

The Syllable of Kistane:
A Moraic approach

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Abstract

This thesis is concerned with the syllable of Kistane and is based on auto-segmental, non-linear phonology, within the framework of the Moraic Theory. The Kistane language is an Ethio-Semitic language. Kistanes “Christians” are the people who speak this language. Kistane has a total of thirty phonemes of which seven are vowels and twenty three are consonants. The syllable types which were identified in this thesis for Kistane are V, VC, VCC, CV, CVC and CVCC. Based on the moraic analysis, Kistane distinguishes between heavy and light syllables. Bimoraic syllables are heavy whereas monomoraic syllables are light. Syllable-final consonants are not moraic; rather they are extrametrical. However, CVC syllables are considered heavy by the application of the rule of weight-by-position. This is true only if the CVC syllable occurs at the initial or medial position in a word directly followed by another C. The Kistane syllable is characterized by incorporating geminate consonants which receive only one mora. The second part of the geminate becomes part of the following syllable. Besides, the vowel /ɨ/, usually analyzed as epenthetic vowel, is considered a phoneme because its occurrence is not always predictable and it also occurs in minimal pairs. However, this vowel does not appear at the word-final position. Moreover, there exists the glottal stop [ʔ] on the phonetic level in Kistane but it is not regarded as a phoneme. This is due to the fact that the glottal stop is restricted to appear only between vowels, i.e. its occurrence is predictable. Furthermore, there are no minimal pairs in which the glottal stop brings about a meaning difference.

Acknowledgments

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Abbreviations and notational conventions

C	consonant
V	Vowel
δ	syllable
R	Rhyme
N	nucleus
μ	mora
(δ)	Extrametrical
→	Becomes
/	In the environment of
//	phonemic transcription
[]	Phonetic transcription
C ^w	consonant labialization
()	or
.	Syllable boundary
Ø	deleted
+	feature presence
-	Feature absence
#	Word boundary
-#	word final position
-#-	word medial position
#-	word initial position
vl	voiceless
vd	voiced
ej	ejective
L	light
H	heavy
SH	supper heavy
SPE	sound pattern of English
CL	compensatory lengthening

MOP maximal onset principle
OFP onset first principle
WBP weight by position
UG Universal grammar
F feminine
M masculine
PL plural
SG singular
V verb
N noun
PCWG Peripheral Central Western Gurage
PWG Peripheral Western Gurage
CWG Central Western Gurage
Son sonorant
Cont continuant
Nas nasal

Chapter one

1. Background of the study

The present study is concerned with the phonology of Kistane, particularly the syllable. Therefore, the syllable and syllable constituents of Kistane vis-à-vis the moraic theory are the focuses of the present study.

1.1. The language

Hetzron (1972:11) divides the Ethio-Semitic languages into south and north. The division is mainly based on features of the verbal system. Hence, Hetzron (1972) puts Tigre, Ge'ez and Tigrigna under North Ethiopic. South Ethiopic is further divided into Outer South Ethiopic and Transversal South Ethiopic.

Outer South Ethiopic consists of Muher and West Gurage (Ener, Endegagen, Inor, Gyeto, Ezha, Chaha, Gumer and Gura, Masqan) on the one hand, and Kistane/Soddo, Dobbi/Gogot and Gafat on the other.

Transversal South Ethiopic consists of Amharic, Argoba and Harari, and East Gurage (Silt'e, Wolane and Zay) languages.

According to Hetzron (1972:11), the following genealogical tree shows the reconstructed genetic relationship between the Ethiopian Semitic languages.

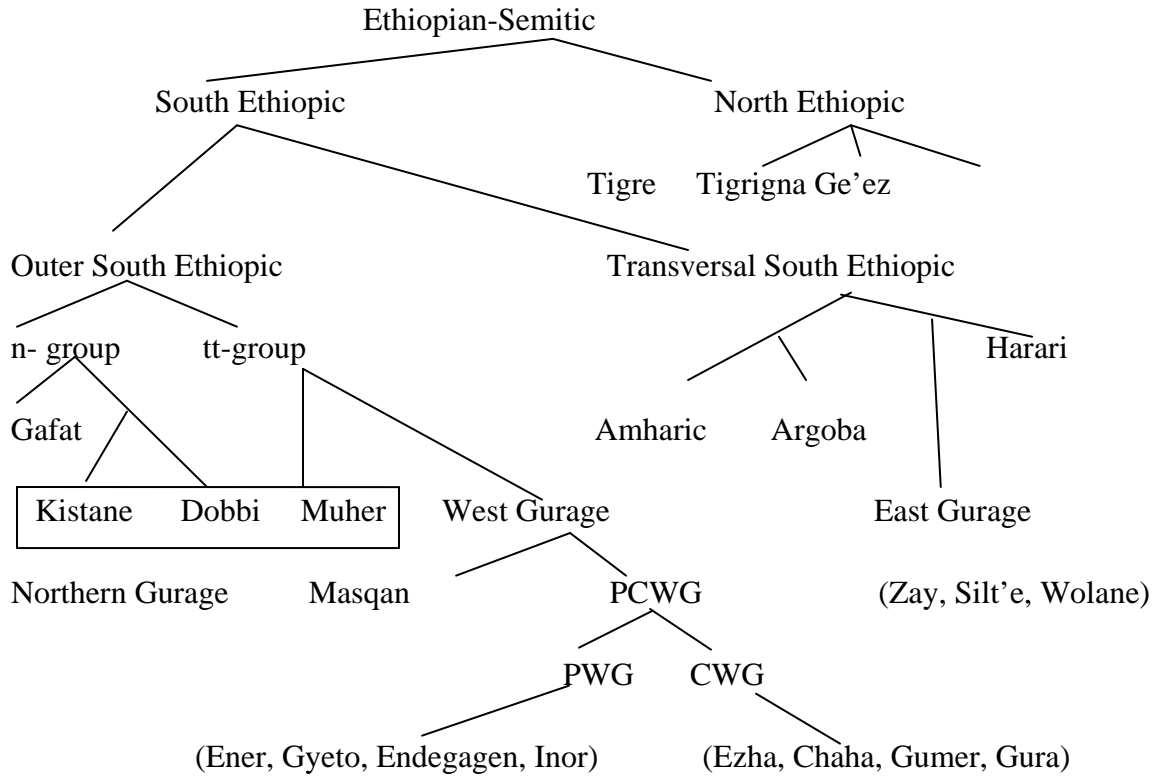


Figure 1: Ethio-Semitic family tree adapted from Hetzron (1972:11)

On the other hand, Bender (1971:182) on the basis of lexicostatistics classification claims that the division of Ethio-Semitic should be into three coordinate branches: Ge'ez, Tigre, Tigrigna, the Gunnen Gurage, Amharic, Argoba and Gafat appear as a central branch intermediating between the other two. Leaving Kistane aside, Bender classifies the Ethiopian languages with some groupings and isolated languages in the following manner: Eritrean (Ge'ez, Tigre, Tigrigna), Amharic, Argoba, Gafat, East Gurage (Selt'i, Wolane, Zay), West Gurage (Masqan, Chaha, Gyeto, Inor). As Bender (1971: 36) states the inclusion of Kistane makes the establishment of valid Ethio-Semitic sub-grouping impossible because Kistane shows strong affinities to both West Gurage on the one hand and Amharic and East Gurage on the other hand. He also points out that the Kistane people are mainly Christians; many of them are bilingual in

Amharic and Kistane and strongly influenced by the dominant Orthodox - Christian Amhara culture of the Addis Ababa area.

However, the fact that a lexicostatistic classification is a typological classification and does not necessarily coincide with a genetic classification in all details, the degree of agreement with the usually proposed genetic classification is, in fact, rather good (Bender 1971:182). It is to be kept in mind that neither Hetzron's nor anyone else's genetic classification of Ethio-Semitic languages has yet won universal acceptance.

The language Kistane is commonly connected to be one of the northern Gurage languages. The language is the first dialect of Gurage to get recorded. It is spoken by about 300,000 speakers. Goldenberg (1965:62) argues that the Kistane language is known by various names. Previously, scholars such as Bender (1971, 1972), Hetzron (1972, 1977) named it as Soddo. Likewise so many names were given to their language; Kistanes were also called by various names. In some works Kistane speaking people are referred to as Aymälläl, and in others as Soddo or Kistane. However as "... speakers call themselves *Kistane* 'Christian' and their language Kistane" (Alemayehu 1985:3), the term Kistane is applied throughout this thesis.

1.2. The people

The Kistanes are one of the Gurage groups speak the language Kistane. Goldenberg (1965:61), states that the Kistane people live in the northern most part of the Gurage land. Their inhabitant is surrounded by the rivers Lemmon, Awash and Maki. In addition, he mentions that the Kistane have been sharing culture and blood relationships with the neighboring Oromo. Most Kistane men can also speak one or more other languages, mainly Amharic or Oromo, besides their native language Kistane.

According to Goldenberg (1965:64-65) and Bahiru (1972:54-55) the Kistane people tell that their historical background is remarkably characterized by continuous territorial war with the neighboring Oromo. Bahiru states that the Kistane people share many features of other Gurage tribes. However, their long tradition of Christianity makes them unique from other Gurage tribes.

Traditionally it is believed that the Gurage people have an origin of Northern Ethiopia, and the greater number of the Gurage is either Christian or Muslim. The present study particularly focuses on the Kistane. Pertinent to this Bahiru (1972:54) states:

The Gurage people are Cushitic –Semitic speaking people inhabiting a mountainous area in the south west part of the present day Shoa province. They are traditionally believed to have originated from the northern Ethiopia and to have started to settle in their present area around the fourteenth century. They speak a Semitic language, are part of the ensut culture complex that characterize the south west and south Ethiopia.

Bedilu (2010:1) states that the Gurages are distinguished by the Semitic language they speak and by the *ñsət*-based culture. The *ñsət*, ‘false banana’, is absolutely involved in every aspect of the Gurage life. Bedilu further states that *ñsət* has a special role in the Gurage day to day life. The Gurage have an agrarian society. Most of them are farmers but some of them are low-status artisans engaged in woodworking, blacksmithing and hide working.

The Kistane people currently reside in the Soddo Woreda¹. According to Tesfaye (1986:2), a significant number of the Kistane people settle in the Ethiopian capital, Addis Ababa, and it is one of the best organized ethnic groups in the city. Pertinent to their origin, no popular traditions were known. According to Goldenberg (1965), a popular hint is the reminiscence of King Zera Yaqob among the Kistane. These people claim that they are descendents of King Zera Yaqob. They confirm this by saying:

yäbälo zär näw, yAze zärayqob ‘I am the descendent of so-and-so, of King Zera Yaqob’. Goldenberg (1965:64).

According to the CSA held in 2005, this woreda has an estimated total population of 300,000 of whom 149,850 were males and 150,150 were females; 21,930 or 7.31% of its population are urban dwellers, which is greater than the Zone average of 6.3%. With an estimated area of

¹ Is an administrative area which smaller in size than zone.

830.63 square kilometers, Soddo has an estimated population density of 186.7 people per square kilometer, which is less than the Zone average of 278.3.

Concerning education, 21.48% of the population are literate, which is more than the Zone average of 20.62%; 5.66% of children aged 7-12 were in primary school, 0.49% of the children aged 13-14 were in junior secondary school, and 1.62% of the inhabitants aged 15-18 were in senior secondary school(CSA 2005).

1.3. Rationale for the study

The various linguistic investigations made on Kistane so far, are basically comparative studies, mainly focusing on phonology (mostly from a generative approach or purely descriptive) and morphology. Despite such apparent attempts to document the language, the phonological description is still not satisfactory. Especially pertinent to phonology, the description so far made in the language is in its infant stage; those who tried to describe the language largely depend on a purely descriptive approach even. There is no attempt made to explain the language by virtue of auto-segmental/non-linear phonology. The intention of this study is, therefore, to analyze the syllable structure of Kistane. The study proceeds within the moraic theory, which previous researchers give no attention and which best describes the weight of the syllable. Moraic theory is a theory proposed in the 1980's as a good answer to the problems connected with the syllable weight. It assumes that weight bearing units are moras not vowel nucleuses. This theory has never been applied to Kistane.

It is also with a great aspiration and interest that I want to explore the phonology of Kistane by giving keen attention to the syllable. I believe that the present study will answer syllable and syllable related questions in the language in particular and will also serve me as a preliminary stage for further investigations on the language in general. The data of this study are gathered from the native speakers of Kistane found in *Bui*.

1.4. Objectives of the study

1.4.1. General objective

The foremost objective of this study is describing, analyzing and interpreting the syllable of Kistane within the framework of the moraic theory.

1.4.2. Specific objectives

The specific objectives are the following:

- determining the syllable of Kistane,
- providing various possible ranking of a small set of constraints,
- identifying the number of moras within a syllable and
- knowing whether the language assigns weight by position.

1.5. Significance of the study

This study has the following contributions:

- This study primarily will contribute for the advancement of phonological theory in general and for the betterment of non-linear phonology in particular through the application of the moraic theory.
- It will provide stimulating ground on how the syllable of Kistane can be perceived and how it can be pronounced.
- It will have a paramount importance for language planners and experts, language learners, and others.
- This study will provide a database for any other linguistic inquiry. Hence, it can serve other linguists as a reference.

1.6. Limitations of the study

Phonology in the general sense covers a wide range of topics and issues. It comprises of phonotactics (the study of permissible and impermissible sound sequences of a particular language), secondary articulations, phonological processes, syllable structure, segmental and supra segmental features, and tone. However, due to certain constraints such as lack of adequate and up to date reference materials and logistical problems including shortage of software and internet access, and others, this study is limited to investigate the syllable of Kistane only.

In addition, this study is constrained by minor problems like deficiency in transportations and insufficient time. Finally, financial problem is another factor which let the researcher rely merely on the investigation of the syllable of Kistane.

1.7. Previous linguistic investigations on Kistane

Kistane is perhaps the first variety of Gurage that became known to the scholarly world. The first records on the language were bible translations of the gospel. Johannes Mayer was the first and foremost initiator to record a word-list, some verb forms, a few phrases and the translation of two biblical chapters in 1878 (Goldenberg 1965:61). Goldenberg analyzed some phonological features of Kistane. Especially he discussed the vowels of Kistane, besides some supra segmental features. However, the main part of his description is about word categories and nominal and verbal morphology.

Subsequently, Leslau (1968) gives some highlights about the phonological features of Kistane including vowel harmony, pre-palatalization and assimilation. His work also provides texts and their translations. These stories show the political, economic, social and cultural status of the Kistane people.

Hetzron is the one who contributed a lot to the study of Gurage languages in general. Hetzron (1968) discusses main verb markers of Kistane as compared to other Gurage languages, which laid then the foundation of the classification provided in Hetzron (1972).

Leslau (1979) deploys an etymological dictionary of Gurage. This dictionary consists of twelve individual Gurage languages. These are Chaha, Endagen, Inor, Ezha, Dobbi, Gyeto, Maskan, Muher, Selt'i, Kistane, Wolane and zay.

Assebe (1981) in his M.A. thesis, explored the social aspects of Kistane where he gave special attention to language use in Bui, the bilingualism among Kistanes, and their attitude towards their own language and to others languages.

Alemayehu (1985) deals with the simple declarative sentence in Kistane. He also addresses word order, sentence pattern and transformation rules. His essay was in line with the Standard Theory model.

Tesfaye (1986) writes on the phonology of Kistane. His work has three parts: phonemes and their allophones, rules of phonetic realizations and supra-segmentals. The core area of his study is the identification of phonemes. He emphasized on vowel and consonant segments. Hence, vowels are identified together with their allophones. Consonants, on the other hand, are classified by

their manner of articulation and their distribution. Tesfaye (1986) discovered 26 consonant segments as opposed to Leslau (1968) who claimed that Kistane has only 23 consonant sounds. According to Tesfaye (1986), [k^w], [k'^w] and [g^w] are recognized as allophonic variants of their non – labialized counterparts, while these sounds are most mentioned in Leslau (1968).

Bedilu (2010), in his doctoral dissertation, deals with the verbal morphology of Kistane. He explores the phonology of Kistane even if he adopted what Leslau did in the case of inventory of phonemes. Besides, he sorts out six basic syllables shapes in Kistane.

Tesfaye (1990) deals with the structure of the noun phrase based on the X- bar theory. Tesfaye argues that the noun as one of the major lexical category can be projected from N level and serves as head of NPs.

The above mentioned scholars attempted to analyze and describe the language from different angles. However, none of them is dealing with the syllable in the light of moraic theory. The syllable has a crude importance to explore the techniques and ways how that particular language is uttered and pronounced. Stress, accent and tone related issues are best described if they are attached and addressed via the syllable. As phonological investigations serve as a base for other disciplinary studies, I will stress on the syllable of the language Kistane. Besides, my study will outshine from previous studies by virtue of addressing auto-segmental phonology. In recent years the application of non-linear phonology to the study of the sound pattern of a language was very limited. But these days most phonological studies value auto-segmental phonology. Hence, almost none of the above mentioned scholars did apply auto-segmental phonology in their investigation of Kistane. Moraic theory (one of the recent and good theories in auto-segmental phonology) is therefore a theory proposed mainly to answer the question of syllable weight. So, the present study differs from previous studies in the sense that it will deal with the syllable of the language Kistane by the application of the moraic theory.

1.8. Research methodology

The primary data gathering tool was elicitation method. The researcher prepared a wordlist containing minimally contrasting forms illustrating the syllable structure. I also elicited word paradigms. This helped me to elicit the data from the speeches of the native speakers of the language. I also used interview and document analysis.

In the first step of the research, the data from the native speaker informants of the language was elicited and recorded by tape recorder. After being collected, the corpus was transcribed, translated and finally analyzed in the light of the moraic theory.

Informant's profile

My chief informant is Birhanu Nigussie who native speaker of Kistane. He is now at the age of 26. He is also competent in Amharic and Silt'e. He was born in Gogeti and attended his primary education at Gogeti primary school. He is now living in Bui.

Chapter two

Theoretical framework

2. The syllable

2.1. Definition of the syllable

The syllable as linguistic, i.e. phonological, concept was addressed variously (Roca and Johnson 1999:248 and O'Grady and Dobrovolsky 1987:55). However, most of the definitions given to the syllable share one common feature. The syllable is a phonological organization consisting of one obligatory component and one or more optional components. Furthermore, the obligatory component of the syllable serves as the peak or heart of the syllable as it is more sonorous than other marginal or optional elements.

The syllable is a phonological organization composed of sounds that are ought to be pronounced with one breath. Roca and Johnson (1999:248) define the syllables as phonological structures that are made up of a segment of high sonority flanked by segments of low sonority. According to O'Grady and Dobrovolsky (1987:71), the syllable is a unit of phonological organization composed of one or more segments and minimally containing a nucleus, usually a vowel, a syllabic liquid, and/or a syllabic nasal.

Based on the above definitions, I can say that the syllable is an entity to which a word can be divided and segmented. The syllable is also a phonological entity that contains an obligatory component (vowel or vowel like sound) as its centre and other optional marginal elements. Vowels are obligatory in the sense that they are more sonorous than consonants and this allows them to occupy the nucleus position in the syllable.

According to O'Grady and Dobrovolsky (1987:18), the greater sonority of vowels allows them to form the basis of syllables. Kenstowicz (2003:253) believes that the nucleus has special status as the only obligatory component. The nuclear V is the only constant among the four basic syllable types, i.e. CV, V, VC, and CVC, and has a special status in the sense that it also has a role in tone and/or stress bearing. According to Kenstowicz (2003), if there is an elision of

vowels, the vocalic nucleus basically relocates on the tone or stress. If there is consonant deletion on the other hand, the missed consonant does not affect the syllable count.

Hence, the constituent parts of a syllable can also be ranked hierarchically according to their significance and sonority: Onset and coda are marginal because they are not syllabic and their omission does not affect the syllable. The vowels are hearts of the syllable without which syllable count, and stress and tone assignment could not be made.

According to Roca and Johnson (1999:243), syllables act as ‘licensors’ of phonetic material. It is possible to draw an analogy with the licensing of humans by the issue of a birth certificate. Without a birth certificate, a person does not officially exist, and in the case of segments the unlicensed segments will simply not be pronounced. The fact that *captain* [kæptɪn] in English means that the [p] and the [n] are both licensed, and consequently they should be part of the syllable and be uttered. For example, since the sound /s/ in the word *island* is not licensed by the first syllable of the word, it should not be uttered.

Many scholars agree that the syllable is a traditional concept. Despite the fact that it has a far reaching history, the syllable was a neglected phonological area to which most generative linguists gave no attention. In Chomsky and Halle (1968), the sound pattern of English (SPE), the concept was not that much emphasized. Nevertheless, there were phonologists who value the relevance of syllable within the framework of generative phonology. Regarding this, Anderson (1969:136) remarks:

The syllable is a traditional, if often ill- or undefined, notion in phonological studies, though it is often mentioned only to be neglected. However, the syllable does not appear to be assigned any systematic status by Chomsky and Halle (...). Whereas, Halliday (1963a, 1963b), for instance, suggests a four term hierarchy of constituents being the syllable ... Lamb (1966) also accords the syllable a place in his phonology.

Mulugeta (2001:15) argues that the role of the syllable in phonological theory has gained importance in recent years. In early generative phonology, it was thought that phonological representation consists of linear strings of segments with no hierarchical organization. While

syllables were given no role in Chomsky and Halle (1968), it became increasingly clear during the 1970's that the syllable was a necessary unit in phonological analysis.

2.2. The constituents of a syllable

The constituents of a syllable of the monosyllabic word *pat*, for example, are displayed in the following structure:

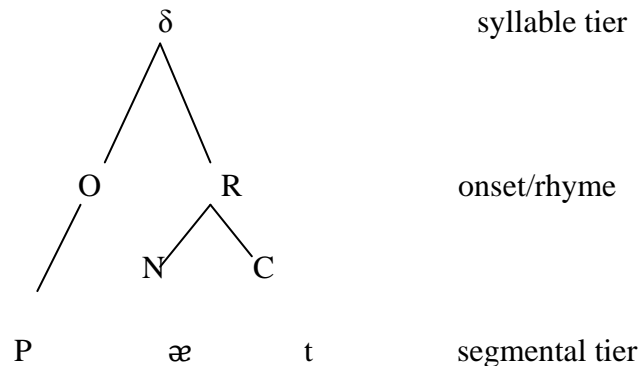


Figure 2: Constituents of the syllable

The above structure shows the enriched syllable structure as it includes all the syllabic sub constituents-onset, rhyme, nucleus and coda.

2.2.1. Ambisyllabic consonants

I think it is better to say something about consonants that are ambisyllabic. A sound is ambisyllabic if it belongs to two syllables at the same time. An ambisyllabic sound is different from a true geminate consonant (long consonant). A geminate consonant counts as two sounds, one in each syllable, and so neither part is ambisyllabic.

2.2.2. Onsets

Onsets are those parts of a syllable that usually occur before the obligatory nucleus. In most languages, there occur sequences of consonants in the onset position in a syllable or a word. The maximal onset principle (MOP) tells the maximum number of consonants in the onset position without any vowel intervention. In moraic representation onset consonants are attached directly to the syllable node. By the principle of OFP (onset first principle), onset formation proceeds

over coda formation. Hence, in representation of syllables in a tree diagram the onset should be projected first from the syllable node.

2.2.3. Codas

Codas are consonant sounds that occur after the nucleus. Likewise the MOP for onsets, there is also a limitation of the number of consonants in the coda. Not all syllables have codas. Thus, open syllables have no coda but closed syllables have a coda. Codas together with the nucleus constitute the rhyme.

2.2.4. Nucleus

The nucleus is the mandatory component of the syllable. It is the heart of the syllable. The nucleus slot in a syllable is usually filled by a vowel. Syllabic consonants (for example, liquids or nasals) can also occupy the nucleus position in a syllable. Nuclei can be complex or simple. For example, a nucleus containing long vowels is more complex than the nucleus with short vowels.

According to Roca and Johnson (1999:250) complex nuclei such as long vowels, are by definition associated with two timing slots. Basically, the syllable structure is built upon a timing tier not on the segments themselves. Hence, long vowels cause mismatch between the normal syllable structure and the timing tier.

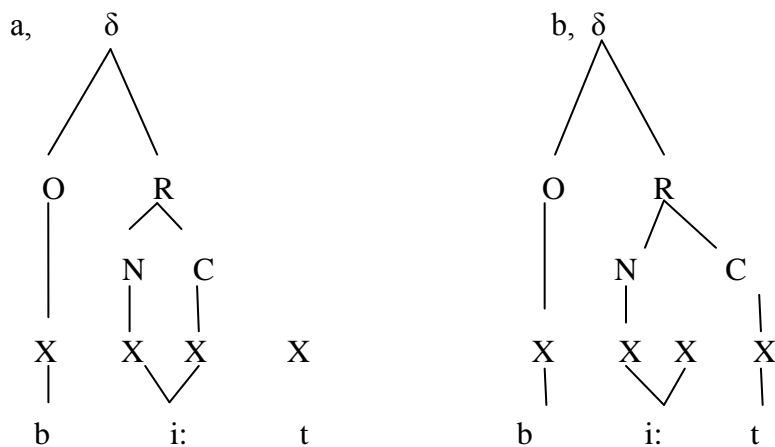


Figure 3: Representation of complex nucleus

The timing slots (the Xs) associate to the syllable constituents from left to right irrespective of the contents of segments. In figure 3(a) above, the second part of the long vowel links to the coda leaving no syllable terminal for the (*t*) to link to. Therefore, figure 3(a) is ill formed and only 3(b) is the correct way that shows how long vowels are represented.

2.3. Motivations for the syllable

Although the syllable had no recognition in SPE, it is an essential concept in the understanding and perception of the phonological structure. The syllable has a paramount importance in the description of any particular language. It is only via the understanding of the syllable that one can best describe and understand the phonology of a language. Regarding this, Kenstowicz (2003:250) states the following:

The three kinds of justifications have been offered for the syllable. First, the syllable is a natural domain for the statement of phonotactic constraints. Second, phonological rules are often made simply and insightfully expressed if they explicitly refer to the syllable. Finally, several phonological processes are best interpreted as methods to ensure that the string of phonological segments is parsable into syllable.

According to Selkirk (1982), the reasons generally given in support of the syllable as a theoretical construct are threefold. First, it can be argued that the most general and explanatory statement of phonotactic constraints can be made by reference to the syllable structure of an utterance. Second, it can be argued that only via the syllable one can give the proper characterization of the domain of application of a wide range of rules of segmental phonology. Third, it can also be argued that an adequate treatment of supra-segmental phenomena such as stress and tone require that segments be grouped into units which are the size of the syllable. Therefore, the syllable has a paramount importance for both linear and non-linear (auto-segmental) phonology.

Clements and Keyser (1983:25) on the other hand argue that a universal theory of a syllable includes certain tasks. They say:

A universal theory of the syllable has, in our view, three specific tasks. First, it must specify well formed expressions of the theory. Thus, it provides an alphabet out of which syllable units are constructed together with a characterization of the permissible arrays of alphabetic units. Second, it must specify parameters along which individual languages vary in their choice of syllable types. Third, it must characterize the class of language particular rules which modify or extend the underlying syllable representations (“syllabification rules”) and state how these rules are integrated into the general organization of the phonological component.

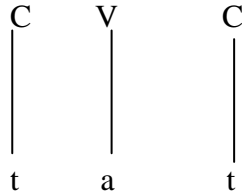
This means that any phonological inquiry about a language should engage the phonologist in the task of identifying the phonemes of that particular language and seeking into the basic syllable shapes in that language. In addition, it should enable the phonologist to look into the phonotactic constraints of a language and the rules for such constraints.

Moreover, the study of the syllable of any language is very important in the study of the general phonology of a language. Fudge (2001) states that the function of the syllable is twofold: first, it can serve to provide basis for distinctive prosodic features. He further, argues that even tone and stress are not directly attributable to syllables; their domains (moras) are related to syllables. Second, syllable functions to account for constraints on phoneme sequences some of which are accounted for by setting up a syllable structure.

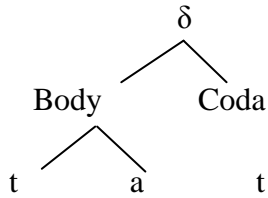
2.4. The representation of the syllable

Blevins (1996:212) proposed the following models for the syllable internal structure.

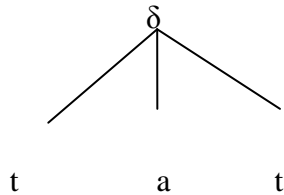
- a) Flat structure, (where the structure does not comprise any constituents but segments themselves)



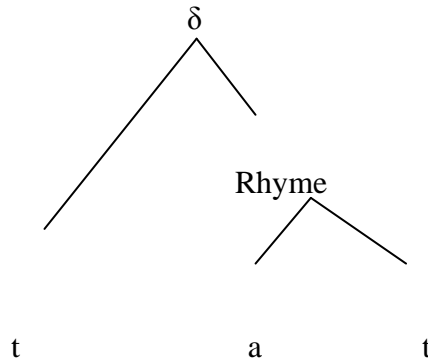
- b) Binary branching with body (where the syllable consists of body and coda, and the body in turn consists of onset and nucleus).



- c) Ternary branching: δ > Onset Nucleus Coda;



Binary branching with rhyme: $\delta > \text{onset Rhyme}; \text{Rhyme} > \text{Nucleus coda}$.



d) Moraic theories; $\delta C\mu(\mu)C$.

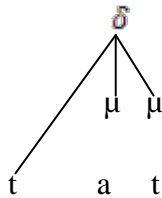


Figure 4: The ways of representing the syllable

2.5. Types of the syllable

Clements and Keyser (1983:28) and Roca and Johnson (1999:243) state that the common syllable types are CV, V, CVC and VC. However, they insisted that the CV is basic and belongs to the grammar of all languages. V, CVC and VC are noncore syllables and show minimal deviation from the core syllable. They also pointed out that they may give other types by the following operations.

Rule 1. Delete syllable initial C

$$CV \longrightarrow V \quad (C \longrightarrow \phi / ___ V)$$

Rule 2. Insert syllable final C (take coda)

$$CV \longrightarrow CVC \quad (\phi \longrightarrow C / V ___)$$

According to Clements and Keyser (1983:28) and Roca and Johnson (1999:245) any language may choose either, both or neither of the above two operations to expand its inventory of the core syllable.

This system would result in the following types of syllables.

Type 1. CV neither of the rules are applied

Type 2. CV.V rule 1 applied

Type 3. CV.CVC rule 2 applied

Type 4. CV, CVC, V, VC both rules are applied

The degree of complexity of each of the four syllable types can be read directly from them. The core syllable is the simplest as it is not subject to any operation. The VC is complex because it requires the application of two rules. CVC and V have intermediate complexity as each of them requires only one operation.

Thus, it is possible to put the degree of complexity of the four syllable types hierarchically as follows: the complexity decreases from left to right.

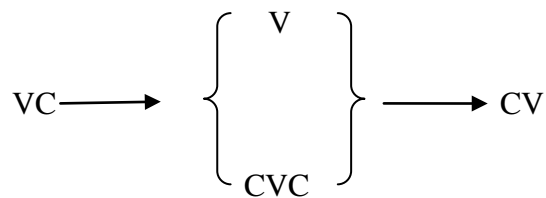


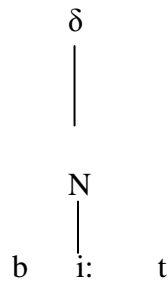
Figure 5. The complexity of the four syllables

2.6. Syllabification

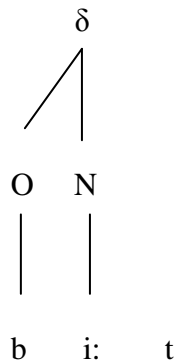
Syllabification is a process by which a word is represented in a tree diagram by connecting segments via association lines to the syllable node.

According to O'Grady and Dobrovolsky (1987:71-73), steps in syllabification are the following:

Step a) “each segment (usually a vowel) makes up the syllable nucleus. To represent this, link a vowel to an N node above by drawing an association line, and then to a δ symbol above the N by drawing another association line”.



Step b) “the longest sequences of consonants to the left of each nucleus that does not violate the phonotactic constraints of the language in question is called the onset of the syllable. Link these consonants to an O and join it to the same syllable as the vowel to the right. Here OFP is applied”.



step c) “any remaining consonants to the right of each nucleus are called the coda and are linked to the C above them. This C is associated with the syllable nucleus to the left”.

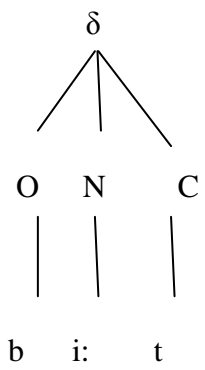


Figure 6: the steps of syllabification

2.7. Moraic theory

Moraic theory attempts to account for phonological processes which refer to constituents that are intermediate between segments and syllables. The motivation for the moraic theory comes from the observation that though 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 segments of each syllable: the moras. Mora count encodes both the opposition between heavy and light syllables, and the equivalence of various types of heavy syllables. Heavy (bimoraic) syllables have two moras but light (monomoraic) syllables contain only one mora.

Hayes (1989:254) argues that the moraic theory has two invaluable significances regarding the syllable. First it encodes the syllable weight: a light syllable has only one mora whereas a heavy syllable has two moras. Second, it represents phonological position used to indicate length. Apart from the differentiation of syllables into heavy and light, moraic theory best represents the syllable because it also accounts for geminates, consonant clusters and other syllable related phenomena like compensatory lengthening or weight by position. He further states that languages differ by which segments they regard as moraic. The phonologically weightless melodic units (onsets) are directly linked to the syllable node.

Raymond (2006:3) states that the fundamental claim of the moraic theory is that the only element intervening between the syllable node and the segmental root node is the mora. The moraic model of the syllable was first formulated in Hyman (1985) and further developed in Hayes (1989). Under this theory, the syllable contains neither an onset nor a rhyme; every syllable contains one or more moras (μ).

According to Hayes (1989), McCarthy and Prince (1986 and 1990), Zec (1998), etc, the central tenet of the moraic theory of a syllable is that the mora serves as a primitive sub-syllabic constraint and a measure of syllable weight.

2.7.1. The Mora

Roca and Johnson (1999:363) state that the term mora traditionally designates a basic unit of classic versification and is also used in the phonological analysis of Japanese. Roca and Johnson further state that moras are conventionally represented by the Greek letter μ (“mu”) [mju] in English.

The notion of mora or weight unit is recognized in virtually every school of linguistics. The concept arose from the study of languages in which two adjacent segments in syllable rhyme may carry different pitches, or in which the position of stress, accent or tone depends on an opposition between light (CV) and heavy (CVV or CVC). Early generative accounts referred informally to the mora; it was not until the 1980's that the mora was proposed as an explicit level of representation.

Raymond (2006:3) and Broselow (1996:189) state that the basic argument for the existence of the mora stems from the observation that syllables in many languages exhibit a weight distinction. Since weight distinction generally ignores onset, it cannot be expressed in terms of the number of segments (consonants and vowels) in a syllable. That is why Hyman (1985) explicitly argues in support of the existence of the mora as a fundamental prosodic unit. Thus, syllable weight can best be described in the light of the mora. In this regard, Kenstowicz (2003:293) says:

First, the key idea is that the mora is not a species of but rather an elementary prosodic unit that, like the syllable, organizes the phonemes in a particular way. Second, the mora is a constituent of the syllable intervening between the (δ) and the phonemic string. Third, what unifies the various heavy syllables is their bimoraic structure; they differ in how the second mora relates to the phonemic string.

The mora is the most appropriate unit for measuring syllable weight or length. If we focus on basic syllable structures, where the maximal rhyme has two slots, then each mora corresponds to a rhyme slot. It is not clear whether the syllable onset is part of a mora. The presence of the onset does not affect how many moras a syllable has.

However, some scholars believe that the onset shares a mora with the nucleus (as, e.g. Hyman 1985) or Roca and Johnson (1999), whereas others believe that the nucleus has a mora for itself. I personally argue that the onset does not share a mora with the nucleus.

2.7.2. Moraic structure

Broselow (1996:189-193) formulated four possible constraints on the pattern of the moraic syllable structure for the realization of the input CV, CVV, CVC and CVVC.

In moraic theory, consonants are associated with an underlying mora in the case of geminates (Traner 1991). Prince (1984) states that the moraic theory views lexical representation of geminate consonants by encoding inherent weight rather than length. Figure 7 below displays how geminates are represented in moraic theory.

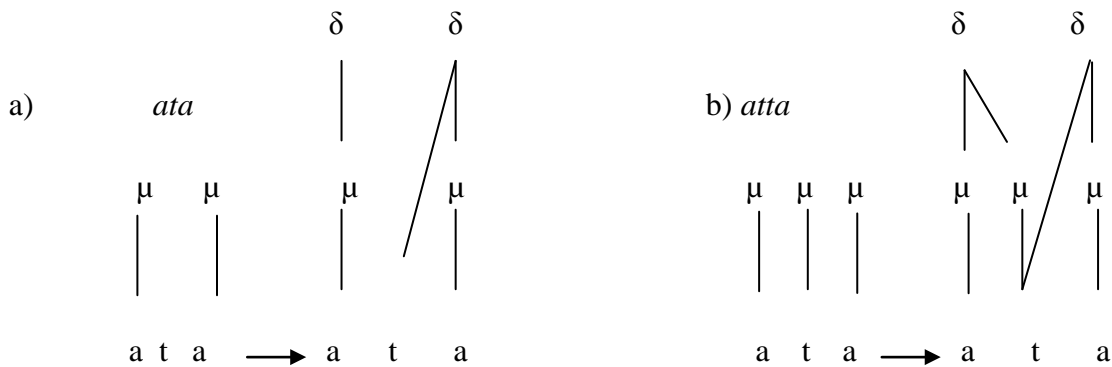


Figure 7: Moraic representation of geminates adopted from Broselow (1996:192)

For languages that treat all types of heavy syllable as equivalent, we can assume that each unit in the syllable rhyme, that is, the first vowel and following segment contributes to a mora. Since the syllable onset seems not to contribute to the syllable weight, it is assumed to have no moraic value. Thus, all syllables describable as CVV or CVC are equivalent in terms of their mora count.

As Roca and Johnson (1999:364) state, in moraic representation, onsets can be incorporated into the syllable in two ways: they are linked to the first mora or directly to the syllable node, without any mora intervention.

Therefore, the representation of the word *gen*, for example, would look like:

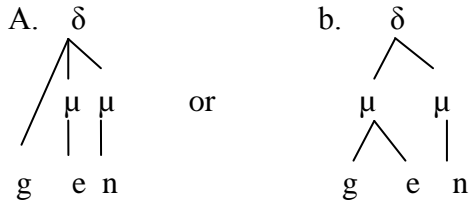


Figure 8: Moraic representation of onsets

For the present study, I choose the structure 7(a) because, in my opinion, it is more likely that the onset does not share the mora with the nucleus. Hence, I will consistently use structure 7(a) for the representation of Kistane onsets.

2.7.3. Syllable quantity and weight in the light of the moraic theory

The notion of weight receives primary theoretical status in the moraic theory (Arcangelli (1989), Hayes (1989)). It is based on the assumption that moraic representations provide a valid reflection of syllable weight oppositions. Linguists have observed that certain phonological processes in many languages distinguish between heavy and light syllables. According to Gordon (2002:51), syllable weight plays an increasingly larger role in more recent phonological theories. Gordon (200) further states that the moraic theory of a syllable has the potential to identify a syllable weight.

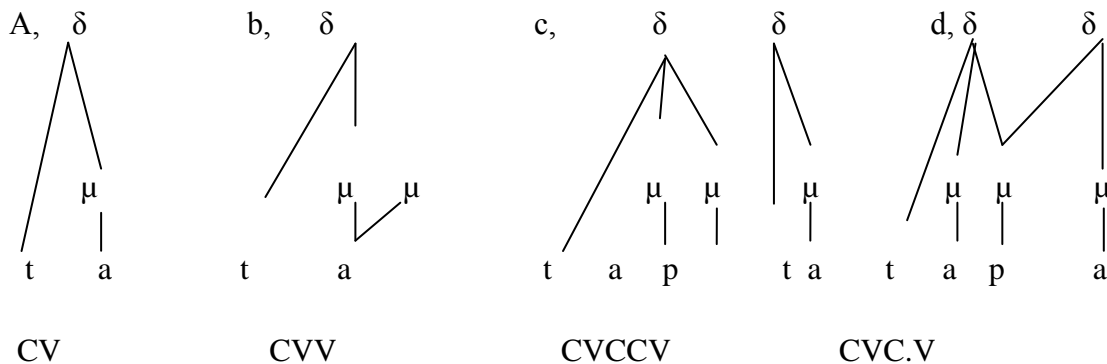
Citing Steriade (1991), Gordon (2002:51) further points out that all segments in the rhyme will be assumed to carry a mora, or in more theory neutral terms, a weight unit reflecting their potential of weight bearing status.

Syllable weight has played an increasingly larger role in more recent phonological theory, as the number of prosodic phenomena argued to instantiate syllable weight has grown to encompass diverse phenomena such as weight sensitive stress, compensatory lengthening reduplication and minimal word requirements, and tone among others. Drawing data from these weight sensitive phenomena, linguists have developed simple yet compelling theories of weight grounded in fundamental concepts such as phonemic length, segmental count, and sonority (Gordon 2002:51).

Syllable weight is a language specific phenomenon. Syllables can be labeled as heavy versus light. Traditionally, it was assumed that a syllable which contains long vowels and diphthongs is heavy whereas a syllable which contains short vowels is light. With the emergence of the mora as a phonological quantity unit, heavy syllables are analyzed as consisting of two quantity units while light syllables have only one.

Sommerstein (1997:203) classifies the weight of the syllable into three types: short, long and over long syllables. A short syllable is a syllable that consists of one mora; a long syllable has two moras and over long syllable contains three moras. By analogy, it is possible to say that short syllables are light, long syllables are heavy and over long syllables are super heavy.

McCarthy and Prince (1986) and Hayes (1989) state that the CV syllable is light whereas CVV, CVC and geminates are heavy in the words *ta*, *taa*, *tapta* and *tappa*, respectively. This is represented as follows:



In the representations above, syllable (a) is light in the sense that it is monomoraic. Whereas, syllables (b), (c) and (d) are heavy as they are bimoraic. In CVV (b), the single vowel spreads into two moras. In (c), the first mora is filled by a vowel and the second mora by a consonant. It is heavy by virtue of being bimoraic. Finally, in (d), the geminate consonant occupies both the coda position in the first syllable and the onset position in the second syllable. The point here is that regardless of whether the syllable is CVC, CVV or contains geminates, it could conventionally be categorized under heavy due to the fact that it is bimoraic.

2.7.4. Additional weight reflections

2.7.4.1. Compensatory lengthening

Compensatory lengthening (hereafter CL) may be defined as the lengthening of a segment to compensate for the loss of another segment in the word. It is the notion of the expansion of one segment due to the loss of another usually adjacent segment. It can be applied for both vowels and consonants.

However, According to Kenstowicz (2003) the most prevalent form of CL involves the loss of a coda consonant with the concomitant lengthening of the adjacent nuclear vowel. At this point, it is quite good to notice that whenever there is a deletion of a coda consonant, the mora remains there. The segmental tier then will be filled by the preceding vowel. Hence, the vowel tends to be long. All in all, the quantitative structure of the syllable remains unchanged though the phonemic expression is changed.

In short, CL preserves the overall prosodic profile of a word or syllable in the face of the loss of a segment. Regarding this, Kenstowicz (2003:295) says:

In survey of compensatory lengthening literature, McCarthy and Prince (1986) and Hayes (1989) report the loss of onset consonant characteristically remains uncompensated by the lengthening of a following (or preceding) vowel. This point is seen clearly in languages where consonants deleted from both onset and coda positions... To the extent that this generalization holds up, it indicates that compensatory lengthening diagnoses syllable weight-the same representation that calculates light versus heavy for stress. The correlation follows if weight is expressed as mora, if onsets do not project as moras, and if CL is conservation of moras under segmental deletion or reshuffling.

Let us look how CL works in Latin. Lloret (1991:151) and Hayes (1989:262) represent the *s* deletion in the Latin words *kasnus* and *kosmis* as follows:

Kasnus → *kaanus* ‘gray’

Kosmis → *koomis* ‘courteous’

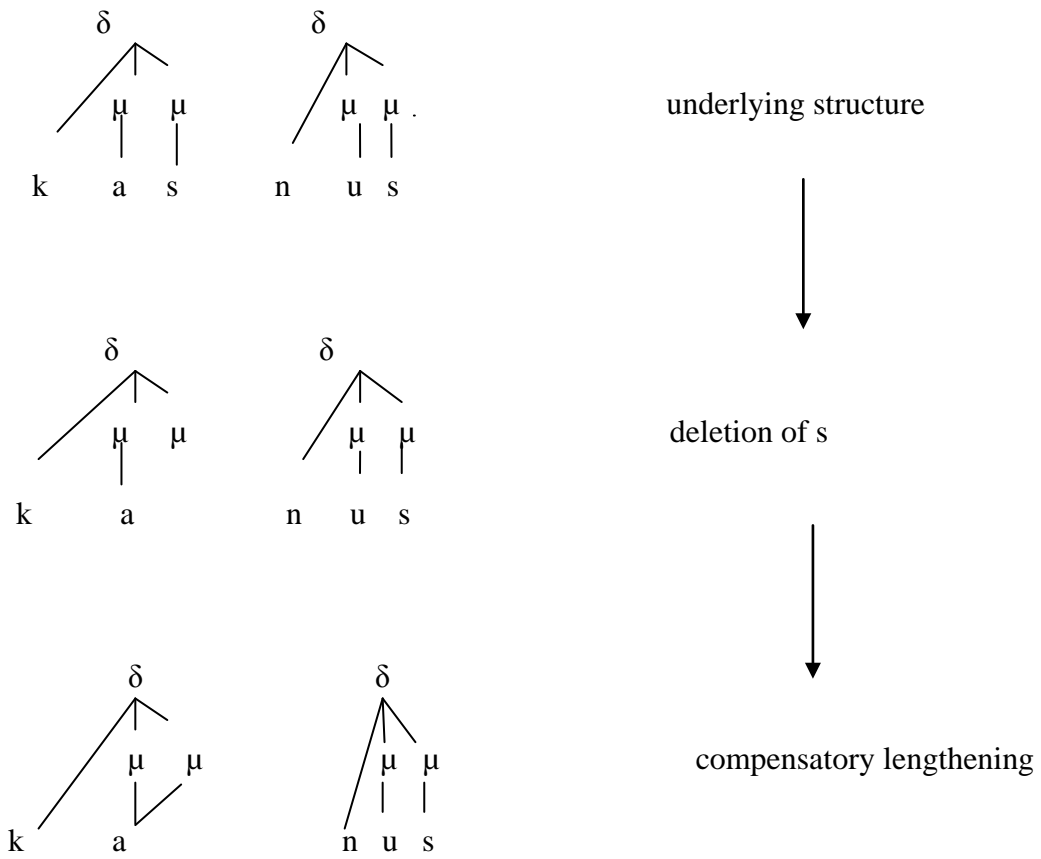


Figure 9: Compensatory lengthening

2.7.4.2. Weight by position

The CVC syllable has been treated as heavy in some languages and light in others. The languages that treat CVC as heavy have a rule of weight by position (WBP). According to Hayes (1989:258) and Rosenthal and Van Der Hulst (1999:499), WBP is a language specific rule formulated to produce syllables with the maximum of two moras. WBP renders CVC syllables heavy in some languages. Hayes (1989:258) claims that coda consonants are assigned a mora when they are adjoined to the syllable, by the following rule schema.

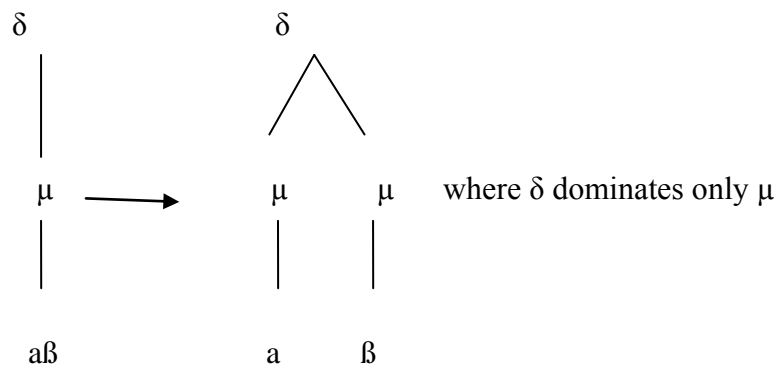


Figure 10: Structure of weight by Position

A weight by position language is a language that assigns a mora to each consonant in the coda position. According to Broselow (1996:189), weight by position is a language specific phenomenon, failing to apply in languages that recognize only syllables with long vowels as heavy, treating CVV and CVC as equivalent.

2.7.5. Pitfalls of the moraic theory

A Theory might be strong in the representation of some aspects of the grammar of a language but weak in the representation of some other aspects of that language. The moraic theory is criticized for its limitation in the following way:

From the very start it was assumed that the moraic theory best describes the weight of the syllable. Hayes (1985) and Kenstowicz (2003) argued that onset consonants do not have a mora and do not bear syllable weight. According to Davis (1999:93), word initial geminate consonants could be moraic in some languages. Davis took the Australian language, Trukese as an example where word initial geminates are treated as moraic. However, it is possible to say that not all initial geminates are moraic. There are cases where a language exhibits that initial geminate consonants are moraic. Regarding this, Davis (1999:51) also argued that Italian initial palatals are best represented as moraic. He also argues that the analysis of word initial geminates of a given language might depend on other factors in the phonology of that particular language. Therefore, the treatment and representation of initial geminates as moraic is one limitation of the moraic theory.

2.7.6. Why moraic theory is chosen in the present study

The moraic theory is selected from other competing theories (CV and X theories) due to the fact that its explanatory adequacy is better than that of other theories for the representation of the syllable and for the determination of the syllable weight. The syllable of a particular language apparently will be represented best in the moraic theory by addressing issues like vowel length, consonant gemination, consonant cluster and compensatory lengthening. Lloret (1991:1652) states that the moraic representation does not only capture the duality of some segments (e.g. long segments) but justifies the phonological processes (e.g. compensatory lengthening) better than other approaches. Therefore, in order to have a good representation of the syllable of Kistane, I preferred to apply the moraic theory.

Chapter three

An overview of the general phonology of Kistane

The main concern of this chapter is the identification and distribution of phonemes and allophones in Kistane. Moreover, the phonotactics and distinctive features are discussed in detail.

3.1. Phonemes and allophones

O'Grady and Dobrovolsky (1987:66-67) state that all human beings commonly share a universal grammar (UG)² that groups phonetically different sounds into one class. This knowledge is basically possessed at the phonemic not at the phonetic level. The predictable phonetic realizations are allophones of a phoneme. Allophones are usually phonetically similar and in complementary distribution. Phonemes, on the other hand, are in the mental lexicon but never uttered. They represent linguistic knowledge.

Any phonological analysis is basically concerned with the discovery of phonemes of a language and looking into their allophones. Thus, my present study starts with the description of Kistane phonemes and their allophonic variants. Before identifying and discussing the phonemes of Kistane, I want to forward a couple of ideas regarding on how to identify a phoneme.

According to O'Grady & Dobrovolsky (1987:67), a phoneme can be identified by stating both phonetic and phonemic (phonological) parameters. Phonetically, a phoneme is a combination of distinctive features. For example, the phoneme /d/ in Kistane is a combination of three features: [+voice], [+stop] and [+anterior]. Phonologically, a sound gets its phoneme status due to its function and distribution. A phoneme usually functions contrastively. As a result, phonemes are responsible for meaning difference between words. For instance, the meaning difference between

² Chomsky (1957) first proposed the idea of UG. UG was considered as a shift in the paradigm because it is based on the assumption that the Language is a structure and based on that structure we can create in infinite set of sentences. It also considers the brain as a clean sheet of paper. Chomsky argues that UG is common on human beings.

Kistane [t'ɨə] 'fight' and [t'ɨrə] 'call!' results due to the significant difference between the consonants /l/ and /r/. Thus, minimal pairs are one way to scrutinize whether a sound is a phoneme, as the above words. Minimal pairs are pairs of words that are identical except for one segment which brings about the difference in meaning. This difference may occur at word beginning, at the middle of a word or at word ending. The other phonological basis to identify phonemes is their pattern of occurrence in a word. Phonemes are ultimately expected to occur at all positions in a word but allophones do not. However, a phoneme may not usually occur at all positions. There might be language specific exceptions and historical accidents that may restrict phonemes to occur at a fixed position. One important thing I want to mention here is that a phoneme in one language may be an allophone in another language.

Having this general information about phonemes as background, I will now identify and describe the Kistane phonemes and their allophonic distribution.

3.2. Kistane phonemes

Regarding the Kistane phonemes the works of the following scholars are examined: Goldenberg (1965:66-68) in his discussion of Kistane phonemes states that the language has twenty six consonant phonemes. Leslau (1968:6) also states that Kistane has twenty six consonant phonemes. Leslau includes the [κ^w], [g^w] and [κ'^w] in the inventory of phonemes, but he excludes [f^w] and [m^w] even though he used them in his phonetic transcription. However, the present study regards these sounds as allophonic variants of their respective non-labialized phonemes. The labialized consonants do not contrast with their non-labialized counterparts. Further, labialized consonants usually occur before back vowels, i.e. their occurrence is predictable.

Therefore, Kistane has only a total of thirty phonemes of which 23 are consonants and the remaining seven are vowels. The consonant phonemes are grouped into stops, fricatives, affricates, nasals, liquids and glides by their manner of articulation and into bilabials, labio-dentals, alveolars, alveo-palatals, palatals, velars and glottals by their place of articulation. Kistane vowels are grouped into high, mid and low by the height of tongue, and into front, center and back by the part of the tongue involved in their production.

3.2.1. Kistane consonants

Table 1: Phoneme inventory in Kistane

place → manner ↓	Bilabial	Labio- Dental	Alveolar	Alveo- palatal	palatal	Velar	Glottal
VI stops vd ej	b		t d t'			k g k'	
VI fricatives vd ej		f	s z	ʃ ʒ			h
VI Affricates vd ej				tʃ dʒ tʃ'			
Nasals	m		n			ŋ	
Liquids trill			r				
Lateral			l				
Glides	w				j		

Kistane reveals the production of such sounds as [p] in *polis* ‘policeman’, [tʰ] in *tʰəbəl* ‘holy water’, [pʰ] in *pʰawlos* ‘a Christian name’ and [ʔ] in [wəʔab] ‘to give’. Since three sounds occur in borrowed words, they can be replaced by the Kistane phonemes /b/, /tʰ/ and /bʰ/, respectively, i.e. *bolis*, *tʰəbəl* and *bawlos*. Therefore, these sounds are not regarded as phonemes in the present study. However, the case with [ʔ] is different. This sound is phonetically realized in Kistane. But the question lies on whether this sound is a phoneme or not. This sound is realized in Kistane words such as [wəʔab] ‘to give’ and [wəʔandid] ‘to burn’. The morpheme [wə-] in Kistane marks the verbal noun.

When [wə-] is attached to different bases, it results in different forms.

Past	Gloss	Verbal noun	Gloss
atənnənəm	'he made to smoke'	wəʔatnin	'to make to smoke'
abəm	'he gave'	wəʔab	'to give'
κ'ot't'ərəm	'he counted'	wəκ'ut'ɪr	'to count'

Table 2: Kistane data on the formation of verbal noun

As the data in table 2 manifests, there occurs no change when [wə-] is added to stems that begin with consonants. However, [ʔ] is inserted to the stems that begin with vowels. The glottal stop [ʔ] occurs because Kistane does not allow a sequence of vowels. Therefore, [ʔ], as I understand, serves to break the impermissible sequence of vowel phonemes. In addition, this sound is realized in the word [t'ɪʔur] 'black'. However, there are no minimal pairs that show [ʔ] creating meaning difference. So, I regarded the glottal stop as an allophone rather than a phoneme. The following are the consonant phonemes of Kistane:

- Kistane plosives are /b/, /t/, /d/, /t'/, /k/, /g/, and /k'/. The bilabial and velar stops have the allophonic counterparts: [β], [κ^w], [g^w] and [κ'^w] including [ʔ].
- Fricative sounds of Kistane are /f/, /s/, /z/, /ʃ/, /ʒ/ and /h/, none of which has an allophone.
- Affricates in Kistane are three in number. These include /tʃ/, /dʒ/ and /tʃ'/. Affricates in Kistane do not have allophones.
- Kistane nasals are /m/, [m̥], /n/, [n̥] and /ɲ/ of which [m̥] and [n̥] are allophones of /m/ and /n/ respectively (please see page 43).
- Liquids in Kistane are two in number: the lateral liquid /l/ and the trill /r/.
- Finally, Kistane also has two glides: /w/ and /j/.

The following table shows the phonetically realized sounds of Kistane.

place → manner ↓	Bilabial	Labio- dental	Alveolar	Alveo- palatal	Palatal	Velar	Glottal
Stops VI vd Ej	[p] b [pʼ]		t d dʼ			κ [κ ^w] g [g ^w] κʼ [κʼ ^w]	[ʔ]
fricatives VI vd ej	[β]	f	s z	ʃ ʒ [tsʼ]			h
Affricates VI vd ej				tʃ dʒ tʃʼ			
Nasals	m	[m]	n		ɲ	[ŋ]	
Liquids trill Lateral			r l				
Glides	w				j		

Table 3: Phonetic chart of Kistane consonants

3.2.2. The description and distribution of Kistane consonant phonemes

In this section, I presented the description and distribution of Kistane consonants. I used the cross hatch (#) to show the occurrence of phonemes in a word. As such, # means word boundary, #- means word initial position, #-# means word medial position and -# means word final position. The description of consonants is based on their voicing state, manner of articulation and place of articulation. Note that the airstream mechanism is added to describe Kistane ejectives.

3.2.2.1. Plosives

The Kistane plosives occur in all positions. Regarding the allophones, [ɸ^w], [g^w] and [k^w] are labialized allophones. The glottal stop [ʔ] is used to break vowel sequence and it is realized only in the word *t'ɪʔur* 'black'.

Examples:

1. /b/ voiced, bilabial, stop,

#-	bɪʒʒɪta	'straight, correct'
	bərr	'door'
#-#	gɪbbot	'liver'
	abe	'give me'
-#	səb	'man'
	koʔəb	'star'

2. /t/ voiceless, alveolar, stop

#-	tɪlə	'worm'
	tɪrə	'call!'
#-#	nəttam	'he rub'
	məttam	'he bit'

-#	kuʃat	‘fear’
	at’əbət	‘finger’

3. /d/ voiced, alveolar, stop

#-	dɪbɪr	‘forest’
	dərrak’k’a	‘moon’
#-#	wədək’	‘to laugh’
	adəbɪl	‘not’
-#	aməd	‘ash’
	gərəd	‘girl’

4. /t’/ voiced, alveolar, stop, ejective

#-	t’ɪlə	‘fight’
	t’ɪʔur	‘black’
#-#	wət’ub	‘to suck’
	at’aj	‘sheep’
-#	wərrət’	‘to cut’
	ɪrgət’	‘dance’

5. /k/ voiceless, velar, stop

#-	kla	‘go away!’
	k ^w uja	‘twenty’
#-#	wəkɪr	‘to dig’

6. /g/ voiced, velar, stop

#-	goga	‘skin’
	gunnən	‘head, hair’

#-#	wəggəd	‘to tie’
	aŋgət	‘neck’
-#	t’əgg	‘calf’
7. /k’/ voiced, velar, stop, ejective		
#-	k’əŋŋə	‘right’
	k’ɪnan	‘day’
#-#	wək’k’am	‘he hit’
	aŋk’o	‘egg’
-#	dak’	‘laugh’
	balɪk’	‘old man’

3.2.2.2. Fricatives

All fricatives in Kistane occur in all positions. Regarding the fricative allophones, [β] occurs either intervocalically or word finally after a vowel like əβaβ ‘snake’.

Examples;

8. /f/ voiceless, labio-dental, fricative		
#-	fulə	‘back’
#-#	aŋfuna	‘nose’
-#	wəsɪf	‘to sew’
	gəllɪf	‘long’
9. /s/ voiceless, alveolar, fricative		
#-	səffam	‘he sew’
#-#	bəsər	‘meat’
	tɪməstɪl	‘that does not seem’
-#	mɪss	‘husband’

maləʂ 'small'

10. /z/ voiced, alveolar, fricative

#- zɪ 'this'

zɪnab 'rain'

#-# gɪzət 'animal'

ɪnzɪn 'ear'

-# gurz 'old'

wəʒz 'to hold'

11. /ʃ/ voiceless, palato-alveolar, fricative

#- ʃəm 'he looked for'

ʃaləm 'he knew'

#-# bɪʃʃa 'red'

wəʃal 'to know'

-# dəʃ 'you.SG.F'

12. /ʒ/ voiced, palato-alveolar, fricative

#- ʒagba 'a pounding tool'

#-# bɪʒə 'wide'

-# wəʒaʒʒ 'to see'

13. /h/ voiceless, glottal, fricative

#- honə 'it is'

hajk' 'lake'

#-# dəhma 'you. PL. F'

bəhon 'if I was'

-# gul+h 'clear'

3.2.2.3. Affricates

Among Kistane fricatives, /tʃ/ never occurs at the word-initial and -final position. However, /dʒ/ and /tʃ'/ appear in all positions.

Examples;

14. /tʃ/ voiceless, palate-alveolar, affricate

#-	Ø	
#-#	mətʃə	'when'
	kuʃat	'fear'
-#	Ø	

15. /dʒ/ voiced, palate-alveolar, affricate

#-	dʒɪlɪl	'small house'
#-#	adʒdʒɪs	'new'
-#	wəwadʒ	'to buy'

16. /tʃ'/ voiced, palate-alveolar, affricate, ejective

#-	tʃ'ota	'play'
	tʃ'umməm	'very fat'
#-#	ma tʃ'a	'stick'
	ɪn' tʃ ə	'wood'
-#	wəmətʃ'tʃ'	'to was'

3.2.2.4. Nasals

The Kistane nasals /m/ and /n/ occur in all positions. /ŋ/ never appears at the initial position. [ŋ] is realized in Kistane only before /k/, /g/, and /k'/. The voiced labio-dental, nasal [m] usually occurs in the environment where it is directly followed by /f/ like in the word *aŋfunna* ‘nose’.

Examples;

17. /m/ voiced, bilabial, nasal

#-	mɨdɨr	‘earth’
	maləkʰ	‘big’
#-#	ambo	‘knee’
	aləmət	‘tongue’
-#	atʰim	‘bone’

18. /n/ voiced, alveolar, nasal

#-	nətʃʰtʃʰə	‘white’
#-#	sutnət	‘smell’
	ɨnʃʃɨtta	‘women’
-#	tən	‘smoke’

19. /ŋ/ voiced, palatal, nasal

#-	Ø	
#-#	mɨŋnət	‘sleep’
	kʰəŋnə	‘right’
-#	tɨlabəŋŋ	‘yesterday’

3.2.2.5. Liquids

Kistane liquids can appear in all positions. However, /r/ does not appear at the beginning of a word.

Examples;

20. /l/ voiced, alveolar, lateral liquid

#-	lɨbb	'heart'
	lela	'another'
#-#	gubɪla	'fog'
-#	k'ɨmal	'louse'
	k'əl	'few'

21. /r/ voiced, alveolar, trill

#-	Ø	
#-#	arət	'four'
	kɪrrəm	'he dug'
-#	tʃ'əbər	'sun'

3.2.2.6. Glides

Glides in Kistane occur in all positions; /w/ does not appear at the word ending. Glides also occur before or after vowels.

Examples;

22. /w/ voiced, bilabial, glide

#-	wussa	'dog'
	wət'ub	'to suck'
#-#	wəwk'a	'to bite'
	wərəwwərəm	'he throw'
-#	Ø	

23. /j/ voiced, palatal, glide

#-	jɨga	‘water’
#-#	ɨmmajjə	‘stone’
-#	səmaj	‘sky’
	wawjjɪ	‘to cry’

3.2.3. Consonant Gemination

Kistane is characterized by consonant germination. All Kistane consonants with the exception of /h/ can be geminated. Kistane geminates do not occur at word-initial position but only word-medially and word-finally. Gemination in Kistane is phonemic. A sequence of geminates is also allowed in Kistane.

Examples:

24. gošš ‘buffalo’

25. goš ‘boy’

26. ɨmmajjə ‘stone’

27. ɨmajjə ‘uncle’

3.2.4. Kistane vowels

With respect to Kistane vowel phonemes, Goldenberg (1965:66-67) states that the language has six vowel phonemes. He excludes the vowel /ɨ/ from his inventory of vowels. According to Goldenberg, /ɨ/ is only the manifestation of syllabic positions of consonants in the absence of vowels.

Leslau (1968:8) regards the vowel /ɨ/ as a phoneme, and yet doubts its final occurrence. But, he does not provide examples of contrasting pairs. Tesfaye (1986) also considers the /ɨ/ as non-phonemic. Tesfaye says that the occurrences of /ɨ/ are predictable. It is used to break two-term initial clusters and three-term other clusters at the level of phonetic representation.

The present study considers the phonemicalization of the vowel /ɨ/. Like Leslau (1968) I doubt its final position. In contrast to Leslau (1968), I provide examples that show that the /ɨ/ is contrasting. For example, the /ɨ/ contrasts with /a/ in the words *sɨr* ‘root’ and *sar* ‘grass’.

As Clements (2000) states, Typologically, African languages are grouped into three: Three vowel system, five vowel system and seven vowel system. Most of the Ethiopian Semitic languages join the third group. The reality in Kistane is that it has seven vowel phonemes.

The vowel phonemes in Kistane are /ɪ/, /a/, /e/, /u/, /o/, /ə/ and /ɨ/.

3.2.5. The description and distribution of Kistane vowels

Three things should be considered to classify and describe the vowel phonemes of Kistane: the height of the tongue, the part of the tongue involved and the condition of lips. So by convention, Kistane has high, mid and low vowels by the height of tongue, and front, centre and back vowels by the part of the tongue involved. Kistane vowels are also labeled as rounded and/or unrounded by the condition of the lips. As such, the Kistane Vowel /ɨ/ for example can be described as high, center, center, unrounded Vowel.

The following table displays the vowels of Kistane.

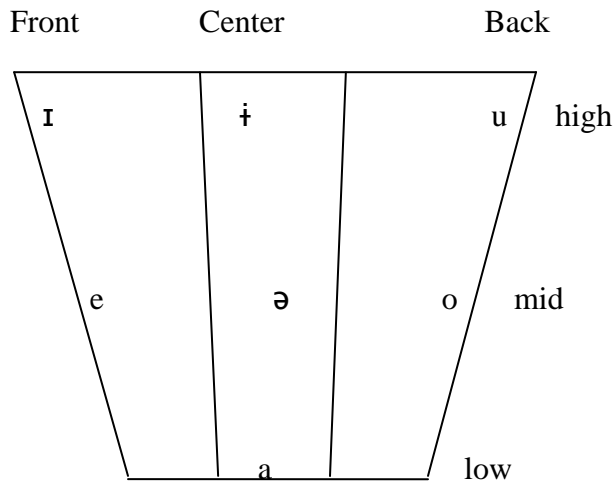


Table 4: The vowels phonemes of Kistane

Kistane vowels are described in the following way:

1. /ɪ/ high, front, unrounded vowel which does not occur at the word-initial position.

Examples: #- Ø
 #-# adʒdʒis ‘new’
 -# zi ‘this’

2. /u/ high, back, rounded vowel, occurs at the word-initial and final positions.

Examples: #- Ø
 #-# muk’ət ‘hotness’
 -# kulɪmmu ‘all’

3. /e/ mid, front, unrounded vowel, does not appear at the beginning of a word.

Examples: #- Ø
 #-# zega ‘poor’
 #- arde ‘adult man’

4. /ə/ mid, central, unrounded vowel appears in all positions.

Examples: #- ədɪ 'I'
 #-# dəhə 'you.SG.M)
 -# bɪzə 'wide'

5. /a/ low, mid, unrounded vowel appears in all positions.

Examples: #- att 'one'
 #-# aɱʃat 'breath'
 -# kla 'go away'

6. /o/ mid, back, rounded vowel (does not occur at the beginning of a word)

Examples: #- Ø
 #-# goga 'skin'
 -# assəbo 'salt'

7. /ɨ/ high, center, center unrounded vowel, and it does not appear at the word ending.

Examples: #- ɨjn 'eye'
 #-# aɱɨst 'five'
 -# Ø

3.3. Minimal and nearly minimal pairs

The following minimal pairs are identified which show the phonemic status of respective sounds.

1. /d/ and /h/ dərə 'dry'
 dəhə 'you.SG.M'

2. /ʃ/ and /t/ aʃ 'mouth'
 att 'one'

3. /b/ and /z/ abɪ 'father'
 azɪ 'that'

4. /m/ and /f/	dəm	‘blood’
	dəf	‘you.SG.F’
5. /kʰ/ and /s/	maləkʰ	‘big’
	maləs	‘small’
6. /m/ and /n/	amat	‘relative’
	anat	‘top of the head’
7. /l/ and /r/	bəllam	‘he ate’
	bərram	‘it is light(v)’
8. /tʰ/ and /r/	motsʰə	‘road, way’
	morə	‘near, beside’
9. /n/, /m/ and /r/	sɪn	‘teeth’
	sɪm	‘name’
	sɪr	‘root’
10. /m/, /b/ and /f/	mulə	‘full’
	bulə	‘short’
	fulə	‘back’
11. /kʰ/ and /b/	kərr	‘horn’
	bərr	‘door’
12. /ɪ/ and /e/	abɪ	‘father’
	abe	‘give me!’
13. /o/ and /u/	tʰom	‘a fast’(n)
	tʰum	‘fast!’(v)
14. /a/ and /ə/	amat	‘relative’

	amət	‘year’
15. /ə/ and /e/	worə	‘month’
	wore	‘news’
16. /ɨ/ and /a/	sɨr	‘root’
	sar	‘grass’
17. /ɨ/ and /ə/	sɨb	‘fat’
	səb	‘man’

The following nearly minimal pairs also occurred:

17. mətʃə	‘when’
mɔʃə	‘road, way’
18. wəsɪʃ	‘to sew’
wələʃ	‘to walk’

3.4. Kistane phonotactics

Phonotactics in any language deals with the permissible and impermissible sequences of sounds at the word-initial, word-medial and word-final positions. Vowel sequences are not allowed in Kistane. However, vowels apparently can be preceded or followed by a semivowel. For example, in the word *wussa*, /w/ precedes the vowel /u/. In Kistane, back and front vowels do not appear at the beginning of a word. The central vowels only appear at the beginning of a word.

Here, I need to put the sonority scale of Kistane consonants. According to Roca and Johnson (1999), sonority means having more sound (*sonus* means ‘sound’ in Latin). The obvious implication is that some sounds have more sound than others. The arrangement of segments within the syllable is therefore in such a way that the sonority goes from less sonorous sounds to more sonorous sounds. Cluster does not need to affect the sonority. A cluster should be a sequence of less sonorous sounds and more sonorous sounds respectively. According to Blevins (1996:210-211), the relationship between syllables and sonority is one that has been recognized for a century or more.

Blevins proposed a working universal sonority scale which is presented hereunder.

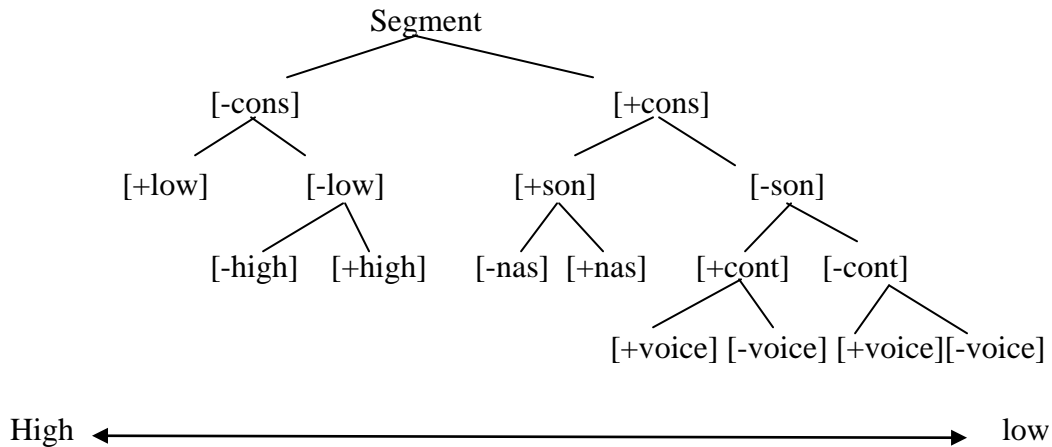


Figure 11: Universal sonority scale

The above figure shows a universal sonority scale where for each node, the left branch is more sonorous than the right branch. Hence, vowels are more sonorous but voiceless stops are less sonorous.

In Kistane, a sequence of two consonants is not allowed at the word initial position. In other words, the phonotactics constraints of the language do not permit a cluster of consonants at the word beginning. However, there are cases where stops can be followed by a liquid as in [kla] ‘go away!’. In this case, an epenthetic vowel can be optionally inserted. Thus, [kɪla] can be used optionally.

On the other hand, a consonant cluster is allowed at the word medial or final positions in Kistane. Medial and final clusters can be made up of two consonants.

Hence, the following section demonstrates the permissible and impermissible sequences at the word -medial and -final positions respectively. Note that the sequences are given a [±] value where the [+] means the sequence is permitted and the [-] means it is not the case.

3.4.1. Medial clusters

	b	t	d	t'	κ	g	κ'	f	s	z	ʃ	ʒ	h	tʃ	dʒ	tʃ'	m	n	ɲ	l	r	w	J
b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-
t	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	+	+	+	-	+	-	+	-
d	-	-	-	-	-	-	+	-	+	-	+	-	-	+	-	-	-	-	-	+	+	-	-
t'	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
κ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
g	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
κ'	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
f	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
s	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	-	-	+	-	+	-
z	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ʃ	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
ʒ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
h	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
tʃ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dʒ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
tʃ'	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
m	+	-	-	-	-	-	-	+	+	-	-	-	-	-	-	+	-	+	-	-	-	+	-
n	+	+	+	+	+	+	+	+	+	+	+	-	-	-	-	+	-	-	-	+	-	-	-
ɲ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
l	+	+	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	-	-	-	+	+	-
r	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
w	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
j	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 5: Medial cluster of Kistane consonants

Table 5 displays the medial clusters of Kistane consonants where the rows show the first member of the cluster and the columns show the second member in the cluster. As such, of the Kistane consonants, only /n/ has a wider distribution. Consonants such as /t'/, /k'/, /z/, /ʃ/, /dʒ/, /tʃ/ and /j/ do not appear as a first member in a cluster. On the other hand, /dʒ/, /ʃ/ and /h/ are never the second member in a cluster.

3.4.2. Final clusters

	b	t	d	t'	κ	g	κ'	f	s	z	ʃ	ʒ	h	tʃ	dʒ	tʃ'	m	n	ɲ	l	r	w	J
b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	+	-	+	-	+
t'	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
κ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
g	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
κ'	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
f	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
s	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
z	-	+	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	+	-	+	-	-	+
ʃ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ʒ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
h	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
tʃ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dʒ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
tʃ'	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	+	-	-	+
m	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	+	-	-	+	-	-
n	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ɲ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

l	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
r	-	-	+	-	-	-	-	-	+	+	-	-	-	-	-	-	+	-	-	-	-	-	+
w	-	-	+	-	-	-	-	+	+	-	-	-	-	-	+	-	-	+	-	-	+	-	+
j	-	-	-	-	-	-	+	-	-	+	-	-	-	-	+	-	-	+	-	-	-	-	-

Table 6: Final clusters

As shown in table 6, /w/ and /tʃ/ never occur as a second segment at word -final cluster. However, these sounds can appear as a preceding sound in final clusters. On the other hand, most consonants could not form a cluster at the word final position. these includes, /tʰk/, /z/, /ʒ/, /ʃ/, /h/, /tʃ/ and /ŋ/.

Chapter four

The syllable of Kistane

This chapter particularly addresses the syllable and syllable related issues in Kistane. The syllable structure, the syllable constituent parts, syllabification and syllable weight distinction in Kistane are briefly discussed and examined. Besides, the moraic representation of monosyllabic, disyllabic and polysyllabic words in Kistane is discussed in detail. Moreover, representation of geminates and consonant clusters is discussed. Furthermore, issues like weight by position are explained.

4.1. Syllable and syllabification in Kistane

Like the syllables of world languages, the syllable of Kistane chiefly builds on the obligatory component (vowel) and other marginal elements. The syllable of Kistane has the following constituent parts: nucleus, coda, and onset. The language has both closed and open syllables. Closed syllables do not have codas while open syllables do. By MOP, the phonotactics of the language does not allow a sequence of two consonants at the onset position. However, there are cases where two consonants do appear in the onset position and hence an epenthetic vowel can be inserted. On the other hand, the MCP of the language allows sequences of two consonants at the coda position. The syllabic constituent parts of the Kistane monosyllabic word *tən* 'smoke' are represented as follows:

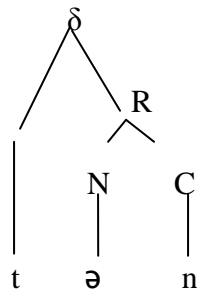


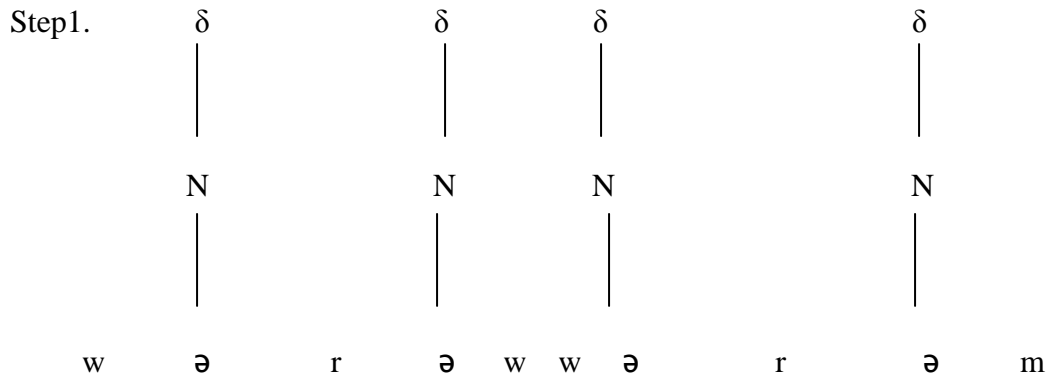
Figure 12. The syllable internal structure of the word /tən/ 'smoke'

The above structure is a universal template of a syllable structure. The monosyllabic Kistane word /tən/ is represented containing an obligatory element –nucleus and marginal elements – onset and coda. The syllable is a hierarchical representation of elements. That is why nucleus and coda together form the Rhyme that intervenes between them and the syllable node. So, the syllable directly dominates the onset and the rhyme, then, the rhyme by hierarchy dominates the nucleus and the coda.

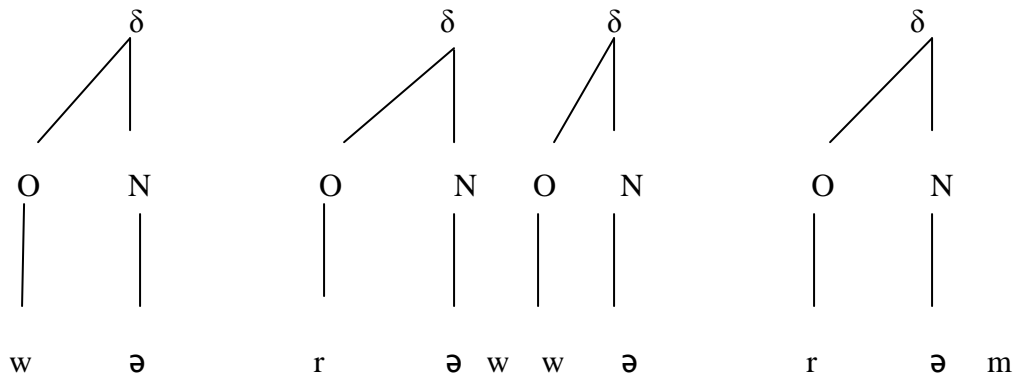
4.2. Syllabification in Kistane

The skill of syllabification is naturally given to speakers of a language. In a casual speech, speakers usually segment disyllabic and polysyllabic words into smaller chunks by having a pause at the end of each syllable. Structurally, syllabification involves the segmentation of a word by attaching its segments into a syllabic position by means of association lines. As I mentioned in chapter two, O’Grady and Dobrovolsky (1987:71) proposed a universal procedure how to syllabify a word.

Adopting this procedure, hereunder, I represented the polysyllabic Kistane word *wərəwwərəm* ‘he threw’.



Step 2.



Step 3.

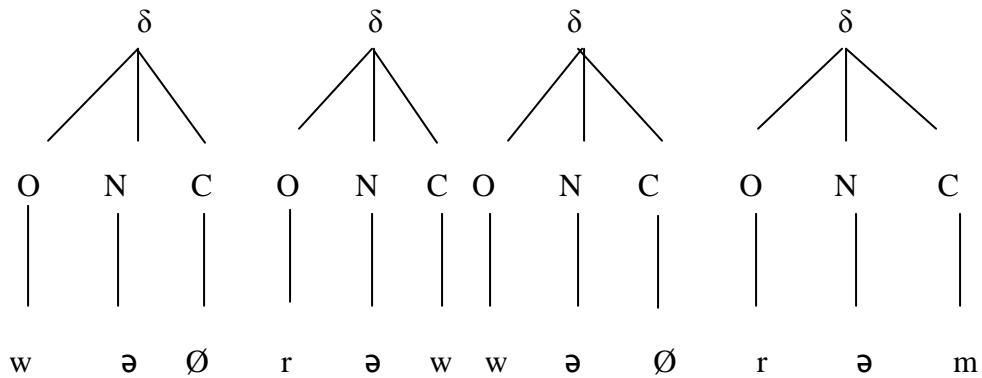


Diagram 13. Syllabification of the Kistane word /wərəwwərəm/

When a geminate appears being as an onset of the first syllable and as a coda of the second syllable, the first part of the geminate should be the coda of the first syllable and the second part of the geminate goes to the onset of the following syllable. The word *wərəwwərəm* ‘he threw’ has a geminate consonant /ww/. Hence, the correct representation of this geminate is *wərəw.wərəm* rather than *wərə.wwərəm*. This time, the MOP is satisfied.

4.3. Types of Kistane syllables

The syllables of Kistane are classified as open vs. closed, heavy vs. light and monosyllabic, disyllabic and polysyllabic.

4.3.1. Open vs. closed syllables in Kistane

Closed and open syllables are distinguished in terms of having a coda consonant or not. Syllables that contain a terminal element(s) are closed whereas syllables that do not have a terminal element are said to be open. With this regard, Carr (2008:17) argues that an open syllable ends in a vowel, whereas a closed syllable is checked or attested by a consonant or a consonant cluster. Thus, onsets are irrelevant in the determination of syllables into open vs. closed. The point here is that regardless of whether a syllable contains a simple or complex nucleus and/or coda, it is open if it ends in a vowel, but, closed if it ends in a consonant.

The following diagram represents the aforementioned explanation with examples from Kistane.

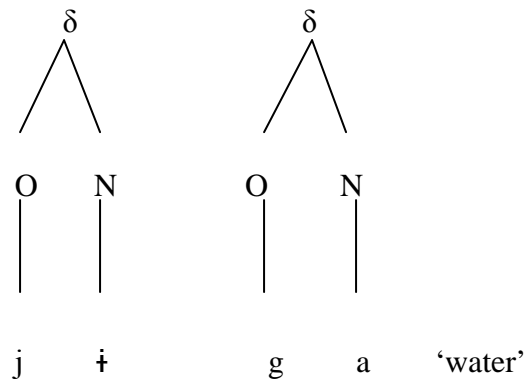


Diagram 14. Syllable internal structure of open syllables in Kistane

The above diagram depicts the syllable internal structure of the Kistane word *jɨga* 'water'. Both syllables end in a vowel. In other words, both of them are CV. But, it does not mean that all open syllables are CV syllables. V and CVV syllables are also examples of an open syllable.

On the contrary, closed syllables, as shown in the following diagram, end with a coda. Thus, CVC, CVCC, VC and VCC are closed syllables. The Kistane word *gurz* 'old' is represented as follows:

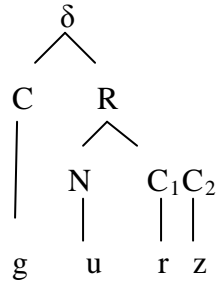


Diagram 15. The syllable internal structure of closed syllable in Kistane

4.3.2. Monosyllabic, disyllabic and polysyllabic words in Kistane

Kistane words are also grouped into monosyllabic, disyllabic and polysyllabic. This distinction is based on the number of syllables per word. Hence, monosyllabic words have only one syllable, disyllabic words have two syllables, and polysyllabic words contain more than two syllables.

4.3.2.1. Monosyllables

Kistane has five monosyllabic shapes. These include the open syllable CV and the closed syllables VC, VCC, CVC and CVCC³.

Examples:

CV	<i>zɪ</i> ‘this’
	<i>tə</i> ‘and’
VC	<i>ab</i> ‘gift’
VCC	<i>ədʒdʒ</i> ‘hand’
	<i>att</i> ‘one’
CVC	<i>goj</i> ‘with’
	<i>k’əl</i> ‘few’
CVCC	<i>hajk</i> ‘lake’
	<i>dərs</i> ‘song’

³ CC is either a geminate or a consonant cluster.

4.3.2.2. Disyllables

The following are the possible disyllabic shapes of Kistane words.

Examples:

V.CV *a.bɪ* ‘father’

ə.dɪ ‘I’

V.CVC *ʔ.ruk* ‘far’

ə.sat ‘fire’

V.CVCC *a.mist* ‘five’

VC.CV *am.bo* ‘knee’

aŋ.k'o ‘egg’

VC.CVC *ʔ.zʔ* ‘ear’

aŋ.fat ‘breath’

CV.CV *ma.tʃa* ‘stick’

mu.lə ‘full’

ʃu.lə ‘back’

CV.CVC *ma.lək* ‘big,heavy’

t'ʔɪr ‘black’

CVC.CV *wuʃ.t'a* ‘inside’

dəh.ma 'you.PL.F'

CVC.CVC *sut.nət* 'smell'

mɨj.kom 'how'

CVC.CVCC *wəm.mətʂ'tʂ* 'to wash'

CVCC.CVC *wəmb.bɨr* 'to live'

4.3.2.3. Polysyllables

Kistane has also polysyllabic words of which some are derived. The following list shows the possible syllable shapes of Kistane polysyllabic words. The maximum number of syllables in Kistane polysyllabic words is four.

Examples:

V.CV.CV	<i>a.βə.βa</i> ‘flower’
V.CV.CVC	<i>a.lə.mət</i> ‘tongue’
VC.CV.CV	<i>at.bal.la</i> ‘get it eaten’
VC.CV.CVC	<i>al.də.bəl</i> ‘otherwise’
VC.CVC.CV	<i>aŋ.fun.na</i> ‘nose’
CV.CV.CV	<i>gə.gə.ra</i> ‘mountain’
CV.CV.CV.CV	<i>fɪ.ra.fɪ.re</i> ‘fruit’
CV.CV.CVC	<i>wə.k’u.t’fɪr</i> ‘to count’
CV.CVC.CV	<i>t’fɪ.buj.jə</i> ‘breast’
CVC.CV.CV	<i>dər.ra.k’a</i> ‘moon’
CVC.CV.CVC	<i>bər.rə.rəm</i> ‘he run’
CVC.CVC.CV	<i>k’of.faf.fə</i> ‘dirty’
CVC.CVC.CVC.CVC	<i>tətʃ.faf.fə.rəm</i> ‘it is scratched’

CVC.CVC.CVC.CVC.CVC *got.tat.tət.tət.təm* ‘she pulled’

CVCC.CV.CVC *wənk.la.wəs* ‘to walk’

To sum up, the basic syllable types in Kistane are presented in the following table.

Basic syllable type	Examples	Remark
V	<i>a.bɪ</i> ‘father’ <i>a.ləmət</i> ‘tongue’	It is located in the first syllable of the words.
VC	<i>ab</i> ‘gift’ <i>am.bo</i> ‘knee’	The first syllable of the second word is VC.
VCC	<i>ədʒdʒ</i> ‘hand’ <i>ɨn</i> ‘eye’	
CV	<i>zɪ</i> ‘this’ <i>as.sə.bo</i> ‘salt’	
CVC	<i>gərəd</i> ‘girl’ <i>ɨruk</i> ‘far’	The second syllable of the words is CVC.
CVCC	<i>t’əgg</i> ‘calf’ <i>gurz</i> ‘old’	

Table 7. Basic syllable types in Kistane

Kistane reveals six syllable shapes as its basic syllable types. However, there are words like *kla* ‘go away’ and *trə* ‘call!’ with a CCV shape. Since, the phonotactics of the language allows the insertion of the vowel [ɨ], this shape is not regarded as a basic syllable type.

Typologically, Kistane joins the fourth group. This is mainly because of the fact that a vowel alone can form a syllable. That means Kistane is a type 4 language. Bedilu (2010:7-8) states that Kistane syllable shapes are V, VC, VCC, CV, CVC and CVCC. My data also reveals the realization of what Bedilu did.

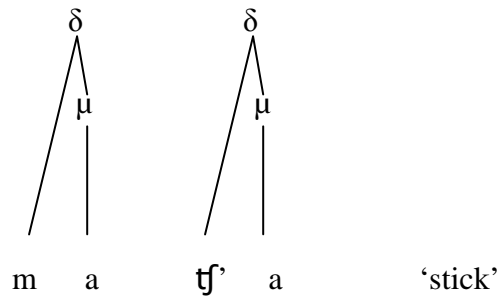
4.4. Moraic Analysis

4.4.1. Syllable weight

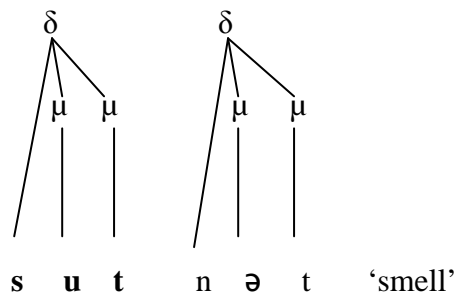
Many languages have syllable weight distinction. Some languages treat a syllable containing a short vowel as light and a syllable containing a long vowel as heavy. That means light syllables have one timing slot whereas heavy syllables have two timing slots. However, according to the moraic theory and as far as my analysis is concerned, a light syllable is a syllable that contains one mora. A heavy syllable is a syllable that contains two moras. Hence, CV syllables are light but CVC syllables can be heavy or light.

Examples:

a. Light syllable (CV)

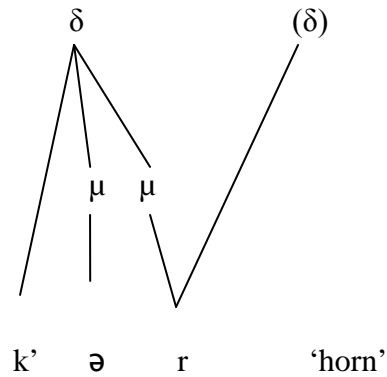


b. Heavy syllable (CVC)



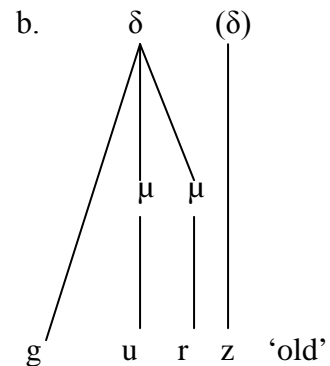
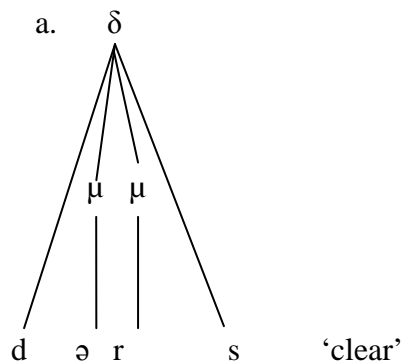
heavy light

c. Supper Heavy syllable⁴ (CVCC)



The representation of the CVCC syllable significantly differs from the representation of CV and CVC. The second part of the geminate goes to the next syllable. This is mainly because of the fact that it has the tendency of forming another syllable. In other words, it is extrametrical.

If CVCC is a cluster, it has also another representation. The following representation displays the way how to represent CVCC syllables.



⁴ Note that supper heavy syllable may be either a geminate or a cluster.

As it can be seen in the above example, the second part of a cluster in (b) is extrametrical⁵ but it is not in the case in (a).

CVC syllables in Kistane are heavy by the principle of WBP. It is generally argued that CVC syllables are heavy either at the word-initial or medial-position, i.e. directly followed by a syllable containing an onset consonant. That is why the first syllable of the word *sut.nət* ‘smell’ is regarded as heavy. On the other hand, CVC syllables are light if they occur at the syllable - final position because the final consonant does not receive a mora.

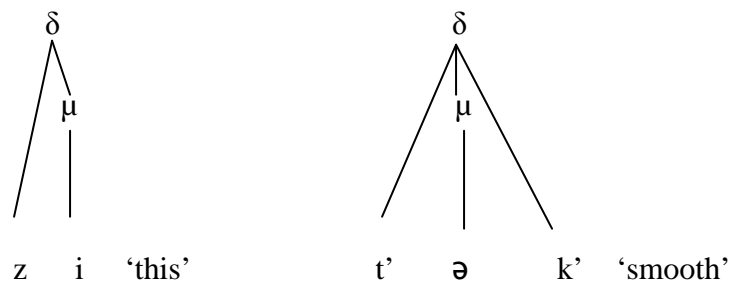
4.4.2. Moraic representation of Kistane Words

This section presents the moraic representation of Kistane words. Kistane words can be either simple or derived. Therefore, the moraic representation of Kistane monosyllabic words, disyllabic words and polysyllabic words is treated here.

4.4.2.1. The representation of monosyllabic words

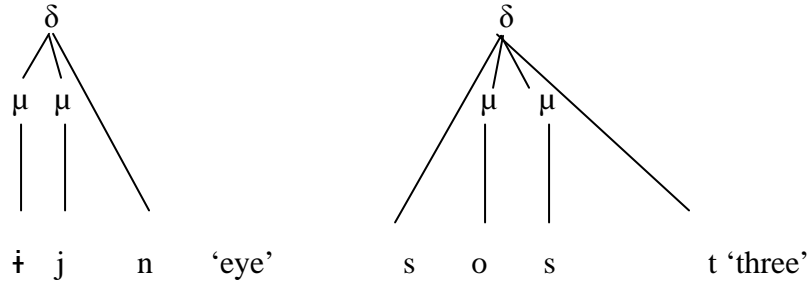
There are a couple of monosyllabic words in Kistane. However, some of them are light but others are heavy. Below, there is a moraic representation of monosyllabic Kistane words.

Monosyllabic words containing light syllables (CV, CVC)



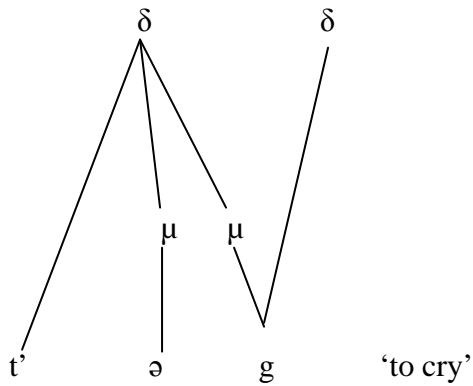
⁵ An element which does not participate to the overall prosody of a word is called extrametrical. Mulugeta (2001:34-35) argues that extrametrical element is a peripheral element that appears at the left or right edge of a stem, word or other domain, which does not participate in the overall prosody of a word. In representation it is not linked to the syllable. It is marked by parenthesis.

Monosyllabic words containing heavy syllables (VCC and CVCC)



CVCC (Super Heavy syllable)

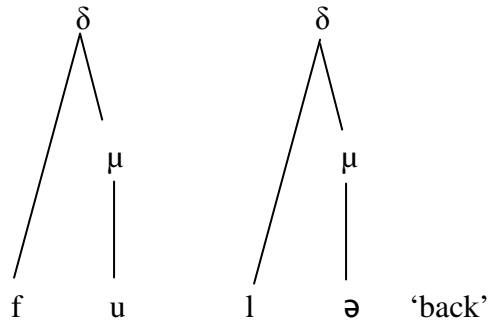
Kistane has a couple words with the shape of CVCC. The aim of the moraic theory is that the syllable dominates only two moras. That is why the second mora in the word *t'əgg* 'calf' dominates only one /g/.



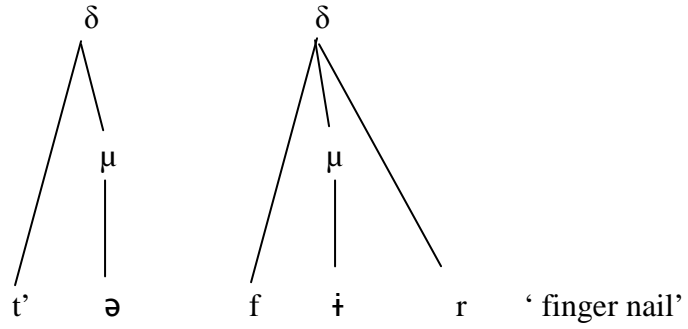
4.4.2.2. Moraic representation of disyllabic words

Light Syllables

CV.CV

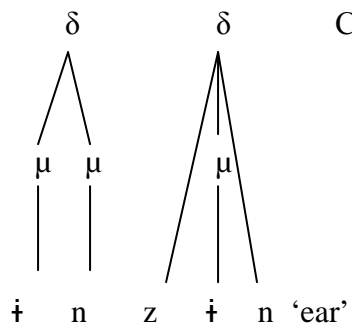


CV.CVC

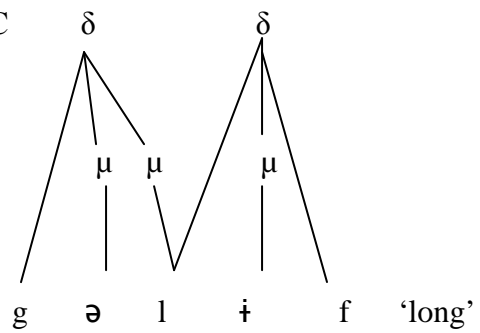


Heavy Light Syllables (HL)

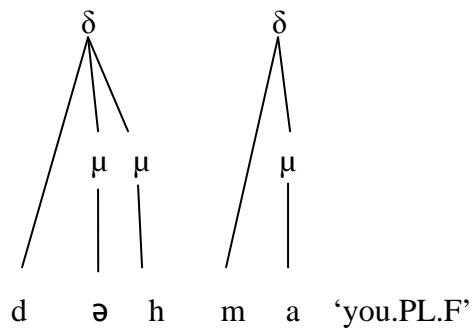
VC.CVC



CVC.CVC

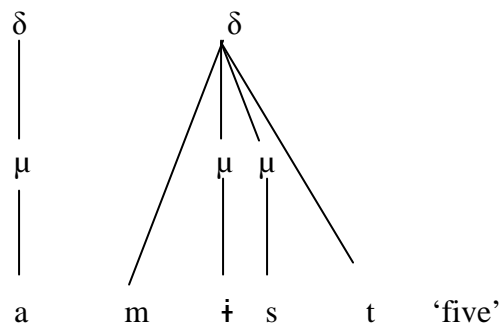


CVC.CV



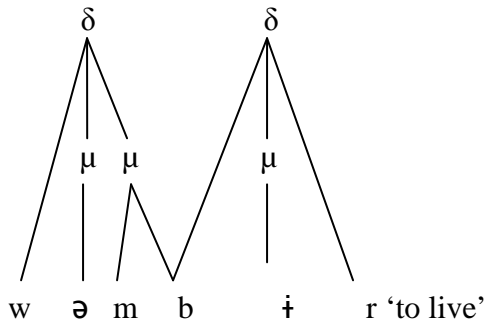
Light Super Heavy Syllables (LSH)

V.CVCC



Super Heavy Light Syllables (SHL)

CVCC.CVC



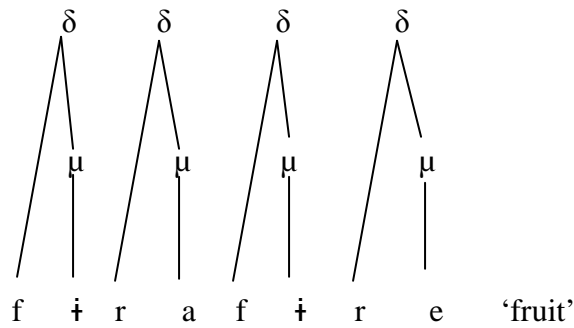
The motivation behind the moraic theory tells that the number of moras should not exceed from two. That is why the second mora of first syllable of the word *wambir* 'to live' /m/ and /b/ at the same time.

4.4.2.3. Moraic representation of polysyllabic words

Hereunder, the moraic representation of Kistane polysyllabic words is displayed.

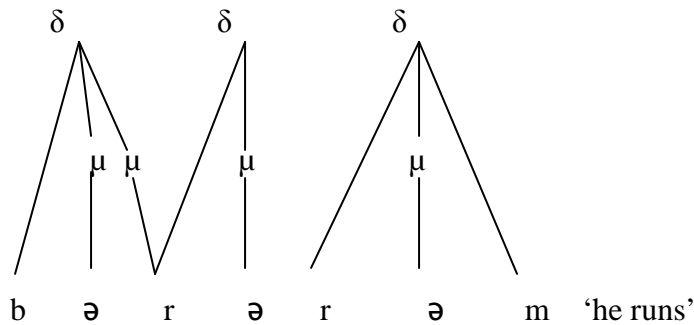
Light syllables

CV.CV.CV.CV

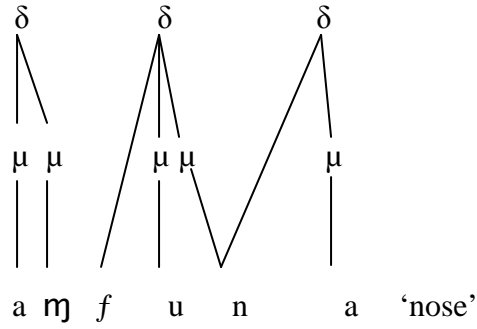


Heavy Heavy Light syllables (HHL)

CVC.CV.CVC

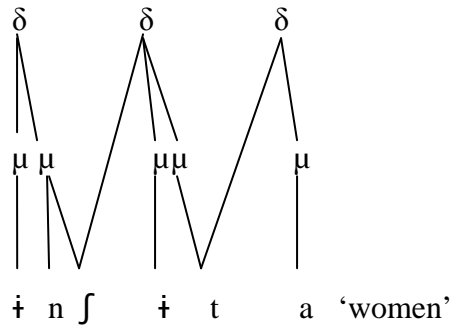


VC.CVC.CV



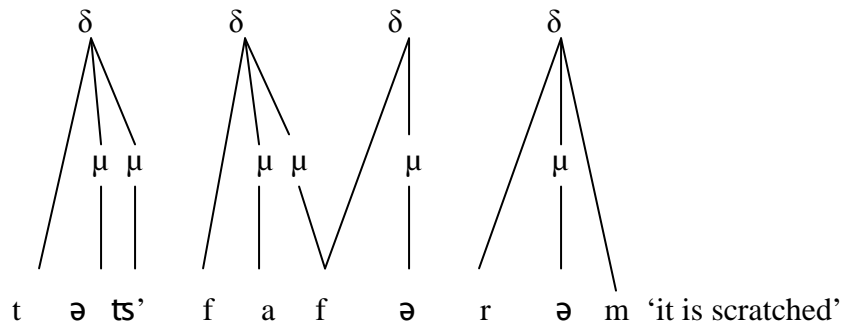
Super Heavy Heavy Light Syllables (SHHL)

VCC.CVC.CV



Heavy Heavy Heavy Light Syllables (HHHL)

CVC.CVC.CV.CVC



Chapter Five

5. Summary and conclusion

To have a summary of the results of what I got in this research, I would like to forward the following:

In chapter one, I introduce the Kistane people, their language, their living, their history and origin and the existing literature attempt into describe the language.

Chapter two presents the theoretical background for the present study. There, I attempted to highlight the notion of the syllable and its constituent parts, the types of the syllable, syllabification and steps in syllabification, the moraic theory of the syllable and the notion of the mora as a weight bearing unit. Besides, issues like weight by position and compensatory lengthening are briefly discussed.

Chapter three is an overview of the general phonology of Kistane. In this chapter, I emphasized on the general phonology of Kistane. My analysis, hence, begins with the identification of phonemes and their respective allophones. The phonetic realizations of phonemes are allophones. Kistane has thirty phonemes and eight allophones of which seven are vowels. The labialized consonants in Kistane are not regarded as phonemes because they do not contrast. I also state that phonemes are identified through minimal pairs or through distribution. Hence, a list of minimal pairs is briefly displayed. Moreover, this chapter deals with issues such as consonant gemination and phonotactics. An attempt has also made to show the distribution of Kistane phonemes. Clusters at the word initial position are not allowed in Kistane. However, word-medial and final clusters are permissible in Kistane. Of the Kistane vowels, /ɪ/, /u/, /e/ and /o/ never occur at a word -initial position. I doubt the occurrence of /ɨ/ at the word -final position. Finally, I would like mention the status of the glottal stop [ʔ]. This sound exists in the language but I do not regard it as a phoneme. Therefore, I leave the debate on whether the [ʔ] is a phoneme or not for further linguistic inquiry.

In the fourth chapter, I particularly dealt with the syllable of Kistane. Hence, I sorted out the possible syllable shapes of Kistane words. In addition, syllabification of some Kistane words together with their moraic representation was discussed in detail. Besides, the syllable structure of geminates and consonant clusters is examined. Moreover, the moraic representation of Kistane monosyllabic, disyllabic and polysyllabic words was treated. Finally, Weight by Position is scrutinized.

Based on the findings of the present study, the following conclusions are derived:

Kistane has twenty three consonant and seven vowel phonemes. Regarding the phonotactics of the language, vowel sequences are not allowed at all. There are consonant sequences allowed by the phonotactic constraints of the language but they should occur at the word-medial and /or final-positions. However, initial sequences of consonants are not permitted in the language.

The major syllable shapes scrutinized in Kistane so far are V, VC, VCC, CV, CVC and CVCC. Typologically, Kistane is a type four language due to the fact that a vowel alone can form the syllable. This is because, for instance, *a.bɪ* ‘father’ is a disyllabic Kistane word whose first syllable formed only by the vowel /a/. In addition, the core syllable is the most frequently occurring syllable in the language. Like most languages, Kistane has a syllable weight distinction where monomoraic syllables are light whereas bimoraic syllables are heavy. An illustration of this is that the treatment of CV syllable as light and CVCC as heavy.

A CVC syllable is equivalently as heavy as CVCC by the principle of WBP. CVC is a light syllable in some instances but heavy in others. For example, CVC is light in the word *tən* ‘smoke’ because the final sound /n/ is not moraic. But, the CVC shape of the first syllable in the word *sut.nət* ‘smell’ is heavy by the principle of WBP. Kistane also has super heavy syllables like CVCC. In such cases, as in the word *wən.k.la.wəs* ‘to walk’, the first syllable has the CVCC shape. In this case, the second mora dominates the consonants /n/ and /k/. Therefore, such syllable shapes are regarded as super heavy.

At last I would like to say that other interested linguists can further apply the moraic theory by considering the morphophonemic processes in the language.

Appendix

No.	Words	Gloss
1	malək'	big, heavy
2	gəllɪf	long
3	bɪzə	wide
4	maləs	small
5	atf'ɪr	short
6	t'əβaβ	narrow
7	kətʃ'tʃ'ɪn	thin
8	muk'ət	warm
9	k'əzk'aza	cold
10	mulə	full
11	adʒdʒɪs	new
12	g ^w urz	old
13	t'ɪfu	bad
14	k'ɔʃʃaʃfa	dirty
15	bɪzʒɪta	straight, correct
16	kɪbb	round
17	fəjja	good
18	bulə	sharp
19	t'ək'	smooth
20	t'ɪrɪ	wet
21	dərə	dry

22	morə	near, beside
23	ɪrukʻ	far
24	kʻəŋŋə	right
25	g ^w ura	left
26	gɪzat	animal
27	asa	fish
28	wuff	bird
29	wussa	dog
30	kʻɪmal	louse
31	əβaβ	snake
32	goga	skin
33	bəsər	meat
34	dəm	blood
35	atʻɪm	bone
36	sɪb	fat
37	aŋkʻo	egg
38	kʻərr	horn
39	ɬʻira	tail
40	wəɖʒə	nest
41	gunnən	hair, head
42	ɪnzɪn	ear
43	ɪjn	eye
44	aŋfunna	nose
45	<i>aff</i>	mouth
46	sɪn	teeth
47	aləmət	tongue

48	alləm	it is there
49	ɪgɪr	leg
50	ambo	knee
51	əɖʒɖʒ	hand
52	kɪɱf	wing
53	aŋgət	neck
54	fulə	back
55	t'ɪbujjə	breast
56	lɪbb	heart
57	gɪbbot	liver
58	jɪga	water
59	bəllam	he ate
60	wək'k'am	he bite
61	t'ub	suck (sm)!
62	attəffa	he vomited
63	aɱfat	breath
64	dak'	laugh (sm)!
65	wəmbbɪr	live(n)
66	mut	die (sm)!
67	bɪfa	red
68	areŋg ^w ade	green
69	nəɬ'ɬ'ə	white
70	bitf'a	yellow
71	t'ɪʔur	black
72	goj	with

73	tə-	and
74	bʰon	if I am
75	kʰaj	thing
76	ʰntʃʰə	wood
77	dʰbʰr	forest
78	matʃʰa	stick
79	fʰrafʰre	fruit
80	səbʰl	seed
81	kʰʰtʰəl	leaf
82	sʰr	root
83	wawjjɪ	cry (verbal noun)
84	aβəβa	flower
85	sar	grass
86	kʰəkʰaza	freeze
87	tʃʰəbər	sun
88	dərrakʰa	moon
89	kokəb	star
90	jʰga	water
91	zʰnab	rain
92	ədɪjjə	river
92	hajkʰ	lake
93	bahar	sea
94	assəbo	salt
95	ʰmmajjə	stone
96	aʃwa	sand

97	t'ɪfu	bad
98	mɪdɪr	earth
99	damməna	cloud
100	gubɪla	fog
111	səmaj	sky
112	nɪfas	wind
113	bərədo	ice
114	tən	smoke
115	əsət	fire
116	aməd	ash
117	nɪdəd	burn (sm)!
118	moʃ'ə	road
119	gəgəra	mountain
120	ɪnʃʃitta	women
121	arde	adult man
122	balik'	old man
123	miʃʃt	wife
124	mɪss	husband
125	gəmja	male
126	ɪmmit	mother
127	abɪ	father
128	sɪm	name
129	dərs	sing
130	ʃ'ota	play (noun)
131	uŋfa	swell

132	gɪdɪl	kill (sm)!
133	t'ɪlə	fight (sm)!
134	ʃəm	to find something
135	wɪk'	hit (sm)!
136	rət'	cut (sm)!
137	wələjaj	split (sm)!
138	kɪr	dig (sm)!
139	ba	at
140	wuʃt'a	inside
141	sɪf	sew (sm)!
142	wajɲ	swim (sm)!
143	bɪrɪr	fly(verb) (sm)!
144	wənklawəs	walk (verbal noun)
145	nəhə	come here (2sm)!
146	gadəm	lie (sm)!
147	wəttona	sit (verbal noun)
148	tənsa	stand up (sm)!
149	tat'əf	turn (sm)!
150	wɪdək'	fall (sm)!
151	ɪggud	flow (sm)!
152	ɪʒʒ	see (sm)!
153	sɪma	hear (sm)!
154	assɪb	think (sm)!
155	wəʃal	know (verbal noun)
156	sutnət	smell (noun)

157	kuʈfat	fear (noun)
158	mɨŋŋət	sleep (noun)
159	bəl	say (sm)!
160	ədɪ	I
161	dəhə	you(m)
162	dəʃ	you(f)
163	k ^w a	he
164	ɨŋŋə	we
165	kinnəm	they
166	zɪ	this
167	azɪ	that
168	zɪjʒən	here
169	zajʒən	there
170	mannɪ	who is it?
171	mɨnnɨn	what is it?
172	jɨttɪ	where is it?
173	mətʃə	when
174	mɨŋkom	how
175	adəbɨl	not
176	kulɨmmu	all
177	waga	many
178	k'əl	few
179	atat	some
180	lela	other
181	att	one

182	kitt	two
183	sost	three
184	arət	four
185	am†st	five
186	m†ʃʃət	night
187	k'†nan	day
188	amat	relative
189	amət	year
190	wədərə	rope
191	ab	gift
192	wəjz	hold (verbal noun)
193	t'əbət'	squeeze (sm)!
194	wənta	rub (verbal noun)
195	l†bbas	clothes
196	gəbərə	farmer
197	dərsama	singer
198	wəzəltəŋna	worker
199	s†b†r	break (sm)!
200	dəngəŋnə	rich
201	kla	go away (sm)!
202	k'ut'†r	number
203	səb	man
204	gərəd	girl
205	baj	boy
206	k ^w uja	twenty
207	†rgət'	dance
208	at'aj	sheep

209	t'əgg	calf
210	gul+h	clear
211	l+bb	heart
212	goʃʃ	buffalo
213	ɪmmajə	uncle
214	muk'ət	hotness
215	zega	poor
216	anat	top of the head
217	bɪrhan	Light
218	zimb	fly(n)
219	wəgot	pull (verbal noun)
220	wore	news
221	aməd	ash
222	taʃa	buttock
223	daʃa	cause
224	zar	ritual
225	gəddələ	he killed
226	tʃ'umməm	very fat
227	jɪsətʃ'uk'aj	drink
228	tɪlə	worm
229	t'irə	call (sm)!
230	məttam	he bite
231	tɪməsɪl	that does not seem
232	ʒagba	a pounding tool
233	honə	it is

234	dʒɪlɑl	small house
235	wɑdʒ	buy (sm)!
236	tɪlɑbɛɲɲ	yesterday
237	muggɪt	argument (noun)
238	əfat	milk
239	t'əfɪr	finger nail
240	ʃəma	candle
241	bərr	door
242	t'om	a fast (n)
243	aldəbəl	otherwise
244	atballa	get it eaten
245	t'um	fast (sm)!
246	ɪkul	equal
247	dəhəm	you PL.M.
248	dəhma	you PL. F
249	balgɪ	bed
250	tətʃ'ffafərəm	it is scratched

Declaration

I, the undersigned, declare that this thesis is my own original work and has not been presented for a degree in any other university. All the information taken from other sources are dully acknowledged.

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