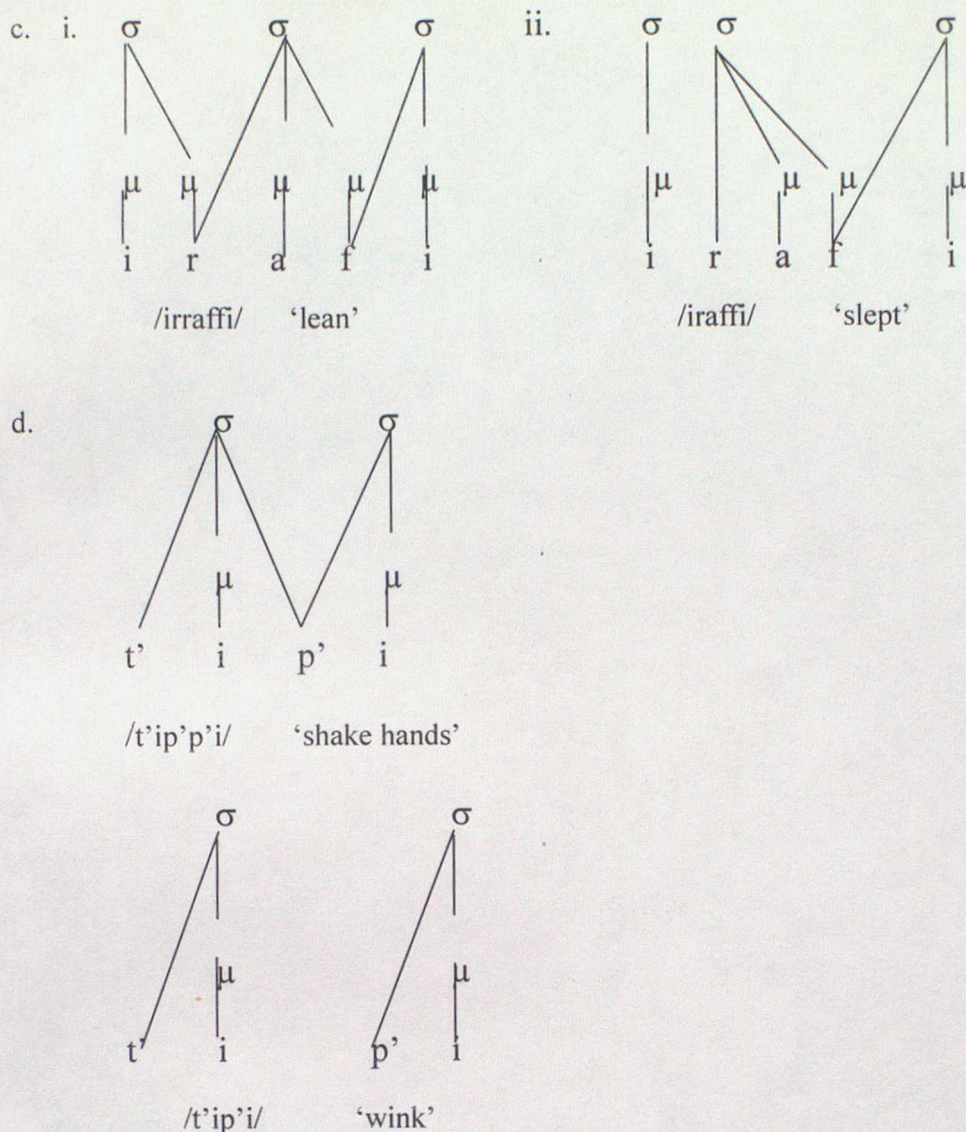


/rago/ 'OPP. of dwell or inhabit'

iii.



Singleting the geminate coda



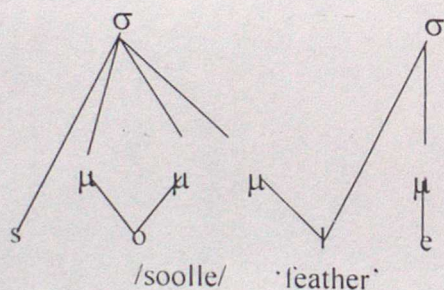
As it is shown above, in (a), the long consonant /rr/ have meaning contrastive segment form /r/. It also involves in the weight bearing phenomena i.e. extra-syllabicity. In the same way, in (b) and (d), the geminate consonants have brought weight as in (a). In all (a, b and d) representations, the coda of the first syllable became the onset of the second syllable. In addition to this, in (biii), the process of singleting has been applied to show the geminated consonants /rr/ in (bi). It can be also coda in the first syllable and onset in the second syllable underlyingly. However, in (c), the representation is quite different. In Gawwada, both geminates and long consonant can appear at once in a word. In fact, it is difficult to separate which one is the geminate and which one is

long consonant as in the above Gawwada words in (c). The meaning contrastive consonants are the /rr/ in (ci) as it is represented differently from the first syllable in (cii). The second syllables in both examples (ci and cii) are represented by long consonants.

Above all, with regard to segment length, moraic model treat vowel and consonant length in such a way that long consonants are usually considered as any of various extensions of extra-prosody to syllable structure. This is to mean long consonants are extra-syllable bearing units whereas as long vowels are not.

In Gawwada, a sequence of long vowels and consonants can appear word medially. Now let us see the mixture of both (long vowels and consonants) representations at once in the diagram below.

Example: e. /soolle/ 'feather'



As it is indicated above, the moraic model has made a clear point of departure by showing how long vowels and consonants are represented and their role in syllable structure. As it can be seen, both the long vowels and consonants in (e) have contributed to syllable weight but it is only the consonant length /ll/ that contributed to the second syllable being an onset. As mentioned earlier, CVVC syllables can be regarded as 'super heavy' if they contain three moras or if they are trimoraic. Based on the above diagram, it is possible to claim that Gawwada has also trimoraic or super heavy syllables.

Chapter Four

Syllable based morphophonemic processes in Gawwada

In this chapter, Gawwada morphophonemic processes are dealt with in light of the notions of syllable structure and syllable representation discussed in the preceding chapters. In what follows, phonological processes such as assimilation, deletion, epenthesis, and reduplication will be discussed one by one.

4.1 Assimilation

Rocca and Johnson (1999:684) defined assimilation as “a term used in phonology to designate the “contamination” of a sound by another (usually adjacent) sound formalized as feature spreading in the autosegmental phonology”. In addition, Katamba, (1989) defined it as “...the modification of a sound in order to make it more similar to some other sound in its neighborhood”. In Rocca and Johnsons’ definition of assimilation, the term ‘feature spreading’ is to mean that in auto-segmental phonology, assimilation as due to spreading of features, which expand the temporal domain of auto-segments by adding association lines, often deleting displaced auto-segments in the process (Mulugeta, 2001:112).

There are three types of assimilation in Gawwada. These are: assimilation of place articulation, assimilation of manner of articulation, and assimilation of voicing.

4.1.1 Assimilation of place of articulation

Assimilation in place of articulation is all about whether sounds become similar with the neighboring sound in terms of place of articulation. See the examples below.

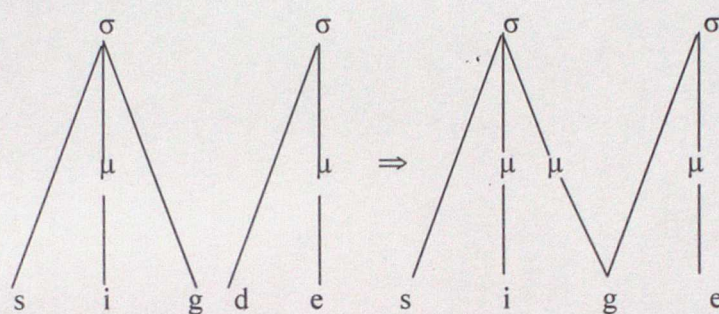
(8) a. /sig-de/ → [sigge] 'pots'
Pot-pl

As we can see from the examples above, the /g/ and /m/ are assimilated to /g/ and /n/ sounds respectively. They (/g/ and /m/) shared their place of articulation to /d/ in (8a).

Besides, the plosive alveolar plural marker /-d/ as in (a) /-de/, is assimilated to the velar plosive /g/ of the noun stem /sig/ 'pot'.

Based on the examples presented above, the assimilation of those sounds force us to re-syllabify the syllables so that the output word is a well-formed structure confirming to the syllable structure constraints of the language. As we have seen from the phonotactics of Gawwada, no clusters of consonants appear at syllable as well as word final positions. Hence, there is a structural change at syllable boundary as we can see in the representations below.

a.



/sigde/ 'pots'

As we can see in on the above representations, assimilation has played a role in forcing the non mora coda segment /g/ to bear a mora as in the second representation.

4.1.2 Assimilation of manner of articulation

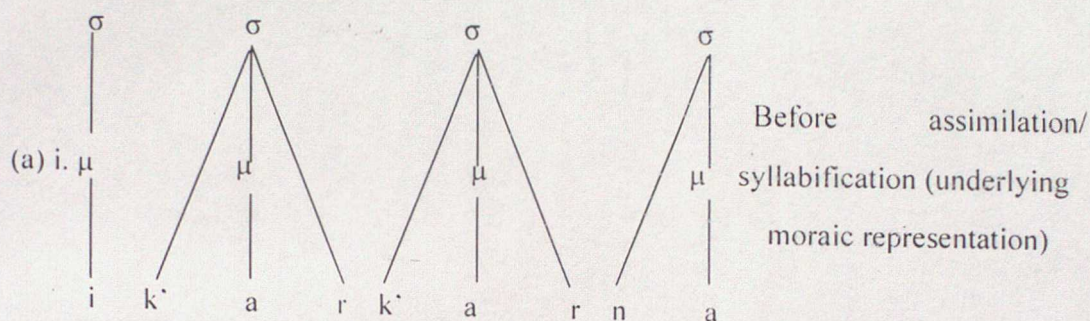
This is another type of assimilation in which sounds become more similar with the neighboring sound in their manner of articulation. In Gawwada, assimilation of manner of articulation is seen when the auxiliary morpheme /n-/ is suffixed to the verb root ending in /r/, the former assimilates to the word-final /r/. Likewise, the glottal stop /ʔ/ assimilates to the preceding ejective consonant (Geberew 2003:13).

- (9) a. /i-k'ark'ar-n-a/ → /i-k'ark'ar-r-a/ 'he helps/will help'
he-help- AUX.

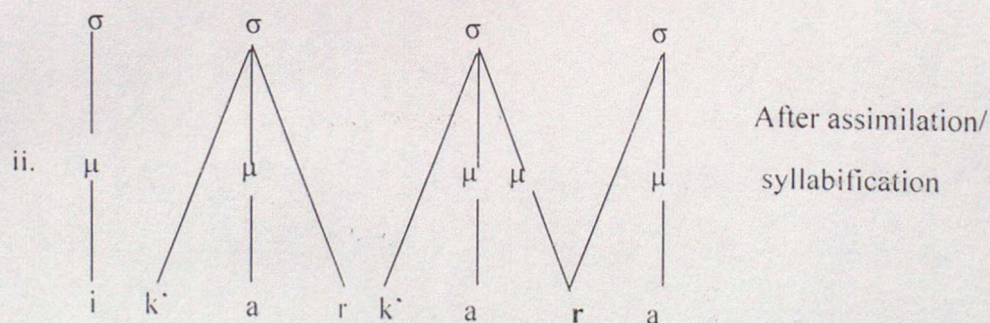
b. /maak'-ʔe/ → maak'k'e/ 'vine (eatable)'

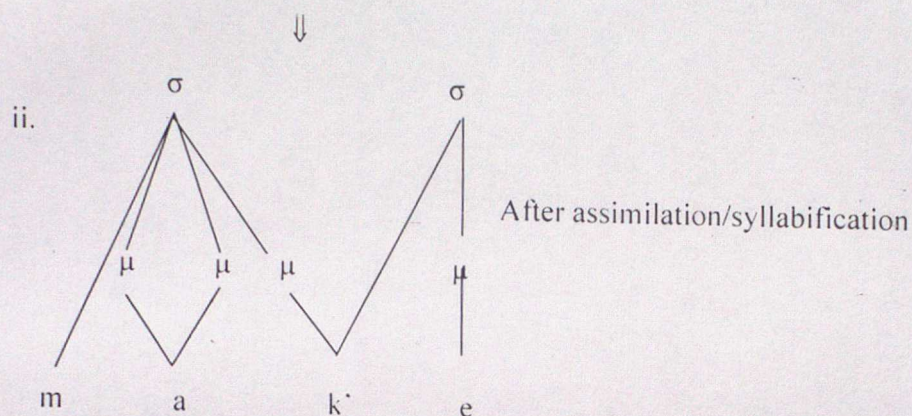
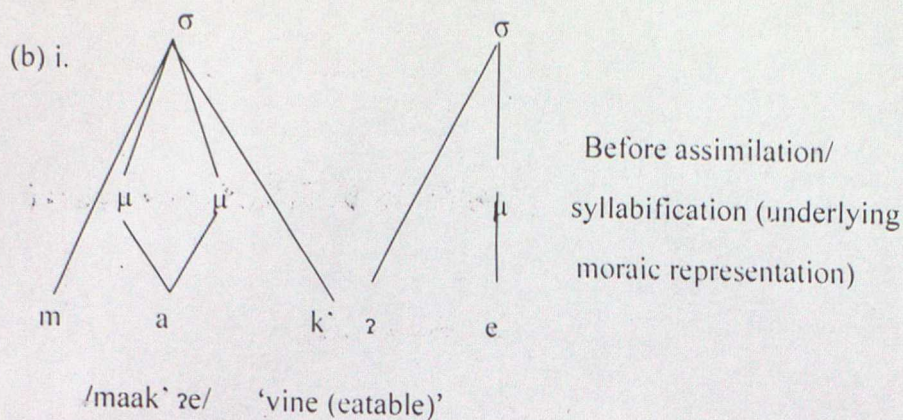
In (a), the /r/ shared its manner of articulation to /n/ so as to make the nasal sound liquid while in (b), the ejective velar /k'/ shared its manner of articulation to /ʔ/ so as to make the glottal sound an ejective. Hence, there is a need for re-syllabification because of the changes made by assimilation of manner of articulation at syllable boundary.

Now, examine the re-syllabification process on moraic syllable structure representation model.



/ik'ark'arna/ 'he helps/will help'





As depicted above in (a) i, the non moraic coda /r/ became moraic coda and onset /rr/ as in (a) ii. On the other hand, in the second syllable, the /r/ segment at coda position is no more a member of the third syllable. However, the assimilation of /n/ to /r/ in manner of articulation forced the newly appeared long segment /rr/ to do two things: bearing a mora to the second syllable at coda position and being onset to the third syllable. In (b) i, we have observed only one of the claims of moraic model i.e. long vowels have two moras. After syllabification, in (b) ii, the short consonant /k'/ has become long /k'k'/ hence the first syllable transferred from being heavy to super heavy since it has three mora /maak'k'e/ (VV two mora, CC one mora). In addition to this, in Gawwada, sequences of long vowel and consonants can appear with in a word. This implies that Gawwada syllables can hold three moras (super heavy) when the word contains sequences of long vowels and consonants (two moras and one mora). Above all, from the example (b), we observed that assimilation can also serve as weight adding element as in (b) i. The first heavy syllable in (b) i became super

heavy in (b) ii since one extra mora is added due to the lengthening of /k'/ to /k'k'/ by assimilation.

4.2 Deletion

Trask (1996:104) defined deletion as the loss of a segment from a word or other phonological form. Further, O'Grady and Dobrovolsky (1987), cited in Abel (2010: 59), defined deletion as "a process that removes a segment from a certain phonetic context". There are two types of deletions: consonant and vowel deletions. In Gawwada both types do exist.

4.2.1 Consonant deletion

In Gawwada, deletion of consonants takes place at word boundaries in order to confirm to the phonotactic constraints of the language. See the example below for further illustration of deletion process.

- (10) a. /addurr-de/ → [addurr-Øe] → [addurree] 'cats'
cat-pl
- b. /gelsakk-de/ → [gelsakk-Øe] → [gelsakkee] 'baboons'
baboon-pl

In (a) and (b), the deletion of consonant /d/ of the plural marker in /-de/ followed by the compensatory vowel lengthening has resulted in long vowels /-ee/. However, in the example (c) below, two digit numerals from eleven to nineteen can be constructed in a way that the final segment will be deleted hence the morpheme /-pa/ is inserted as a conjunction. Accordingly, the deletion process in (c) will be:

- c. /hudɕdan-pa-tozon/ → [hudɕdaØ-pa- tozon] → [hudɕda-pa-tozon]
ten-CONJ. -one ‘eleven’

In (c), the process of deletion is aimed at breaking an impermissible cluster of consonants as in (a) and (b) and showing its proper syllabification.

The following impermissible cluster of consonants will show the limitations on the distribution of sequences of Gawwada sounds:

d. word initial positions

i. /pafkoo/ 'python'

ii. *ppafkoo

As it is shown in (d) ii, sequences of two consonants C_1C_2 are absolutely impossible at word initial position.

e. word medial positions

i. /arabgoo/ 'tongue'

ii. /izzah/ 'three'

iii. *arabggo

As in (e) iii, having sequences of three consonant clusters at word medial position is not permissible in the language so compensatory lengthening process takes place to avoid the sequence of these three consonant cluster $C_1C_2C_2$ at word medial position. Rocca and Johnson (1999:686) defined the process of compensatory lengthening as 'A phenomenon involving the lengthening of a segment as the result of the deletion of its neighboring segment'. Hayes (1989: 358) also defined compensatory lengthening as 'the lengthening of a segment triggered by the deletion or shortening of a nearby segment'. For instance, in the word /*arabggo/ the second segment C_2 should be deleted to break impermissibility.

iv. arabggo → arabg Øo = arabgo

The phonological rule for the process taking place in the data given in (e) iv will be:

RULE 1. $C_1C_2C_2$ = sequences of three consonant cluster

$C_2 \rightarrow \emptyset / _ [C_1C_2]$

After deleting one of the segments which is constrained by phonotactic rule of the language, as Hayes (1989: 358) also stated, the short segment will appear. In order to compensate the deleted segment, we should lengthen the segment after the deleted for. In Gawwada, an attempt of impermissible three consonant clusters permissible usually requires vowels. For instance, there should be a vowel after the deleted segment C_2

because we can't lengthen C_2 to be other segment i.e. consonant as in (d) i.

f. word final positions

- i. /bog/ 'kill 2Sg. M. IMP.'
- ii. /sor/ 'run 2Sg. M. IMP.'
- iii. /paggo/ 'language or mouth'
- iv. *bogg

In (f) iv, the word *bogg is constrained by the phonotactic principle of the language. Sequence of two identicals, C_1C_1 , is impossible at word final position. For instance, sequences of C_1C_1 can appear at morpheme boundaries. See the following examples below.

- g. /kumma/ 'black' [kumm-ma] 'blacks'

As can be seen from the data in (g) above, C_1C_1 (-mm) appeared at morpheme boundary. The separation of plural morpheme (-ma) from the adjectival stem (kumm-) created $C_1C_1C_1$ to appear at morpheme final position. Therefore, insertion of an epenthetic vowel /u/ is needed so as to break tri-consonantal sequences.

- /kumm-u-ma/ → /kummuma/ 'blacks'

In addition to this, there exist sequences of clusters at morpheme initial position. Let us consider the example below.

- h. /kumm-um-kko/
black-abs-masc
'blackness'

As illustrated in the example (h) above, we have seen that C_2C_2 (/kk/) appeared at morpheme initial position in the masculine indicator morpheme (-kko). Since the sequences of three clusters is impossible in the language, C_1 /m/ of the plural the morpheme /-um/ is deleted. Finally, we have the following form.

- /kumm-um-Øko/ → /kummumko/ 'blackness'

For instance, in Gawwada, cluster of [sp] as in /aspite/ 'ice' is a possible cluster at word medial position while the reverse [ps]. Based on this, we can make generalization or phonological rules why [sp] and [pC] differ as a possible word

where C represents any consonant. Then, we draw statement of several rules regarding why certain consonant clusters are permitted at all positions within a word and why the reverse of the same consonant clusters are impossible in the same position. In Gawwada, if [ps] cluster appear in a word, a vowel /a/ will be inserted between the two segments. For long /p/ phoneme the insertion is unnecessary. The rule below doesn't work for consonant length for instance as in /tappi/ 'six'.

RULE 2. /v/→inserted/___[p-C]

i. /hudda-ptoʔon/ (in fast speech)

ten-CONJ.-one

'eleven'

In normal speech, the speakers of Gawwada pronounce this word in the following way:

/hudda-pa-toʔon/

ten-CONJ.-one

'eleven'

For instance, in (e) iii, the word /arabggo/ 'tongue' as it is shown in the above discussion, was unparsable consonant cluster in the language. However, in arabggo→arabg ʔo= arabgo, it has been made to be parsable. Therefore, the motivation behind the third syllable role is demonstrating syllable related facts in which an impermissible string of segments are permissible and easing of utterances by maintaining or without distorting the structure of segments, words and phrases. Following the examples presented above, I have drawn three phonotactic generalizations about Gawwadas' sequences of consonant in light of the first role of syllable proposed by Kenstowicz (1994:250) in section 3.3.2. These are:

1. Sequences of two consonant clusters do not appear at word initial and final positions but they can appear at word medial positions.
2. Sequences of three consonant clusters do not appear at any positions in a word or morpheme boundaries.
3. Sequences of two consonant clusters can appear at morpheme boundaries (initial and final).

For further illustration, see the examples below.

I. Gawwada cardinals

(11). /toʔon/ 'one'

/lakke/ 'two'

/izzah/ 'tree'

/salaḥ/ 'four'

/xupin/ 'five'

/tappi/ 'six'

/taʔan/ 'seven'

/setten/ 'eight'

/kollan/ 'nine'

/huddan/ 'ten'

II. Gawwada two digit numerals

(12). /hudda pa toʔon/ 'eleven'

/hudda pa lakke/ 'twelve'

/hudda pa izzah/ 'thirteen'

/hudda pa salaḥ/ 'fourteen'

/hudda pa xupin/ 'fifteen'

/hudda pa tappi/ 'sixteen'

/hudda pa taʔan/ 'seventeen'

/hudda pa setten/ 'eighteen'

/hudda pa kollan/ 'nineteen'

The /-pa/ in the above words is used as a conjunction 'and'. Besides, in Gawwada, no consonant precede /p/. Therefore, the deletion process will be:

(13). /huddan/ 'ten'

/hudʃan-pa-toʔon/	'ten-CONJ.-one'
/hudʃaØ-pa-toʔon/	deletion
/hudʃa-pa-toʔon/	'eleven' (No effect on the phonotactics of the language)

III. Gawwada two digit numerals

(14). /hudʃankko lakke/	'twenty'
/hudʃankko lakke pa toʔon/	'twenty one'
/hudʃankko lakke pa lakke/	'twenty two'
/hudʃankko lakke pa izzaḥ/	'twenty three'
/hudʃankko lakke pa salaḥ/	'twenty four'
/hudʃankko lakke pa xupin/	'twenty five'
/hudʃankko lakke pa taʔan/	'twenty seven'
/hudʃankko lakke pa tappin/	'twenty six'
/hudʃankko lakke pa setten/	'twenty eight'
/hudʃankko lakke pa kollan/	'twenty nine'

In example (14) above, the phonotactics of Gawwada doesn't allow a sequence of three consonants either at syllable or word initial, medial and final positions. Therefore, deletion of consonant and the conjunction /-ko/ is affixed in the following ways.

(15). /hudʃan-kko-lakke/

Ten- CONJ.-two

'twenty'

Now, underlyingly, we have CVC.CVC.CCV.CVC.CV syllable shape. Since syllabification rule in Section 3.4.1 force us to start with the nucleus then coda, we

should start re-syllabifying from nucleus of the first syllable then its onset and so on.

/huddan-kko-lakke/ CCV impermissible cluster at syllable initial

ten-CONJ. two

/huddan-Øko-lakke/ deletion (to break impermissibility)

/huddan ko' lakke/ 'twenty'

After syllabification, the underlying syllable shape has got its permissible shape of CVC.CVC.CV.CVC.CV, resulting in a well-formed structure at word level. However, in (14), /-n/ is kept because clusters of /nk/ is permitted in the language whereas clusters of /np/ do not. The exceptional case where /p/ is preceded by consonant is in the word /aspite/ 'ice'.

IV. Gawwada two digit numerals

- (15). /huddanko izzah/ 'thirty'
- /huddanko salah/ 'fourthy'
- /huddanko xupin/ 'fifty'
- /huddanko tappi/ 'sixty'
- /huddanko tazan/ 'seventy'
- /huddanko setten/ 'eighty'
- /huddanko kollan/ 'ninety'

4.2.2 Vowel deletion

In Gawwada final vowels in a noun and adjectival stems are deleted at word boundaries. This happens before the abstract noun marker morpheme /-um/. See the examples below.

(16) a. /idda/ 'red'

b. /idda-um-kko/ → [iddØ-um-kko] deletion of the vowel /a/

red-abs.-masc

[idɕf-um-Øko] → [idɕfunko] 'redness'

Deletion of a consonant plus assimilation of place of articulation

(17) a. /jajje/ 'mother'

b. /jajje-um-kko/ → [jajjØ-um-Øko] → [jajjumko] → [jajjunko]
mother-abs.-masc. 'motherhood'

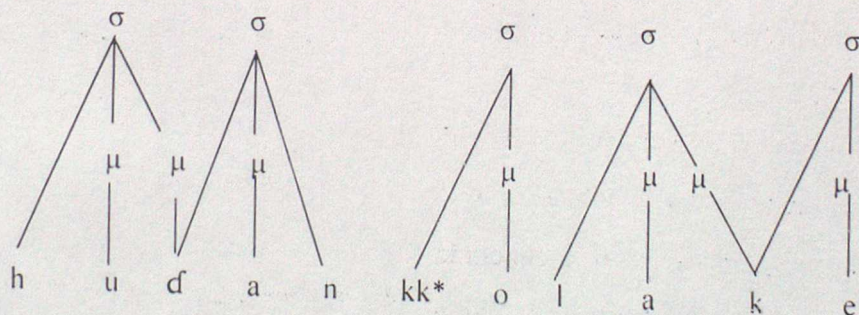
(18) a. /idɕfa/ 'red'

b. /ho-idɕfa/ → [hojɕɕfa] → [hojØɕfa] → [hojɕfa]
like-red 'red like'

As can be seen from the above examples, the final vowels /a/ and /e/ are deleted in (16a) and (17a) respectively. However, in (18a), the vowel /i/ is assimilated to the /j/ so as to prevent the occurrence of diphthongs or two non-identical vowels, which is not allowed in the system. At the same time, consonant deletion and assimilation have taken place. So in Gawwada, it is also possible to find the two (deletion and assimilation) phonological processes appearing in the same derivation so as to re-shape impermissibility of sequence of segments and to represent the correct syllable structure of the language.

Now, consider the moraic representation of the deletion process discussed above.

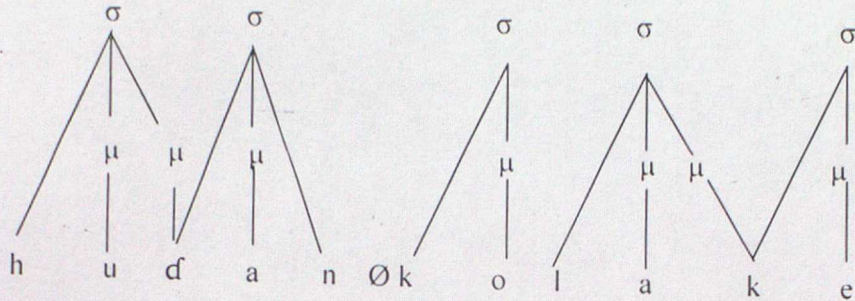
(19). Syllabification



/hucɕfan kko lakke/ 'twenty'

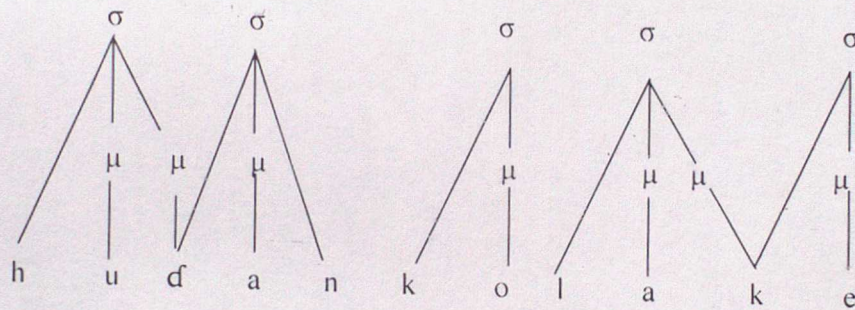
From the above diagram, we can see that the long consonant /kk/ is attached to the onset of the third syllable. Meanwhile long consonants at syllable onset position are

(20).



(21).

Re-syllabification



Examples: a. /garmo/ → [garmØ-de] → [garm-i-de] → /garmide/
 'lion' lion-pl. 'lions'

b. /harre/ → [harr-de] → [harr-i-de] → /harried/

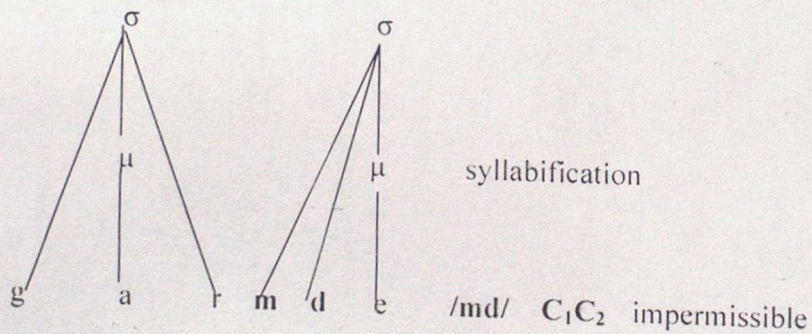
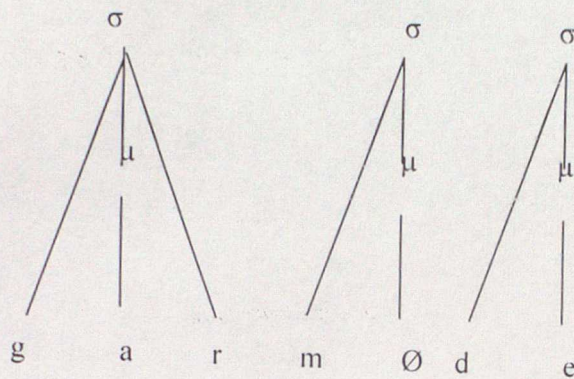
‘doney’ doney-pl

‘donkeys’

As shown above, the epenthetic vowel /i/ is inserted to break the impermissible three consonant clusters ($C_1C_2C_3$) in (a) and ($C_1C_1C_2$) in (b).

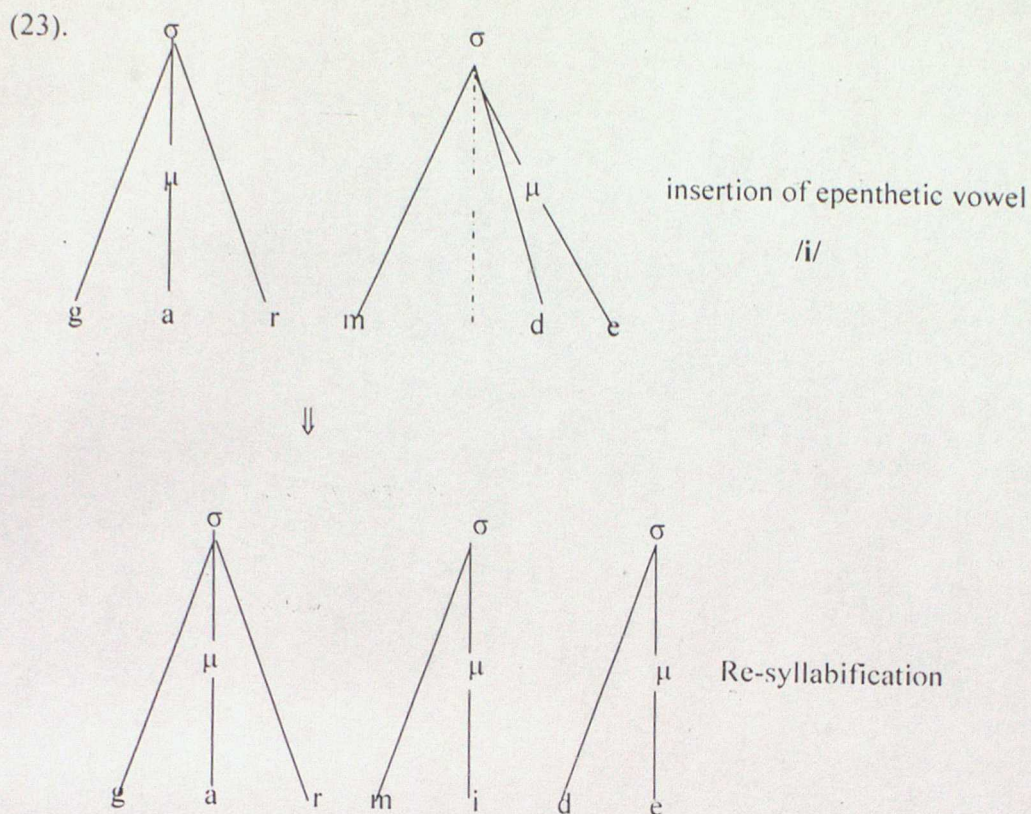
The insertion made in order to avoid the impermissible clusters of consonants can also be demonstrated in moraic syllable structure representation models as shown below.

(22).



/garmde/ ‘lions’

Since Gawwada doesn't allow cluster of consonants at onset position, re-syllabification should take place as in the diagram below.



Hence, due to re-syllabification, the numbers of moras and syllables have increased.

4.4 Reduplication

Reduplication is one of the morphophonemic processes in which some phonological material is repeated within a single form for lexical or grammatical purposes. It is also a common phenomenon in the languages of the world, having a variety of forms and serving a variety of purposes. In Gawwada, adjectives are pluralized by reduplicating the first syllable of the unpluralized stem. See the examples of this process below.

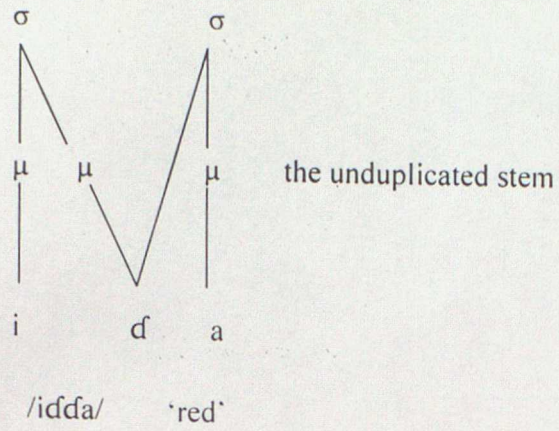
Examples:

- (24) a. /idɸa/ 'red' /idɸidɸa/ 'reds'
 b. /biɪza/ 'while' /bibiɪza/ 'whites'

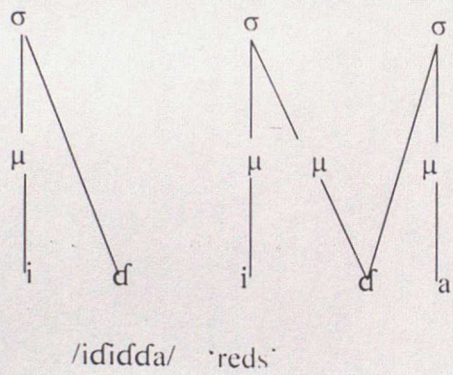
As we can see from the above examples, only the first syllable of the stem is duplicated at word initial position. Besides, in Gawwada, the syllable that is attached

as part of the stem has a CV syllable shape. Now, let us examine it in moraic representation.

(25).



⇓



Chapter five

Summary and Conclusion

Within the general objectives set in Chapter one, section 1.3, the study investigated the basic syllable structure and morphophonemic processes of Gawwada in light of the Moraic model of syllable structure representation. In Gawwada, moraic model was successful in handling better the syllable structure related issues (consonant and vowel length, gemination, and syllable weight). We have also seen in this paper that moraic is a better representational model for Gawwada's syllable structure.

In chapter one, we have sketched basic information of the Gawwada people (a small ethnic group in Ethiopia who inhabit the Omo region west of Lake Chamo River and North East of the Konso), and their language (a member of the "Werizoid group" and East Cushitic group under Afro Asiatic Phyla). We also presented, the rationale, objectives, limitations, significance, earlier works on the language, methodology, and the theoretical framework chosen to describe, analyze, and represent the syllable structure the language.

The second chapter discussed the gateways to the main study: the general description of the phonology of Gawwada by incorporating inventory of consonant phonemes and their distribution, minimal pairs, consonant length/gemination, consonant cluster; inventory of vowel phonemes and their distribution, and vowel length.

The third chapter examined the main topic of the research, dealing with the basic syllable types of Gawwada, constituents of a syllable, the roles of syllable, Gawwada phonotactic constraints and syllabification. Following this, an attempt is made to show the formation of closed versus open, light versus heavy, and mono, bi and multi syllable types of the language. Finally, this chapter examined the syllable structure in light of the moraic model.

Chapter four looked into the morphophonemic processes of Gawwada in a view of syllable and the claims made by the moraic model. In so doing, the following findings were presented.

- eight basic syllable types of the language (V, VV, VC, CV, CVV, CVC, CVVC & VVC) are identified which is consistent with Geberew (2003).
- Gawwada has a syllable template of optional onset and coda, and simple nucleus with a bare (non-branching) rhyme syllable type as in /e'e/ 'ok'. This makes the language as Type IV in which non-branching rhyme (CV, V, CVC, VC) exist in the language.
- In Gawwada, the CV syllable type doesn't exist in mono syllable words. However, it is very frequent in bi and multi syllabic words.
- As Tranel (1991) noted, CVC syllable type can appear being as both light and heavy syllables in different languages. In Gawwada, the word /k'or/ 'rust!' with CVC shape is heavy syllable because heavy syllable may have a short vowel, but one or more coda consonants as we can see in the word /k'orri/ 'rusted' CVCCV.
- Moraic model claim that CVVC syllables can be regarded as 'super heavy' if they contain three moras or if they are trimoraic. In Gawwada, the word /soolle/ 'feather' has tree moras CVVCC. Since a single vowel in syllable constitute one mora, we have two moras from the two vowels VV and one more mora from the two consonants CC. Based on this it is possible to claim that Gawwada has trimoraic or super heavy syllables hence super heavy language as well.
- In addition, in Gawwada, morphophonemic processes have played a great role in making non-moraic codas to be moraic. For example, the noun stem /sig-/ 'pot' became /sig-de/ 'pots' when the plural marker /-de/ is affixed hence /sigge/ appear by assimilation of place of articulation. Bimoraic syllables also observed when they became trimoraic or super heavy syllables as in /maak'ze/ 'vine (eatable)' → [maak'k'e]. The same is true in the rest morphophonemic process (deletion, epenthesis and reduplication).

Finally, in this study, there is untouched area which needs further investigation in the language i.e. the status of central vowel /ɨ/. Therefore, I leave these areas for further investigation.

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Other source:

-Konso Special Wereda Office of Finance & Economic Development

Appendix: Data on the basic lexicon of Gawwada word list

S. No	Transcription	Gloss	Remark
1	/ʒahtee/	'new moon'	
2	/ʒaɖi/	'pack(v)'	
3	/ʒadi/	'nqt'	
4	/ʒado/		
5	/ʒadungo/		
6	/ʒaɖi/	'spread out (maize) (tr)'	
7	/ʒaɦe/	'mat'	
8	/ʒaɦe ʒarakkidom/	'wild animals'	
9	/ʒaga/	'live(v)'	
10	/ʒage/	'living'	
11	/ʒaggo/		
12	/ʒagi/	'dwell, inhabit'	
13	/ʒagitte/	'bird'	
14	/ʒago/		
15	/ʒaladi/	'speak'	
16	/ʒalalakko/	'dove'	
17	/ʒalalalo/	'doves'	
18	/ʒali/	'tell, recount (story)'	
19	/ʒande/	'water'	
20	/ʒandešoha/	'waterfall'	
21	/ʒarakko/	'gray'	

22	/ʔararagodi/	'became mould(n)'	
23	/ʔardo/	'ox'	
24	/ʔasawe/	'when the first wife calls the second'	
25	/ʔaso/	'younger brother'	
26	/ʔasse/		
27	/ʔato/	'you (SG. M.)'	
28	/ʔawne/	'night'	
29	/ʔawni/	'only'	
31	/ʔawši/	'cook'	
32	/ʔawwo/	'dusk'	
33	/ʔebakko/	'(be) stupid'	
34	/ʔelho/	'well(n)'	
35	/ʔelme/	'cementary (of lords)'	
36	/ʔelo/	'skin (animal) (v)'	
37	/ʔende/	'ewe'	
38	/ʔeritto	'gum'	
39	/ʔogajje/	'sun (in female)'	
40	/ʔorhamami/		
42	/ʔorhango/	'war'	
44	/ʔorhe/	'milk'	
45	/ʔorsazaddo/	'rhinoceros'	
46	/ʔuge/	'to drink'	

48	/ʔugi:/	'drink'	
49	/ʔugaja/	'egg'	
50	/ʔojje/	'glue leaf'	
50	/ʔuli/	'smoke (fish)'	
51	/a:wrikko/	'stone'	
52	/a:xe/		
53	/a:xitte/	'leaf'	
54	/abagfassi/	'listen'	
55	/abagɪ:/	'hear'	
56	abba dammaj/		
57	/abba takajaj/		
58	/abba/	'father'	
59	/abbija/		
60	/aččango/	'travel or journey'	
62	/ačči/	'travel or go'	
63	/aɖaɖi/		
64	/aɖawra/		
65	/addurre/	'cat'	
66	/agi/	'raise, lift'	
67	/agimi/	'collect (v)'	
68	/agrada`i/		
69	/agudadi/	'swear'	
70	/agudde/	'oath'	
71	/aha/	'where'	
72	/ahkehaju/		
73	/aja:/	'talk (n)'	
75	/aja:nde/	'lie (n)'	
76	/ajbe/		
77	/ajdarasko/		
78	/ajdi:/		
79	/ajolakko/	'talkative'	
81	/aka:wo/	'grand father'	
82	/akkabaro/	'to respect'	

83	/akkaɖi/	'sit'	
84	/akkadambakko/	'bride or broom'	
85	/akkambakko/	'stool'	
86	/akke/	'marriage'	
87	/akki/	'take away'	
88	/ala:battaja/	'hawk'	
89	/ala:nge/	'whip (n)'	
90	/alada/	'speak'	
91	/aladi/	'talk (v)'	
92	/alale:/		
93	/alambarxe/		
94	/alawde/	'sister'	
95	/ale/	'with'	
96	/algasa/	'able to voice'	
97	/ali:de/	'speech or discourse'	
98	/allito/		
99	/ama:ne/	'belief'	
100	/ama:ni/	'admit (to a wrong)'	
101	/ama:nisi/	'persuade'	
102	/amansisi/	'settle peace'	
103	/ambagi/		
104	/amfugami/		
105	/ammo/		
106	/and'abodi/		
107	/andi takkaja/	'water hole'	
108	/angarko/		
109	/ango/		
110	/anno/	'I myself'	
111	/ano/	'I'	
113	/anšai/	'burn (intr.), blaze'	
114	/ara/	'he know'	
116	/arabgoo/	'tongue'	
117	/araGa/	'stutter person'	
118	/arambakko/		
119	/arasi/	'make to know someone'	
120	/arassi/	'explain'	
121	/armande/	'hoe (n)'	Gawwada's
122	/armangozii/	'shoot (new plant)'	
123	/armo/		
124	/arno:/	'knowledge'	

125	/asabaða/	'think'	
126	/asane/	'(be) sad'	
127	/asappo/	'thought'	
128	/aško/	'grass for grazing'	
129	/aspite/	'ice'	
130	/at'elagama:/	'world'	
131	/at't'anne/	'folding'	
132	/atara:/	'pea'	
133	/atub'b'i/	'thresh, beat (grain)'	
134	/awakko/	'false banana'	
135	/awde/	'threshing flour'	
136	/awni/	'night'	
138	/awrukko/	'stone'	
139	/awšeši/	'cook (v)'	
140	/axaxo:/	'ancestor'	
141	axaga/	'present'	
142	/b'adāmi/	'escape'	
143	/b'adāwi/	'add (v)'	
144	/b'adāwo/	'add (n)'	
145	/b'adī/	'hide (tr)'	
146	/b'ac' asi/	'cut'	
147	/b'ok'ede/	'end (n)'	
148	/b'ok'i/	'finish, complete (v)'	
151	/ba:ji/	'begin'	
152	/ba:jutade/	'beginning'	
153	/ba:k'e/		
154	/ba:lto:/	'sharp black stone'	
155	/ba:tango/		
156	/bak'ʔala:/	'bean'	
157	/baggo/		
158	/baj/	'say 2 SG. M. IMP'	
159	/bajjo/	'to say'	
160	/bajšesi/	'wound (aminal)'	
162	/bajšitte/		
164	/bajšodi/		
165	/bajti/	'if'	

166	/baragara/	'enemy'	
167	/baraj/	'when'	
168	/barakitaj/		
169	/barande/	'traditional women's dress'	
170	/basanadi/	'borrow'	
171	/basande/	'debt'	
173	/bašo/	'field (of agriculture)'	
174	/bati/	'(be) lost'	
175	/bawre/	'a two handle traditional hoe'	
176	'bebo'	'praise (n)'	
177	/berko/	'rainy season'	
177	/berbaḡoo/		
178	/berre/	'year'	
	/ba:ḡawi/	'continue, resume'	
179	/bi:zatte/		
180	/bi:fe/		
181	/bi:so:/	'flower'	
182	/bihatte/	'left'	
183	/biimbe/	'storm'	
184	/bijje zoḡatte/		
185	/bijje aškido/	'grazing land'	
187	/bijje/	'earth'	
188	/bijje/	'soil'	
188	/bilakko/	'other or special'	
189	/bile/	'other'	
190	/bilt'e/	'wise'	Amharic
191	/bingisi/	'stretch'	
192	/birad'e/	'birr ETB'	Ethiopian currency
193	/biranna/		
194	/birtade/		
195	/birtode/		
195	/birbikoo/	-----	
196	/binnedde/	'mosquito'	
196	/birze/	'a kind of traditional beer'	
197	/bitami/	'buy'	
198	/bo:e/	'ditch'	
199	/bo:lle/	'cliff'	

200	/bog/	'kill 2SG. M. IMP.'	
201	/boɣulu:mi/	'rule over'	
202	/boggi/	'kill (v)'	
203	/bogi/	-----	
204	/bogoliho/		
205	/bok'zi/		
206	/bolle/	'hole'	
207	/bongora/	'adult'	
208	/borto/	'barley'	
209	/borɣo/	'flame'	
210	/botami/	-----	
211	/bote/		
212	/bu:a/		
213	/bude/	'victory'	
214	/bugazo/	'corpse'	
215	/bukazde/		
216	/bukesi/	'knead'	
217	/bukesujdi/	'knead (3 SG. F)'	
218	/buruša/	'anvil'	
219	/butadi/	'(be) defeated'	
220	/buti/	'defeat'	
221	/buuɣi/	'failed'	
222	/č'ač'č'uttaɖa/	'chicken'	
223	/č'ač'č'uwaɖa/	'chicken'	
224	/č'ekki/	'plugged'	
225	/č'immi/	'sink (v)'	
226	/č'ok'k'olo:/	'mud'	
228	/č'orka/		
229	/čak'k'ak'a/	'nag'	
230	/či:mmi/	'decant'	
231	/ɖab'itte/	'destruction'	
232	/ɖabi/	'lose (tr)'	
233	/ɖaginde/	'menstrual period'	

234	/ɖagisi/	'insult (v)'	
235	/ɖagsatto/	'insult (n)'	
236	/ɖakakko/		
237	/ɖaladi/	'(be) born'	
238	/ɖalahi/ or /fugami/		
239	/ɖaldi/	'bear (child), give birth'	
240	/ɖali:tto/	'friendship'	
242	/ɖali:tto/	'relative (by blood)'	
242	/ɖalsambatte/		
243	/ɖamzatto/	'girrafe'	
244	/ɖamo/		
245	/ɖandanho/		
246	/ɖap`ambakko/	'guilty'	
247	/ɖi:li/	'roast (fry)'	contrastiv
	/ɖili/	'slapping frequently'	
248	/ɖi:ti/		
249	/ɖibe/	'will pained'	
250	/ɖibi/	'pained'	
251	/ɖibo/	'pain (n)'	
252	/ɖibodibe/	'(be) pained'	
253	/ɖihami/	'advise or try'	
254	/ɖihe/	'to count'	

255	/dɪlango/	'a kind of pancake'	
256	/dɪlɪhe/	'charcoal'	
258	/dɔbatte/	'temprate'	
259	/dɔɔɔɪ/	'carry (in arms)'	
260	/dɔɔɔo/	'load, burden (n)'	
261	/dɔk.katte/	'porcupine'	
262	/dɔmboluho/	'lump (clay, mud)'	
263	/dɔnaɔɪ/	'dip'	
264	/dɔti/		
265	/dɔ:ɡambakko/	'honest'	
267	/dɔ:ɡamo/		
268	/dɔdɔakko/	'harvest season'	
269	/dɔsɔe/		
270	/daɔama/	'big'	
271	/dabbo/		
272	/dagala:/	'floor'	
273	/daggi/		
274	/dalte/	'nanny goat'	
275	/daña/		
276	/datakɔe/		
277	/deme/	'eyelash'	
278	/di:go/	'bile'	
279	/di:ste/	'cooking pot (earthen ware)'	
280	/dɪnni/	'(be) red'	
283	/do:mo/		
284	/dolle/	'hump (of cow)'	

285	/dukango/	'darkness'	
286	/dungo/	'pupil (of eye)'	
287	/e:/	'ok'	
289	/e:ba/	'and'	
290	/e:mmadɪ/	'go round, detour'	
291	/e'e/	'yes'	
292	/eb'b'e/	'fruit'	
293	/emmi/	'see'	
294	/eragi/	'send'	
295	eragi	'send (someone to do something)'	
296	/ergami/	'obey'	
297	/ergo/	'message'	
298	/erkazo/	'axe'	
300	/egarkoo/	'palm tree'	
299	/ero:/		
300	/esse/		
301	/eštakko/	-----	
302	/ex̣te ijet'ip'i/		
303	/ex̣te/	'eye'	
304	/fahi/		
305	/faradi/		
306	/fari/	'die'	
307	/farte/	'death'	
308	/fatto/	'vomit (v)'	
309	/fašsatto/	Girawwa.....	
309	/filajje/	'flea'	
309	/fe:i/	'load (v)'	
310	/fet'i/	'strip off (bark)'	
311	/file/	.	
312	/malafisti/	'good morning (2SG. F.)'	
313	/fo:ho/	'valley'	
314	/fogaxgohi/		
315	/fu:ga/	'blow'	
316	/fuñña/	'small wooden crosspiece at the top of the yoke'	
317	/ɕaɕe/	'chase (v)'	
318	/ga:bi/	'(be) frighten'	

319	/ga:bisi/	'frightened me'	
320	/gfa:lo/		
321	/gfa:rakko/	'monkey'	
322	/gfa:alho:/	'jackal'	
323	/gfa:zi/		
324	/gfabadi/	'antelope'	
325	/gfabambakko/	'fear (v)'	
326	/gfaɗaɗfabjni/	'because'	
327	/ɗaɗumi/	'stop up'	
328	/ɗaɗumo/	'thatch (n)'	
329	/gajangido/	'dawn (before sunrise)'	
330	/gajango/	'dawn'	
331	/ɗajjito/		
332	/gajna ilahazini/	'day after tomorrow'	
333	/ɗajtadi/	'wait'	
334	/ganda issi/		
335	/ganda/	'udder'	
336	/gande/	'leaf'	
339	/ɗande/		
340	/ganni/	'chew'	
341	/gant'ajje/	'thorn'	
342	/gapa'ada/	'touch'	

343	/ɣarɛitto/		
344	/ɣara ɣu:bito/	'mountain summit'	
345	/ɣarakko/		
346	/ɣarbisi/	'light (fire) (v)'	
347	/ɣari:tte/		
348	/ɣari:tto/		
349	/ɣarisi/	'repair'	
350	/ɣarmeɟ/	'when the second wife of somebody address the first'	
351	/ɣarro/	----	
352	/ɣaru:ngo/	'elder brother'	
353	/ɣaʃanne/		
354	/ɣasi/	'open (tr.)'	
355	/ɣat't'i/	'dig'	
356	/ɣawho ɣazasa/	'no body'	
357	/ɣawho lalade joɟa/		
358	/ɣawho/	'human'	
359	/ɣawhobijatte/		
360	/ɣawhohobahi/	'adult'	
361	/ɣawhomanne sa:la/		
362	/ɣawhosilbe tuba:/		
363	/ɣawi/		

364	/ɢawto/	'new'	
365	/ɢawwi/	'beat'	
366	/ɢezi/	'bark (v)'	
367	/ɢezi/	'approach (someone)'	
368	/ɢi:te/ or /mi:ra/		
369	/ɢibe/		
370	/ɢinaze/		
371	/ɢinde/	'outside'	
372	/ɢirro/	'travel'	
373	/ɢisadi/		
374	/ɢisode/		
375	/ɢiššadi/		
376	/ɢit'ali:/		
377	/ɢit'e/	'angry (n)'	
378	/ɢit'e/	'to cut'	
379	/ɢit't'i/		
380	/ɢo:ɢi/	'twist'	
381	/ɢo:le: mennede/	'tame animals'	
382	/ɢo:le:/	'animals'	
383	/ɢoballiho/	'billy goat'	
384	/ɢoččori/	'scratch (tr)'	
385	/ɢoɗatte/		

386	/gɔdɔde/	'trace'	
387	/ɔoɔe/	'bark (of tree)'	
388	/gɔhi/	'grown up'	
389	/gɔjne/		
390	/ɔonɔode/		
391	/gɔraɔi/	'flee, run away from'	
392	/gɔri/	'drive away'	
393	/ɔotambakko/		
394	/ɔotti/	'farm (v)'	
396	/gɔ:bo:/	'mountain'	
397	/gɔ:ri/		
398	/ɔ:ro/		
399	/gɔɔɔde/	'labor (n), birth pains'	
400	/gɔlanni/		
401	/gɔlelle/	'squirrel'	
402	/gɔmmi/	'crunch'	
403	/ɔummo/		
404	/gɔundi/	'break (tr)'	
405	/gɔnni/		
406	/gɔruppe/	'crow'	
407	/ɔsawi/	'hoe (v)'	
408	/ga:ʔane/	'crevice'	

409	/ga:bgo/	'fear (n)'	
410	/ga:i/	'thorn'	
411	/ga:la/	'camel'	
412	/ga:mbelo/	'grass used for hut cover or thatch (n)'	
413	/ga:nasi/	'respect (v)'	
414	/ga:se/		
415	/gazaliho/		
416	/gaʔazaj/	'all in all'	
417	/gabi/	'get'	
418	/gač'č'e/	'teff' a kind of cereal'	
419	/gač'č'e/	'whip (n)'	
420	/gafko:/	'clan'	
421	/gagfakko/	'(be) stupid'	
422	/gagaʔami/	-----	
423	/gagaʔe/	-----	
	/ga:nne/	'pot for water'	
424	/gala:ʔita:/	'under'	
425	/galabde gallo/	'afternoon'	
426	/galabo/	'evening'	
427	/galagalaj/	'bottom'	
428	/galɗi:ti/	'bud'	
429	/galo:/	'wood used for hut cover or beam, rafter'	
430	/gambelo:/	'savanna grass'	
431	/gambo/	'kitchen'	
432	/gammarre gollatte/	'river bank'	
433	/gamminde/		
434	/gamšo/	'heam (n)'	
435	/ganaze/		
	/garo/	'towards'	
436	/ganasunde/	'thank (n)'	
437	/gangaladi/	'slide'	
438	/gange/	'mule'	
439	/garagabi/	'bubbling a grain'	

440	/garamsisi/	'surprise'	
441	/garatakko/		
443	/garisi/	'(be) clean'	
444	/garmegadale:/	'butter fly'	
445	/garmo:/	'lion'	
446	/garo/	'half'	
449	/garrehogdido/	'firewood'	
450	/garro liizajdo/	'half moon'	
451	/garsadi/	'arrange'	
452	/gartallitte/	'stem, stalk (of maize...)'	
453	/gasadi/	'ask, request'	
454	/gašango/	'shield'	
455	/gase/	'shadow'	
456	/gasingo/	'request (n)'	
457	/gaspu/	'wheat'	
458	/gat't'o/	'hair'	
	/gase/	'trap (animal) (v)'	
460	/gattakko/	'horn'	
461	/gawgawe/		
462	/gawso/		
463	/gawwarzago/	'thunder'	
464	/ge:ro/		
465	/geza/		
466	/gezasi/		
467	/gezi/		
468	/gez'aj/	'early morning'	
469	/gelsakko/	'baboon'	
470	/gerazo/		
471	/geraj/	'yesarday'	
472	/gerezi/		
473	/gerezigo/		
474	/gešakko/	'old'	

475	/gešezo/		
476	/gešu:ji/	'(be) old'	
	/gīt't'awo/	'bed bug'	
	/ga:re/	'tree'	
	/gussakko/	'bush'	
	/gajalee/	K'inc'ib...	
	/garkoo tigratte/	'pin which holds the handle of the plow and the plowshare'	
	/gummakko/	'dear'	
	/gi:ze/	'season'	
	/gola:lakko/	'thorn tree'	
477	/gi:de/	'duty, obligation'	
478	/gi:dessi/	'obligation someone'	
479			
480	/gibiro/	'tribute'	
481	/gige/	'pulling'	
482	/gigi/	'pull'	
483	/gilbajjo/	'knee'	
484	/gilbaju:ji/		
485	/gingilšo/		
486	/gisadi/	'plead or implore'	
487	/giso/	'begging'	
488	/gisolakko/		
489	/gitagita/	'rarely'	
490	/gittali:so/		
491	/gitte/		
492	/gitte/	'between'	
493	/gize garazaj/	'always'	
494			
495	/gize totototte/	'sometimes'	
496	/go:lisi/	'domesicate'	
	/ge:ro/	'herd (cattle, sheep) (n)'	
497	/go:nfa/	'short worn by men'	
498	/go:re/		
499	/go:rse/	'meat'	
500	/gozakko/		

501	/gozakkodama/		
502	/gozalakko/	'selfish'	
503	/godde/	'pride price (for bride's family)'	
504	/gofine/		
505	/gogisi/	'tighten (tr)'	
506	/gohissi/		
507	/gollan/	'nine'	
508	/golle/	'river'	
509	/golleseheti/	'riverbed (dry)'	
510	/gollesorri/	'current(river, stream)'	
511	/gollexogidi/	'a full river'	
512	/goloisi/	Agodegode	diphthong
513	/gomarakko/		
514	/gombo/	'kitchen'	
515	/gonatto/	'back'	
516	/gonattogoraj/	'behind'	
517	/gonnato/		
518	/gora/	'there'	
519	/gorgorte/	'quiver (n)'	
520	/goro tikkise/		
521	/goromulo/	'every body'	
522	/gorroze/	'algae'	
523	/gorse/	'meat or taste (of food)'	
524	/goši/	'obstruct'	
525	/gu:de/		
527	/gu:de/	'surprising'	
528	/gu:la/		
529	/gu:lahusidi/		
530	/gu:lo/		
531	/guballitte/	'hare'	
532	/gudagudaj/	'top'	
533	/gujja:de/	'day'	
534	/guju/	'today'	
	/gudamii/	'evaporate'	
535	/gumma/	'black'	
536	/gundakko/		

537	/gut't'ango/	'stump'	
538	/guuda/	'smoke'	
539	/gədo/	'hill'	5
540	/h oGəše/	'(be) full'	
541	/ha:jod'i/		
542	/ha:jolakko/		
543	/ha:nde/	'married (3SG. F)'	
544	/habirri/	'a kind of yoghurt'	
545	/habo/	'skin'	
546	/hačambakko/	'ladder'	
547	/hadigde/		
548	/hadigdo/		
549	/hafatto/	'(be) thin'	
550	/hahadi/	'singe'	
551	/hajami/	'obey'	
552	/hajdahajdaj/	'everywhere'	
553	/hajde/		
554	/hajdo ʔanaligi/	'exit'	
555	/hajdo šibana/	'dusk'	
556	/hajdo/	'place'	
557	/hajhitto/		
558	/hajjo/	'command (n)'	
559	/hajna dubetaj/	'after'	
560	/hajna Gəraʔita/	'before'	
561	/hajno ʔanahuli/	'entry'	
562	/hajsate/	'there'	
563	/hajsede/	'edge (n)'	
564	/hajte/	'here'	
565	/hak'asi/	'leave (someone somewhere'	
566	/hak'i/	'left'	
567	/hakka/	'grand mother'	
568	/halʔuk'a:/		
569	/halikko hulana/	'sunset'	
570	/hamakko leʔajdo/	'moonlight'	
571	/hamakko/	'light'	

573	/hamasi/	'cover (v)'	
576	/handafe/		
577	/hande ixakki/	'child'	
578	/hande/		
579	/hande/		
580	/handu/	'now'	
581	/hante/	'daughter-in-law'	
582	/harge/	'infant'	
583	/hargo/		
584	/hargoina: aki/	'capture (v)'	
585	/harharkko/	'warthog'	
586	/hark'ali:te/	'young woman'	
587	/harkišami/	'(be) rubbish'	
588	/harkišango/	'rubbish'	
589	/harkišši/		
590	/harre/	'donkey'	
591	/haššitto/		
592	/hat't'umba/	'broom'	
593	/hatabe/	'throwing'	
594	/hawadi/	'keep, save'	
595	/hawle/	'grave'	
596	/hawšitte/	'sugarcane'	
597	/hejatakko/	'poor'	
598	/hejummi/	'(be) poor'	
599	/helsadī/		
600	/hera:/	'on running'	
601	/heza/	'beautiful'	
602	/hi:zasi/		
603	/hi:jekko/		
604	/hi:jetakko/		
605	/hi:ne abbaj/		
606	/hi:nej ja:jej/		
607	/hige/		
608	/higgade/	'playing'	
609	/hinnase/		
610	/hiribgo/	'singing'	
611	/hiribi/	'sing'	

612	/hirp`ante/	'herd (of cattle)'	
613	/hirp`ante/	'herd (of goat)'	
614	/hishisi:/	'unload'	
615	/hiske/	'women'	
616	/hišš azi/	'laugh (v)'	
617	/hiššago/	'laugh (n)'	
618	/hit`t'e/	'root'	
619	/ho:lo/	'wing'	
620	/hobando/	'foot print'	
621	/hobiza/	'white'	
622	/hobibiada/		
623	/hoɕaʒama/		
624	/hoɕakasa/		
625	/hodoro/		
626	/hofarada/		
627	/hoɕaši/		
628	/hoɕašše/		
629	/hoɕoɕaɕami/	'something twisted'	
630	/hoggeɕaj/	'olden times'	
631	/hogi/		
632	/hogoladi/	'tame'	
633	/hogorokisa/	'difficult'	
634	/hogororakkisa/	'(be) amusing, funny'	
635	/hogumma/	'black like'	
636	/hohejsa/	'healthy'	
637	/hohejt`a/	'kind (n)'	
638	/hohiriba/	'singer'	
639	/hohola/	'wander'	
640	/hojbattoli:ga/	'yellow like'	
641	/hojɕa/	'red like'	
642	/hojsa:mi:/	'(be) cleared for land'	
644	/hojsi:/	'clear (land of planting)'	
646	/hojsɔ:/	'a process of clearing (cland of planting)'	

647	/hojtajami/	'(be) scarce'	
648	/hok'abi/	'wet'	
649	/holasi/	'reply (v)'	
651	/holefami/		
	/hogaje/	'full'	
	/hommi:ri/	'very (adj.)'	
	/hombolu:ho/	-----	
	/hagallo/	'a cabbage made with flour of maize'	
	/hondaŋe/	'wedding'	
	/hu:lamo/	'gesho....'	
652	/holla/		
653	/hollitte/	'mare (female horse)'	
654	/hommi:ri gošu:ji/		
655	/hommi:ridazama/		
656	/homo:lelehizi/	'fidget'	
657	/homontoli:ga/	'blue like'	-ho=like
658	/honagalaɁaga/	'follower'	
659	/hondaššo/	'dry dung'	
660	/hori/	'ferment'	
661	/horiɁašša/	'heavy'	
662	/horisi/	'snore'	
663	/hormitto/		
664	/horofi/	'(be) loose, slack'	
665	/horofisi/	'loosen'	
666	/horro/	'forest'	
667	/hortanna/	'fat'	
668	/hošalala:/	'light'	
669	/hošhašadfa/	'(be) whisper'	
671	/hosiɁazaba/		
672	/hoššikko/	'gravel'	
673	/howadfa/	'someone always in hurry'	
675	/hoxaxawi/	'dry'	
676	/hu:lhumme/	-----	
677	/hu:nanakko/	'hunchback'	

678	/hu:ngo/	'which'	
679	/hu:ri/		
680	/hu:zi/		
681	/hubintaj/		
682	/hudfami/	'(be) sick'	
683	/hudʃan/	'ten'	
684	/huddo/	'yoghurt'	
685	/hujennuhuldi/		
686	/hullu:le:/	'guinea fowl'	
687	/hulto:/		
688	/hulummakko/	'catapult'	
689	/hunne/		
690	/husanosi/	'theredore'	
691	/husi/	'this'	
692	/husimalaj/	'therefore'	
693	/hutikija/	'few'	
694	/huwambakko/	'generous'	
695	/huli/	'enter (v)'	
696	/i:ari/	'know'	
697	/i:lmama/		
698	/i:lme/	'mourning'	
699	/i:oji/	'ululate (at funeral) (v)'	
700	/i:sanoji/	'wail'	
701	/i:ttuki/		
702	/ibeba/	'(be) praise'	
703	/ibebi/	'praise someone'	
704	/ibotami/	-----	
705	/iç`ç`ekki/		
706	/idawri/		
707	/idʃa/	'red'	
708	/idinni/	'heal (tr.), cure (v)'	
709	/iffasadi/		
710	/iffate:/	'vomit'	
711	/iffatisa:/	'(be) vomit'	
712	/igiti/	'(be) angry'	

713	/igʔitisi/	'annoy'	
714	/igari:/	'agree'	
715	/igejʃi/		
716	/igganasi/	'thank (v)'	
717	/iggejʃi/		
718	/ihajji/	'order (someone to do something)'	
719	/ihahatabi/	'throw (v)'	
720	/ihetawi/		
721	/ihiggadi/	'play'	
722	/ihosi/		
723	/ihu:hurp'i/	'(be) wrinkle'	
724	/ija/		
725	/ijja/	'say'	
726	/ik'abasi/	'(be) wet'	
727	/ik'agʔi/		
728	/ik'k'ut't'ami/	'stop, cease'	
729	/ik'ut'i/	'granary or drop (2SG. M)'	
730	/ik'ut't'i/	'drop (2SG. F.)'	
731	/ikkotami/	'hurt oneself'	
732	/ila:ʔe/		
733	/ila:ʕi/	'accompany'	
734	/ila:hole/	'assemble'	
735	/ila:lige/	'meet (someone)'	
736	/ilaj/	'(be) together'	
737	/ileba:he/		
738	/ilegare/	'agreement'	
739	/ilela:ganda/		
740	/ilelagalagabi/		
741	/ilelalige/	'cross each other, one another'	
742	/ilelliga/	'(be) similar'	
743	/ilexule/		
744	/ilga:kko/	'teeth'	
745	/ilge/	'tooth'	
746	/ilge:/		

747	/ili:gasi/	'to make out (someone)'	
	/talk'ajje/	'lizard'	
748	/illegolade/		
749	/imala:li/		
750	/ime:zi/	'bury'	
751	/imi:rassi/	'make angry'	
752	/immajji/		
753	/immalo:di/	'(be) bold'	
754	/immiti/	'surround'	
755	/inazi/	'roll'	
756	/inagajsadi/	'take leave of'	
757	/inderakito/	'day before yestadday'	
	/innakko/	'fly'	
758	/ine/	'we (inclu.)'	
759	/inetoruji/	'recount (story)'	
760	/inne/		
761	/innetehti/		
762	/innixuldi/	'(be) understood'	
763	/innukahi/		
764	/innutehti/	'give'	
765	/intawi/	'overtake, pass (tr)'	
766	/ipuulama/	'(be) unload'	
767	/iraffi/	'sleep'	
768	/irgambatte/		
769	/irkajda/	'a two handle stick'	
770	/irraffi/	'lie down'	
771	/irrawo/	'rain'	
772	/irrede/	'strength'	
773	/ise/	'she'	
774	/iši/	'refused'	
775	/išigi/	'untie'	
776	/iso/		
777	/iso:ri/	'(be) sweet'	
778	/išš ori/	'split'	
779	/iššadami/	'eclipse'	
780	/iššagađi/		
781	/iššai/		
782	/issali/	'agree'	
783	/iššega/	'have, possess'	

784	/issigabossi/		
785	/issiti/		
786	/issunde/	'they (HONOURING)'	
787	/ište/		
788	/išuki/		
789	/isunde/		
790	/it't'ajno/	'near'	
791	/ito:ri/		
792	/ittagossi/		
793	/ittamari/	'student'	
794	/ittezi/		
795	/itte?i/		
796	/ittexi/		
797	/ittonna/		
798	/iwwaja/	'(be) recover, get well'	
799	/ixa?i/		
800	/ixajja/	'unload (v)'	
801	/ixakkatti/	'married (3SG. M)'	
802	/ixebaba/	'boast'	
803	/ixejt'a/	'(be) beautiful'	
804	/ixejt'aj/	'beautiful (for woman)'	
805	/ixu:ri/	'leave'	
806	/izzah/	'three'	
807	/ixajsad'i/		
808	/jaha/	'who'	
810	/jāholas/	'answer, reply (n)'	
811	/jaje: dāmmaj/		
812	/jaje: takajaj/		
813	/jajje/	'mother'	
814	/jalamgi/	'hate (v)'	
815	/jehejsi/		
816	/jehejsi/		
817	/jehejt'i/		
818	/jelajade/		
819	/jennexullu/	'didn't understood'	
820	/ješegdi/	'haven't (3SG. F)'	
821	/ješegi/	'haven't (unpossess)'	
822	/ji:a/		
823	/ji:aši/	'feed (animals)'	

824	/ji:i/		
825	/ji:je/	'owl'	
826	/ji:oma/	'invitation'	
827	/ji:omogoro:oi/	'calling (for invitation)'	
828	/ji:to/	'a traditional bubbled food made from wheat flour'	
829	/ji:tohogi/	'leftovers'	
830	/ji:eto/		
831	/jimmasi/	'(be) spinning'	
832	/jo:gi/	'pound'	
833	/jogfamašši/		
834	/jogfongo/	'diarrhea'	
835	/k'abi/	'(be) in diarrhea'	
836	/k'age/		
837	/k'age/		
838	/k'ak'a/	'slunder (v)'	
839	/k'ak'atto/	'gossip (n)'	
840	/k'alama/	'color'	
841	/k'ark'are/	'help (v)'	
842	/k'artaha/	'green'	
843	/k'artaxdi/	'(be) fertile'	
844	/k'at'ai/		
845	/k'at'ao/		
846	/k'at't'i/	'fold (v)'	
847	/k'awwe/	'weapon'	
848	/k'egde/		
849	/k'egji:/	'lick'	
850	/k'elle/	'sound'	
851	/k'erarisi/	'stir'	
852	/k'i:gi/	'curse (v)'	
853	/k'i:go/	'curse (n)'	

855	/k`o:be/		
856	/k`o:e/	'explosion'	
857	/k`o:i/	'brust'	
858	/k`onk`o/		
859	/k`oričajij/		
860	/k`orri/	'(be) rust'	
861	/k`u:ti/		
862	/k`ubanne/	'close'	
863	/k`ubi/	'close!'	
864	/k`ure/	'breakfast'	
865	/ka:di/	'deny'	
866	/kanaʔsadi/		
867	/kasa/	'here'	
868	/kasaso/		
869	/kenʔe iʃʂoŋi/	'accuse (n)'	
870	/kire/	'thred (n)'	
871	/kiʂaʔasi/		
872	/kiʂaʔi/		
873	/kitangunna/	'this week'	
874	/koʔararaŋodi/	'mould(n)'	
875	/koʔakabejni'	'perhaps'	
876	/kolle/	'well (n)'	
877	/korob`aŋasa/	'cutter (for human)'	
878	/koʃnatte/		
879	/kosso/		
880	/ku:ŋakko/		
881	/kufko/	'compost'	
882	/kuppakko/	'pot(for water)'	
883	/kuppurakko/	'fox'	
884	/kurtesadi/		
885	/kuru:ʃikko/		
	/kurre/	'beeswax'	
886	/kusu:nde/	'rat'	
887	/kutumate/	'obstacle'	

888	/la:ɣami/	'(be) round'	
889	/la:ɣi/	'pour'	
	/la:jme/	'baboon'	
890	/la:he/	'bow (hunting)'	
891	/la:lakko/		
892	/la:nkaka/	'never'	
893	/la:ze/	'drought'	
894	/laɣitakko/	'calf'	
895	/laɣlaɣo/	'(be) sticky'	
896	/lakke/	'two'	
897	/lalade/		
898	/lasi/	'sell'	
899	/laxi/	'grind'	
900	/le:b'uzi/		
901	/le:fi/	'cough (v)'	
902	/leʔajjo/	'month'	
903	/leʔakko/	'field'	
904	/leʔo/	'moon'	
905	/lefaɗo/	'sharpner'	
906	/li:gi/		
907	/li:hassi/	'take out (from container)'	
908	/li:li/	'melt (intr.)'	
909	/liʔajade/	'season'	
910	/ligi/	'get out'	
911	/lihasi/		
912	/liizajjo/	'moon'	
913	/likke/		
914	/lo:ʔo/	'cow'	

915	/lo:gande/	'ram'	
916	/lo:g'i/	'swallow'	
917	/lo:kitakko/	'slowing'	
918	/lo:ko/	'(be) slow'	
919	/lozo/		
920	/logande/		
921	/luhte/		
922	/lukkakko/	'rooster'	
923	/lukkalle/	'chicken'	
924	/lukkallitte/	'hen'	
925	/ma:ji/	'stop up'	
926	/ma:k'ze/	'vine (eatable)'	
927	/ma:la/	'how'	
928	/ma:sakko/		
929	/ma:xe/	'property'	
930	/mač'č'ure/	'sickle'	
931	/maga:zgo/	'name'	
932	/magaʔa/	'sour'	
933	/magazi/	'(be) sour'	
934	/magahko bovitō/		
936	/magakko/	'bad'	
937	/magakkogodī/	'(be) bad'	
938	/magaša/		
939	/maginde/		
940	/mahenni/	'(be) infertile'	
941	/mahnaza/		
942	/mahnazizi/	'(be) short'	
943	/majje/	'to bury'	
944	/majji/	'kiss'	
945	/mala:li/	'(be) laizy'	
946	/malazawnujaste/	'good evening'	
947	/malakah'iste/	'good morning (3 PL.)'	

949	/malanagajiste/	'good afternoon (3PL.)'	
950	/malarafte/	'good morning'	
951	/malarafti/	'good morning (2 SG. M.)'	
952	/maldolakko/		
953	/malo:lakko/	'bold (n)'	
954	/malo:lakko/		
955	/mangala/	'door or gate'	
956	/magno/	'accident'	
957	/manne/	'house or womb'	
958	/marzimme/		
959	/marane/	'(be) round'	
960	/marat't'i/		
961	/mari/	'wrap up'	
962	/marri/		
963	/martartarko/		
964	/matame:/		
965	/maxannaʔa/	'short'	
966	/maxatto/		
967	/maxe/	'belongings'	
968	/maxende/	'infertile (of human)'	
969	/me:ʔi/	'to harvest'	
970	/me:e/		
971	/me:rte:/	'steer'	
972	/meʔadi/	'pluck'	
973	/meʔe/	'how many'	
974	/meʔde/		
975	/meʔdegonati/		
976	/meʔi/	'pour'	
977	/merzimme/		
978	/mi:ʔaje/	'child'	
979	/mi:nde/		

980	/mide/	'a kind of cabbage'
981	/minaminaje/	'in front of'
982	/minde itta/	'in front of'
983	/miskitte/	
984	/mo:k`ak`e/	'smile'
985	/mo:o/	'what'
986	/mo:re/	
987	/mozo/	
988	/mohošahošađa/	'something whisper'
989	/mok`orko/	'(be) (barren) of (of field)'
990	/monto/	'sky'
991	/mulmulho/	'solid (n)'
992	/mulo/	'all'
993	/mulomate/	'all in all'
994	/muri/	'pay (for goods, services)'
995	/murugi/	
996	/muḡi/	
997	/na:k`e/	'despises, disdain'
998	/naʒajsi/	'multiply (intr.)'
999	/nazisi/	'higher (tr)'
1000	/nabdo/	
1001	/nabse/	'life'
1002	/nagadađe/	
1003	/nagadi/	'barter'
1004	/nagajegajida/	'goodbye'
1005	/nagajiraf/	'good night (2SG. M)'
1006	/nagajirafisa/	'good night (PL.)'
1007	/nagajunte/	'peace'
1008	/nagalaʒaša/	'follow'
1009	/nagalačči/	'chase (v)'
1010	/naganda/	'near'
1011	/nahaje dakaj/	'second wife'
1012	/nahaje wannaj/	'first wife'
1013	/nahante/	'wife'

1014	/naholi/	'again'	
1015	/najajho ʔagde/	'how are you'	
1016	/namindama/	'imitate'	
1017	/ñari/	'threatened'	
1018	/nasadī/	'	
1019	/nasadi/	'burn (intr.), blaze'	
1020	/naso/		
1021	/nat'alakko/	'cloth worn by a woman'	
1022	/nigadi/	'choke'	
1023	/nono/	'brain'	
1024	/noʔte/		
1025	/nuɖub'ade/	'save'	
1026	/o:ʔe/	'daughter'	
1027	/o:ɖi/	'flow'	
1028	/o:hi/	'alter, change (tr)'	
1029	/o:ʔo/	'son'	
1030	/o:rbo:/	'sheep'	
1031	/o:rbo:takkasa/	'lamb'	
1032	/o:ʃʃi/	'touch'	
1033	/obo:bde/		
1034	/obo:bgo/		
1035	/oɖase/	'unload'	
1036	/ogaja/	'come 3PL.IMP'	
1037	/ogaji/	'come'	
1038	/ogazi/	'bring'	
1039	/ohinde/	'fence'	
1040	/ohini/	'fence in (v)'	
1041	/ojba/	'dry season'	
1042	/ojba/		
1043	/okkatte/	'heifer'	
1044	/oladi/	'(be) late'	
1045	/olla:/		
1046	/olokka/	'nothing'	
1047	/oog'ajje/	'sun'	
1048	/ora:batte/	'hyena'	

1049	/orgate/	'bellows'	
1050	/orhango/	'war'	
1051	/orre/		
1052	/ořalala/	'(be) smooth'	
1053	/oskille/	'traditional oven'	
1054	/ořongo/	'cold weather'	
1055	/ořo2no:/	'odour, smell(n)/good smell'	
1058	/ořři/	'sweep'	
1060	/ořřimbo/	'broom'	
1061	/ottikirama/	'(be) rough'	
	/ottakko/	Wanza...	
1062	/p'ařařo:/	'millet (rainy season)'	
1063	/p'i:řatte/	'kid'	
1064	/p'i:to/	'big basket (for food container)'	
1065	/paggotaza/	'taste'	
	/papalda/	Beles.....	
1066	/pahikko/	'sea'	
1067	/perkitte/		
1068	/po:hakko/	'abscess'	
1069	/po:xi/	'(be) swell'	
1070	/pogamadi/		
1071	/pogatto/		
1072	/pogfi/	'spend time, pass time'	
1073	/pokolegaita/	'garden'	
1074	/puře/	'falling'	
1075	/puři/	'fell'	
1076	/puřambakko/	'jealous'	
1077	/puřodi/	'(be) jealous'	
1078	/puřoti/	'(be) jealous (for female)'	

1079	/puʃi/		
1080	/pujʃatte/		
1081	/purahi/	'scatter (tr)'	
1082	/puttodi/		
1084	/razambakko/	'(be) sour'	
1085	/raʒi/	'sour'	
1086	/rabašši/		
1087	/rakkadʒi/	'(be) in trouble'	
1088	/rakkadi/		
1089	/rakko/		
1090	/raraʒuʃi/		
1091	/re:hi/		
1092	/re:hi/		
1093	/rexakko/	'sourgham'	
1094	/ri:bdo/	'tendon'	
1095	/ri:gaʃo/		
1096	/ribribisa/		
1097	/rombo/	'foam'	
1098	/sa:ʒate biffatte/	'launch time'	
1099	/sa:bango/		
1100	/sa:fi/		
1101	/sa:jille/	'mane'	
1102	/sa:li/	'plaster (v)'	
1103	/sa:lte	'dung'	
1104	/sa:rakko/		
1105	/sa:rodi/		
1106	/saʒago/		
1107	/šaʒaši/	'burn (v)'	
1108	/saʒi/	'slaughter (animal)'	
1109	/šaʒši/		
1110	/sababa/		
1111	/sabama ixazi/	'float'	

1112	/šabanango/	'strap (n)'	
1113	/sabardi/	'(be) obstructed'	
1114	/sabi/	'soak'	
1115	/šabi/	'fasten, bind (load)'	
1116	/saḏahe/	'dew'	
1117	/safari/	'slice'	
1118	/saḑ/		
1119	/saḑare/	'early'	
1120	/saḑi/		
1121	/sagajakko/	'bracelet'	
1123	/sagango/	---	
1124	/sagmo/	'honey'	
1125	/šagolo/		
1126	/šai/	---	
1127	/šai/	---	
1128	/sak`k`e/	'belt'	
1129	/sakkatte/	'ingenious rock'	
1130	/salah/	'four'	
1131	/šalala/		
1132	/salolakko/	'traveler'	
1133	/šamašadi/		
1134	/šambo: abba ḑammaj/		
1135	/šambo: abba takajaj/		
1136	/šambo: jajej takajaj/		
1137	/šambo:wanna/		
1138	/sammi/	'odorous'	
1139	/saṇetani/		
1140	/sano/	'road'	
1141	/sapatta/		
1142	/šarango/	'skin (of goat)'	
1143	/sarkatto/		
1144	/šatte/	'girl'	
1145	/šawde/	'beehive'	
1146	/se:ri/	'jump'	
1147	/šega/	'I'm present'	
1148	/šegaše/	'roasted wheat or barley'	
1149	/šegaši/	'roast'	

1150	/šegdi/	'became pregnant'	
1151	/šegi/	'have, possess'	
1152	/sehisi/	'mix (v)'	
1153	/sela:hime/	'twins'	
1154	/seri:kko/	'leopard'	
1155	/setten/	'eight'	
1156	/šettisaj/	'girl'	
1157	/si:bbi/	'(be) sweat'	
1158	/si:ddo/	'tail'	
1159	/si:gabno/	'far'	
1160	/si:kagfasi/	'trap (animal) (v)'	
1161	/si:ke/	'trap (n)'	
1162	/ši:kkari/		
1163	/si:lama:ra/		
1164	/si:lbode/	'traditional big hoe'	
1165	/si:nagfo/	'hoe (v)'	
1166	/si:nde/		
1167	/ši:ni/	'smear (tr)'	
1168	/sire/	'mould'	
1169	/si:nitto/		
	/sire lihase/	'mould (pottery)'	
1170	/ši:nt'e/		
1171	/si:ringo/		
1172	/si:to/	'tail'	
1173	/sibindi/		
1174	/sigde/	'pot (of water)'	
1175	/sigde/		
1176	/šikaraši/		
1177	/sike/	'paint (v)'	
1178	/šikire/		
1179	/šikke/	'hate (n)'	
1181	/silmakko/		
1182	/šinango/		
1183	/singangotaj/	'early morning'	
1184	/sinsade/	'to smell'	
1185	/sinsadi/	'smell'	
1186	/sit't'ine/		
1187	/sitakko/		
1188	/so:akko/		
1189	/so:lle/	'feather'	
1190	/so:no/		

1191	/so:r/	'run 2 SG. M. IMP'	
	/so:hise/	'green mamba'	
1192	/so:ri/	'run'	
1193	/šori/	'pece (v)'	
1194	/soʔo/	'salt'	
1195	/šodaɸi/		
1196	/soda/		
1197	/sogɸidde/		
1198	/šogšogana/	'tributaries'	
1199	/sogolmo:/		
1200	/šoha/	'wash'	
1201	/šohe/		
1202	/šohi/		
1203	/šohomi/		
1204	/sona:ija/	'rat'	
1205	/songɸitte/	'	
1206	/sho:ri/	'husk (corn) (v)'	
1207	/sonk'o/	'a kind of harp'	
1208	/sorambakko/	'sweet (n)'	
1209	/šorame/	'to split'	
1210	/šori/	'pill(v)'	
1211	/sorno/	'taste (n)'	
1212	/shorokumi/	'(be) rich'	
1213	/šorogitto/	'rich'	
1214	/sorraɸi/	'jump (for water)'	
1215	/sorraɸi/	---	
1216	/sorre/	'to jump (for water)'	
1217	/sorri/		
1218	/šu:p'alle/	'flute'	
1219	/su:ba/	'boast'	
1220	/su:go/		
1221	/šu:lo/	'plug of pot made up of basket'	
1222	/šu:mbulo/	'vine (eatable)'	
1223	/šu:me/	'leader'	

1226	/ʃu:re/	'cabbage'	
1227	/ʃu:tto/	'heap (n)'	
1228	/ʃu:tuji/	'heap up'	
1229	/ʃuddi/	'eclipse (of cloud)'	
1229	/sukasi/		
1230	/sukki/	'knot'	
1231	/ʃulanduji/	'swing (v)'	
1232	/sunne/		
1233	/ʃuraʃti/	'suckle (baby) (tr.)'	
1234	/suro/	'rope'	
1235	/surre/	'rope'	
1236	/t'a:radi/	'drink up'	
1237	/t'aje/		
1238	/t'amme/	'branch (of tree)'	
1239	/t'ihile/		
1240	/t'indi/	'labor 3SG. F)'	
1241	/t'inna/	'labor 3SG. M)'	
1242	/t'innife:/		
1243	/t'ip'i/		
1244	/t'ip'ip'a/		
1245	/t'ip'p'i/	'shake'	
1246	/t'irakko/ or /ʃambo/	'man'	
1247	/t'onago/	'bee'	
1248	/t'u:lula/	'(be) narrow'	
1249	/t'u:p'p'i/	'suck'	
1250	/ta:ngo/	'traditional plate (for food serving)'	
1251	/ta:ngodama/	'traditional plate (for serving traditional food called kurkufa)'	
1252	/tabakko/	'mouse'	
1253	/tafakko/		
1254	/tafo/	'heap'	
1255	/tagosi/	'lower (tr)'	
1256	/tagossi/	----	
1257	/tahakko/	'sand'	
1258	/tjadʃi/	'obtain'	
1259	/taiaho/	'a kind of cabbage'	
1260	/talali:sa:/	'condole, comfort (v)'	
1261	/tamarsisi/	'teach'	
1262	/tangerre/		

1263	/tappi/	'six'	
1264	/tatagadi/		
1265	/tatte/		
1266	/tawango/	'bell'	
1267	/tawi/		
1268	/taxan/	'seven'	
1269	/taxe/	'cross'	
1270	/te:hi/	'give'	
1271	/te:lane/	'sew (n)'	
1272	/te:li/	'sew'	
1273	/tebgo/	'strap (n)'	
1274	/tehakko/	'gift'	
1275	/tekadde/	'chair'	
1276	/tizadi/	'keep'	
1277	/tibango/	'bundle (n)'	
1278	/tigratte/	'plowshare'	
1280	/tikiri/	'pound'	
1281	/timbo/	'drum'	
1283	/tire/	'liver'	
1285	/tiše/		
1286	/to:lami/	'two cudgels for threshing tef'	
1287	/to:ri/	'heap up or arrange'	
1291	/toʔkusa/	'the one'	
1292	/toʔoke/	'it is one'	
1293	/toʔon/	'one'	
1294	/toʔe/		
	/toʔonaj/	'once'	
1295	/toloʔlok'isti/	'tickle (v)'	
1296	/tolok'lok'k'e/		
1297	/tolujji/	'pound'	
1298	/tonakko/	'cripple (n)'	
1299	/toʔo/	'ash'	
1300	/torba/	'week'	
1301	/tori/	'heap up'	

1302	/torisi/		
1303	/torre/		
1304	/tu:b'idi/	'beat'	
1305	/tu:li/		
1306	/tu:tite/	'story'	
1307	/tu:tte/	'wood (of axe)'	
1308	/tuɕami/	'flow'	
1309	/tuɕi/		
1310	/tuk'amii/	'tedegefe	
1311	/tullo/		
1312	/tullulukko/	'sand'	
1313	/tunde/	'blunt'	
1314	/tup'p'i/	'stain (of food)'	
1315	/turɕe/		
1316	/u:ɕammi/	'winnow, throwing in air (grain) (v)'	
1317	/u:fi/		
1318	/u:gule/		
1319	/uɕango/		
1320	/ufatte/	'bladder'	
1321	/ulsedi/	'dream'	
1322	/uratte/		
1323	/urgessi/		
1324	/uru:rii/		
1325	/urure/	'wind (n)'	
1326	/ururuɟti/	'(be) blown'	
1327	/usagora/	'that'	
1328	/uʂallo/		
1329	/uuratte/	'cloud'	
1330	/wa:we/	'saliva'	
1331	/wazago/	'GOD'	
1332	/waɕambakko/	'hurry (n)'	
1333	/waɕi/	'come 2SG. M or F. IMP or plant (v)'	
1335	/wade/	'speed (n)'	
1336	/wadi/	'(be) fast'	

1337	/wajfenakko/	'bull'	
1338	/wajja/ or /xesa/	'kind'	
1339	/wakko or k'ii2e/	'shout'	
1340	/wale/	'machete'	
1341	/waršawaršudi/		
1342	/waršo/		
1343	/waršudi/		
1344	/xa:re/	'fire'	
1345	/xa:so/	'hope'	
1346	/xaso/	'happiness'	
1347	/xaso/	'health'	
1348	/xa2i/	'rise up (intr.)'	
1349	/xazila xadī/	'ascend, go up'	
1350	/xadđi/		
1351	/xadigde/	'old woman'	
1352	/xadigdo/	'old man'	
1353	/xahaje/		
1354	/xakadi ođđi/	'descend, go down'	
1355	/xarho/	'owner'	
1356	/xariškoo/	'bubbled grain (traditional food)'	
1357	/xarritte/	'bitch'	
1358	/xarro/	'dog'	
1359	/xašarte:/	'partridge'	
1360	/xaso/	'happiness'	
1361	/xaso/	'health'	
1362	/xaso/	'enthusiastic'	
1363	/xasodi/	'(be) curious'	
1364	/xasunušagi/	'curious'	
1365	/xawdo/		
1366	/xaxambakko/	'(be) powerful or hero'	
1380	/xajjo/	'wind'	
1381	/xejt'a/	'(be) handsome'	
1382	/xek'adi/		
1383	/xek'akko/		
1384	/xelatahi/	'remember'	
1385	/xelho/	'peers'	
1386	/xib'b'e/		

1387	/xibiritte/	'bat'	
1389	/xigadi/	'play'	
1390	/xinaze/		
1391	/xinami/	'(be) odorous'	
1392	/xinnawusafi/	'smell'	
1393	/xiskatto/	'unmarried woman'	
1394	/xisxissi/		
1395	/xinawa/	'stink, smell (v)'	
1396	/xinawno/	'stink, smell (n)'	
1397	/xo:be/		
1398	/xobe/		
1399	/xodi/	'hollow out (log)'	
1400	/xohono:/	'whole'	
1401	/xokoli/	'limp'	
	/xoxono/		
	/xu:ri/	'leave (to go)'	
	/xupin/	'five'	
	/zarafami/	'(be) plunder'	
	/χafi/		
	/χariško/		
	/χatte/	'fire'	
	/χattet'iza/	'spark'	
	/χawšitte/		
	/χahte/	'caterpillar or new moon'	
	/χotoladi/		

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