



**LANGUAGE VARIATION BETWEEN THE SIDA AND GAYIL
DIALECTS OF AARAPH: A STUDY IN PHONOLOGY AND
MORPHOLOGY**

M. A. THESIS

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We, the undersigned, members of the Board of Examiners of the final open defense by Alebachew Yizneto have read and evaluated his thesis entitled “Language Variation between the Sida and Gayil Dialects of Aaraph: A Study in Phonology and Morphology”, and examined the candidate. This is, therefore, to certify that the thesis has been accepted in partial fulfillment of the requirements for the degree of Master’s of Arts in Linguistics and Communication.

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..... SGS Approval	 Signature	 Date

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DEDICATION

I dedicate this thesis to my beloved father Yizneto Gapo and my dearly loved mother Hagere Gaisi for strengthening me with their deep rooted love and invaluable sacrifices since my childhood not only in my academic studies but also in my every step of walk in life. May the Heavenly Father fulfill them with his riches in glory by Christ Jesus.

DECLARATION

First, I declare that this thesis is my authentic work and that all sources of materials used in the thesis have been duly acknowledged. This thesis has been submitted in partial fulfillment of the requirements for the Degree of Masters in Linguistics and Communication at Hawassa University and is deposited at the University Library to be made available to borrowers under rules of the Library. I solemnly declare that this thesis is not submitted to any other institution for the award of any academic degree, diploma, or certificate.

Name: Alebachew Yizneto

Signature:

Place: Hawassa University, Hawassa, Ethiopia

Date of Submission:

Abbreviations and Symbols

1SG	First person singular
2SG	Second person singular
3SG	Third person singular
3SGF	Third person singular feminine
3SGM	Third person singular masculine
1PL	First person plural
2PL	Second person plural
3PL	Third person plural
ACC	Accusative
Adj	Adjective
Adv	Adverb
CON	Converb
COP	Copula
Def.	Definiteness
DO	Direct object
Gen.	Genitive
Imp	Imperative
IO	Indirect object
N	noun
Pron	Pronoun

Prep.	Preposition
PRS	Present tense
PST	Past tense
PERF	Perfect
PASS	Passivizer
Quant	Quantifier
SG	Singular
PL	Plural
PSTNG	Past tense negative
V	Verb
//	Phonemic transcription
[]	Phonetic Transcription
‘ ’	English meaning
→	Changes to
↔	Changes in both directions

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ABSTRACT

This study aimed to investigate the phonological and morphological variations between the Sida and Gayil dialects of Aaraph. The study was conducted in the mixed research design. Accordingly, purposive sampling technique was used to select the informants of the research. Besides, elicitation and audio-recording were used to collect the data from both Sida and Gayil dialects. The data were analyzed by examining the differences in the phonological, morphological and lexical structure of the dialects under investigation. The data analysis was done both in qualitative and quantitative methods. As a result, the research findings have shown that there are significant sets of phonological and morphological as well as lexical variations between the two dialects. Regarding the phonological aspects, the study identified that the phonological differences are contextually-unconditioned changes of sounds. This context-free phonological variation is the substitution of sounds between the two dialects. Accordingly, the following sounds substitute each other in some words of the Sida and Gayil dialects: /s/ ↔ /ʃ/, /z/ ↔ /ʒ/, /tʃ/ → /tʃʰ/, /tʃʰ/ → /tʃʰ/, /q/ → /kʰ/ and /ɪ/ → /a/. The study also identified that the voiceless velar ejective stop /kʰ/ is a distinctive phoneme in the Gayil dialect of Aaraph, and it is always substituted by /q/ in the Sida dialect. In the case of the morphological aspects, variations take place in several tense inflections, person and accusative markers, verb forms and different pronoun types of the Sida and Gayil dialects. These morphological changes include: /-se/ ↔ /-ʃe/, /-am/ → /-im/, /-sijɒ/ → /-isɒ/, /-ee/ → /re/, /-de/ → /-da/, /-e/ or /-se/ → /-aare/ or /-saare/ and other pronoun changes as well. Moreover, the investigation of the lexical variations has shown that the Sida and Gayil dialects share 79% of their 206 basic lexical items; i.e., they have 162 cognates from the total of 206 words; this indicates that the two dialects are closely related. In addition, the ratio of the total degree of phonetic differences per corresponding phonemes shows a value of 29%, and this lower ratio is another indicator for the close relationship between the two varieties. Furthermore, the researcher recommends that to get the overall picture of the variations between the two dialects further studies are needed in the related areas such as grammatical variations.

CHAPTER ONE

1.1. Background of the study

Language variation is a real phenomenon which is revealed in all languages of the world (Shareah et al., 2015). According to Ammour (2012), it is obvious that there is variation between a language in one country and another, and even between languages within the same country. Language also varies regionally, socially and even individually so that people have different linguistic ways to say the same thing differently; this phenomenon is expressed by sociolinguists as **language variation**, and it is at the heart of sociolinguistics (Ammour, 2012).

According to Spolsky (1998), in theoretical linguistics language variation is assumed as some kind of deviation from the norm, and as theoretically not significant enough. However, sociolinguistics, in contrary to linguistics, has shown that the variation in language use of a particular speech community is not a result of a haphazardly made choice of individuals' speech styles; rather it results from systematically patterned realizations of speech which account for various related social factors.

Wardhaugh (2006) writes that language variation is of two kinds, i.e., regional and social, and nowadays sociolinguistics is more concerned with the latter than the former. He also explains that **social variation** in language is associated with variation in the social structure of the speech community. Accordingly, the social identities of the speakers such as race, ethnicity, gender, religion, occupation, social class and kinship cause social variation of a language; these speakers' identities are constructed from their socialization with others.

On the other hand, the study of **regional variation** was originally established in historical linguistics, the study of how languages change overtime. Using assumptions and methods from historical linguistics, **dialect geography**, which is a known area of linguistic study, is concerned with the mapping of regional dialects (Wardhaugh, 2006). According to the historical linguistics views, languages happen to be internally varied following the speakers' departure from one another over time and space thereby resulting in the creation of dialects of the languages.

1.1.1. The Aari People

The Aari people are found in South Omo Zone, South Ethiopia Regional State. The biggest town in the land of the Aari is Jinka, which is also the capital city of the zone. It is located at about 369 km from Wolaita Sodo, the capital city of South Ethiopia Region, and 750 km from Addis Ababa, the capital city of Ethiopia (Fekede, 2018). Currently, the Aari live in four districts; these are North Ari, South Ari, Woba Aari and Baaka Dawla Ari, with their capitals at Gelila, Gazer, Wubamer, and Jinka respectively. The former two districts are of several years of establishment, whereas the latter two are newly established ones, and these the latter were previously parts of the South Aari district. According to the national census (CSA 2007, 78), the population number of Aari is 280, 187 of which 212,389 people (104,695 men and 107,694 women) live in South Ari, whereas 67,798 people (33,549 men and 32,249 women) live in North Aari (Gebre, 2010; Fekede, 2018). According to Gebre (2010), the total area of both North and South Aari districts is 398,542 hectare of which 278,542 ha and 120,000 ha are the total areas of South Aari and North Aari respectively.

The Aari people occupy the lowland, midland and highland areas of South Omo Zone; the altitudes of the highlands range from 1,300m - 2,000 m (Gebre, 1995, cited in Rosok, 2016; Kaneko, 2013). Gebre (2010) writes that before its incorporation in the Ethiopian empire in the late 19th century, the Aari land was traditionally divided into nine autonomous territorial subdivisions; these are Baka, Kuramer (Kure), Shangma/Layda, Sidamer (Sida), Beyamer (Beya), Wobamer (Woba), Gayil, Bargid, and Seyki or Argen. Each territorial group has its own local leader called *babi*, who is the supreme authority and responsible for judicial, military, administrative, economic and ritual aspects of the community. The *babi* was advised or assisted by councils of elders (*galta*), chiefs of sub-divisions (*ganna*), ritual specialists (*godmi*), and information agents (*tsoyki*), who report to the *babi* on matters of public opinion, deviations from societal rules, performance of village leaders etc. The *godmi*, *zis* and *tsoyki* are all classed on the same level below the *babi*. Lastly, bellow the *godmi*, *zis* and *tsoyki*, we find the commoners called the *keisi*. These are the people living in the various villages within the community of the territorial group (Gebre, 1995: 16-22, cited in Rosok, 2016; Gebre, 2010: 186).

According to Fekede (2018), there are two main clans comprising the Aari population; namely, Indi or Sozma and Ashenda or Zera. He also explains that the Aari have the tradition of polygamy so that a man can marry as many women as possible based on his economic capacity to manage their lives. Marriage relation is allowed only between distant kinships although all the tribes in Aari may be engaged in intermarriage (Fekede, 2018). Kaneko (2013) also states that there are two kinds of social classes among the Aari people; these are the farmers' group (*kantsa*) and the craftworkers' group (*mana*). According to her (p. 83), "Intermarriage and the sharing of meals between the members of the two groups are prohibited." Majority of Aari people are followers of Christianity and Islam though there are also some traditional religion followers (Fekede, 2018).

Regarding the way of life of the people, Wiesbaden (2003) states that the Aari people are agriculturalists who cultivate different kinds of cereals, legumes and grains. Besides, they produce vegetables, fruit trees and various root plants like ensete (*Ensete ventricosum*), which is the staple food in the area. The Aari in the highland areas also cultivate some wheat and barley (Hayward, 1990). According to Gebre (1995, p. 15-16, cited in Rosok, 2016), the two main cash crops in the Aari land are coffee and cardamom. Keeping livestock is also a common activity among the Aari. The livestock wealth includes cattle, sheep, goats, mules, donkeys, horses and poultry.

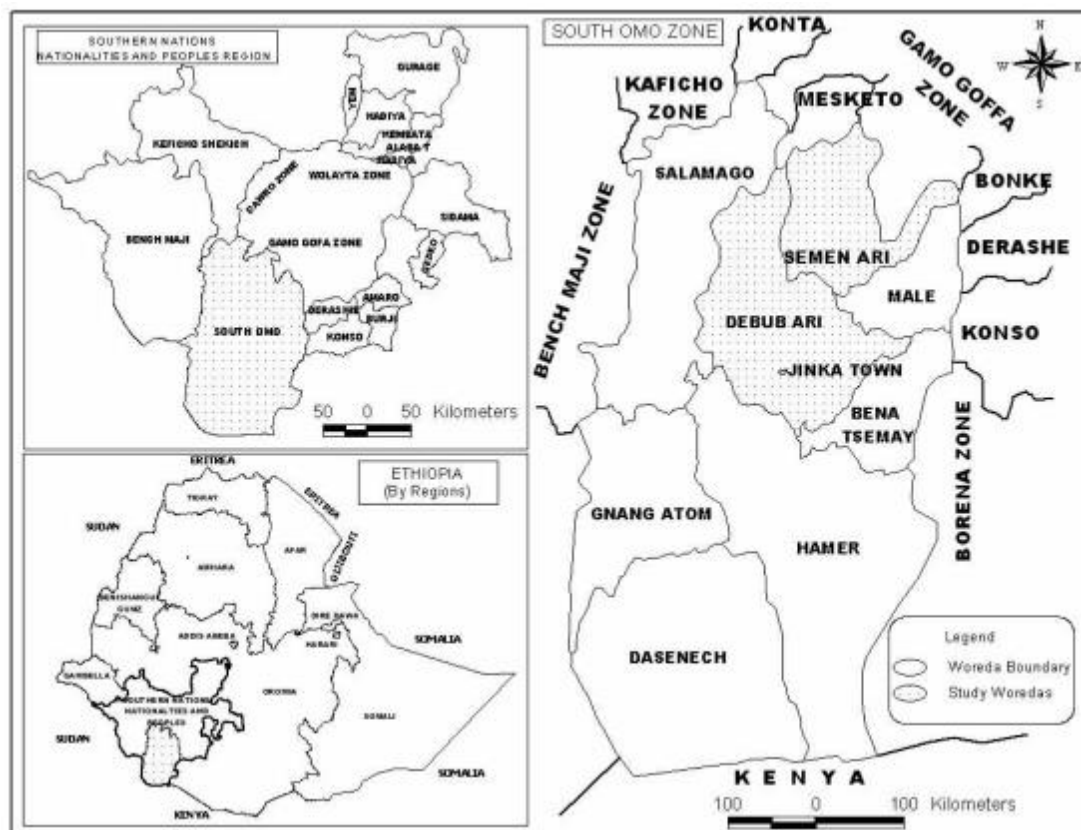


Figure 1.1 The Location of the Aari People

Source: Adapted from Gebre (2010)

1.1.2. The Aaraph Language

Aaraph is one of the Omotic languages spoken in South Omo Zone, South Ethiopia Region. It is called *Aaraph* by the native speakers to mean the *language of Aari*. However, the language has been traditionally spelt as *Aari*, or sometimes as *Ari* in the literature for a long period of time, but recently it has been introduced in the mother tongue education in its native name, Aaraph. Gebre (2010) explains that the language family to which Aaraph is classified was in controversy until 1973. Citing Bender (1976: 48), he states that the problem resulted from the linguistic similarity of Aaraph with languages in other groups. However, Fleming (1973 as cited in Gebre, 2010) came up with a solution by establishing the status of Aaraph as an Omotic language family member. The Omotic language branch is sub classified into North Omotic and South Omotic

groups. Aaraph along with Hamer-Banna, Karo and Dime belong to the South Omotic group (Fleming, 1976; Hayward, 1990; Hayward 2005, cited in Rosok, 2016).

The tree diagram in *Figure 1.2* below shows the classification of Aaraph as a member of the Omotic branch of the Afro-Asiatic language family.

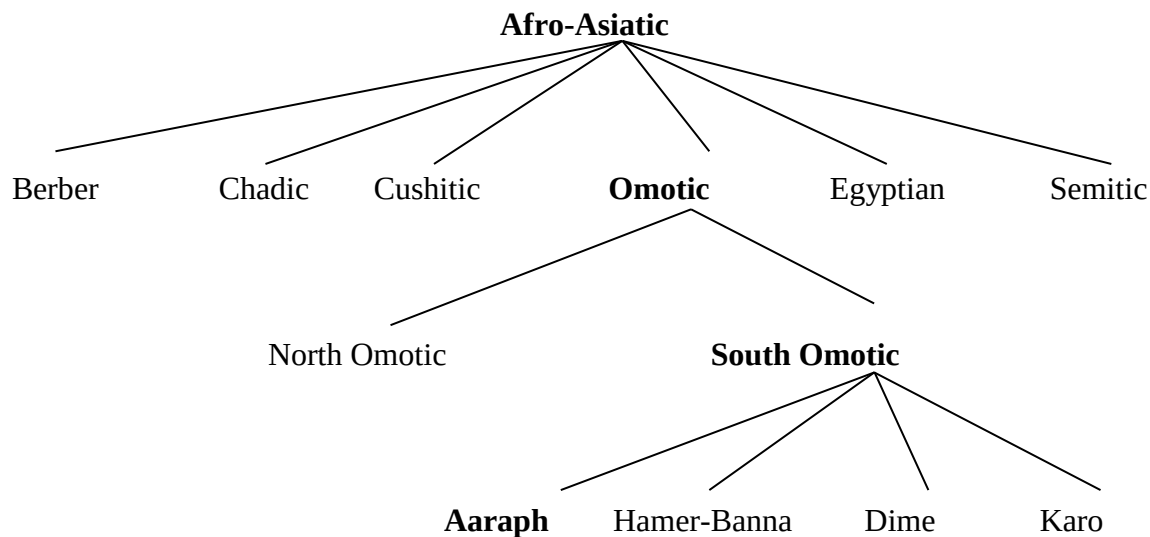


Figure 1.2 Classification of Aaraph (based on Rosok [2016])

Different studies on Aaraph identified different lists of dialects. For instance, Wiesbaden (2003) states that there are 9 or 10 dialects of Aaraph, and they are usually corresponded with former territorial subdivisions. According to Gebre (2010), there are 5 major dialects spoken in the nine different localities of the Aari land. In addition, Fekede (2018) identified 4 dialect clusters totally comprising 9 sub-varieties. Besides, Melkeneh (2013, cited in Rosok, 2016) states that Aaraph has 10 reported dialects. Finally, the different works mentioned above show inconsistency in their list of dialects. As a result, the exact number of dialects in Aaraph remains unidentified; however, the total dialect names which are provided by the all above writers include: Baaka, Biyo, Gayil, Kure, Layda, Seyki, Shangama, Sida, Wubamer, and Zeddo.

1.2. Statement of the problem

A few studies have been conducted on the different linguistic aspects of Aaraph. According to Magnusson et al. (2013), Ford's (1985) linguistic survey in Aaraph was the pioneering linguistic work on the language. This earlier study provided a brief phonological description, an estimation of lexical similarity between the dialects of the language based on 113 words, and dialect comparison at syntactic level on the basis of 20 sentences, obtained from sociolinguistic interviews. Besides, the various phonological, morphological and grammatical aspects of the language were investigated by different researchers such as Hayward (1990), Tsuge (2005) and Rosok (2016). In addition, Fekede (2011) provides a comparative grammatical description of the South and North Aari dialects. He also makes lexical comparison between the Aaraph dialects based on 275 lexical items.

However, among the studies conducted on Aaraph until nowadays only few of them were concerned with the dialectal differences within the language. One of this is Ford's (1985) lexical and syntactic comparison among the nine dialects, i.e., Baka, Beya, Gayil, Layda, Seyki, Shangama, Sida, Woba and Zeddo; the other is Fekede's (2011) comparative study of the South and North Aari dialects. Yet with regard to the depth of these two studies, the former provides the comparison of the entire dialects based on some basic words and sentences whereas the latter compares all grammatical aspects of the dialects spoken in the North and South districts of the Aari land.

Even though some comparative studies have been done on the dialects of the language, the dialectal variations of all linguistic levels need a detailed and in-depth study. In-depth dialectal studies help to get an adequate understanding about the differences among all varieties of the language. Therefore, to fill this gap the present researcher investigated the phonological and morphological variations between the Sida and Gayil dialects of Aaraph. To this end, the researcher aimed to explore what those phonological and morphological differences are, what processes take place in the variations of the two dialects under investigation, and if what the lexical similarities and differences between the two dialects look like.

1.3. Objective of the study

1.3.1. General objective

The general objective of the study is to investigate the phonological and morphological variations between the Gayil and Sida dialects of Aaraph.

1.3.2. Specific objectives

The specific objectives of the study are:

- to examine the phonological variations between the Gayil and Sida dialects of Aaraph;
- to describe the morphological differences between the Gayil and Sida dialects of Aaraph;
- to investigate the phonological and morphological processes applied in the variations of both dialects, and
- to assess the lexical similarities and differences between the two dialects;

1.4. Research questions

The research answered the following four questions:

- What are the phonological variations between the Gayil and Sida dialects of Aaraph?
- What are the morphological differences between the Gayil and Sida dialects of Aaraph?
- What are the phonological and morphological processes applied in the variations of both dialects?
- What are the lexical similarities and differences between the two dialects?

1.5. Scope of the study

Study of language variation involves all aspects of language such as phonology, morphology, syntax, and grammar (Barzan and Heydari, 2019). However, this study is delimited with the linguistic areas of phonology and morphology, and the dialectal variations between the Gayil and Sida dialects of Aaraph were investigated.

1.6. Significance of the study

The findings of this study will have the following significances. Firstly, it will play some role in showing the distinct positions of the two dialects under investigation in terms of phonology and morphology. As a result, readers or reseearchers who are interested in the dialectal variations between the Sida and Gayil dialects of Aaraph will get some basic insights into the structural differences of the two varieties of the language. Secondly, it will be used as some data source for further studies in the areas such as syntactic and grammatical variations because the study has contained a lot of sintactic data in several grammatical contexts from both dialect speakers. Thus, the syntactic data collected for this study are helpful for comparing the syntactic and grammatical structure of the two dialects.

Thirdly, it will serve as a scientific work for the development of the mother tongue education in the Aaraph language. As the present study investigated the phonological, morphological and lexical variations between the Sida and Gayil dialects, the findings of the research will contribute for the improvement of Aaraph language education in terms of balancing the dialectal variation in the content of the language lesson. Finally, the study will fill some gaps in the linguistic literature on Aaraph. Therefore, it tries to throw its own piece of stone in the overall building of the scholarly linguistic writings of the language with regard to phonology and morphology.

CHAPTER TWO

REVIEW OF LITERATURE

2.1. Language Variation

In the history of linguistics, a great deal of effort was carried out with the object of describing a language as an organized system of items which work in a uniform and constant manner. In linguistic theory, formal linguists, who are primarily concerned with theory developing, use models that treat the structure of a language as involving categorical rules and accordingly prohibit the variation revealed in the actual use of language by speakers (Honeybone, 2011). According to Spolsky (1998), Chomsky was such a structural linguist that dedicated himself for searching similar structures for all human languages but leaving aside how they are performed in the social context. Thus, from the perspective of formal linguistics, the fact of variation in language use appears to be a challenge threatening the attempt of idealizing language as a fixed and uniform phenomenon.

Hazen (2017) states that language variation is studied by linguists by dividing it into two major areas: diachronic and synchronic variation. According to Spolsky (1998), diachronic variation is variation in language overtime, whereas synchronic variation is variation in language at one time. Hazen (2017) also explains that during the nineteenth and the first half of the twentieth century the study of diachronic variation was leading among many linguists; however, latter on this direction of attention was turned to the synchronic variation of language following the works of some prominent linguists like Saussure (1916) and Bloomfield (1933).

Among the fields of study falling in the line of the diachronic tradition, one is historical linguistics, which examines the overtime changes of languages, having laid its foundation on the assumption that languages get internally differentiated after their speakers' distance from each other over time and space (Wardhaugh and Fuller, 2015). Another discipline targeting the linguistic difference between the past and the present is philology, which involves studying the writing difference in the earlier written documents of different regions with the objective of understanding their historical positions (Guy, 2007). Contrarily, a synchronic one but somewhat

related to the diachronic approach is dialectology, which is concerned with regionally motivated differences in various elements of language (Spolsky, 1998). Milroy and Gordon (2003) state that the methodological tools of traditional dialectology were not aimed to investigate the contemporary language patterns, but were intended for searching about the historical state of the language in the philological tradition.

2.2. The Theoretical Aspects of Variation in Phonology and Morphology

Coetzee and Pater (2011) write that the study of variation has got an important place in phonological theory since recent times. However, in early time of generative phonology, variation was not given an essential position in the theory of phonological grammar; even though the notion emerged in phonological derivation, it was conditioned by non-grammatical factors (Coetzee, 2009). According to Coetzee's (2009) explanation, in Lexical Phonology, for instance, the assumption is that lexical phonological rules are obligatory in their application, but only post-lexical rules, which are mediating between phonology and phonetic implementation, can be applied optionally. In addition to this, the theory also maintains that the lexical rules are associated with only grammatical factors such as phonology and morphology, whereas the post-lexical rules could be conditioned with external factors such as speech rate.

The examination of external factors such as age, sex, style and social class as accounting for phonological variation, is of usual practice in the sociolinguistic tradition (Anttila, 2004). Variation is also conditioned by internal factors such as phonology, morphology, syntax and the lexicon, and this is an interesting fact for the theoretical phonologist. Coetzee (2009), however, argues that even though the influence of the external factors in phonological theory gets awareness, it was assumed to fall outside the domain of grammar and the grammatical models such as Lexical phonology failed to formally incorporate the influence of such factors. Thus, Coetzee (2009) maintains that an adequate theory of phonological variation should be concerned with influences coming from both grammatical and non-grammatical factors.

Anttila (2004) examines the internally conditioned account of phonological variation using two concrete examples with aim of explaining the phonological, morphological and lexical facts that should be accounted for in any grammatical theory of variation. Although in many dialects of

English, the deletion of coronal stop in word-final consonant clusters, e.g. *cost me* ~ *cos' me* is extensively studied phenomenon in terms of phonological and morphological structure, in the first example, Anttila (2004, p. 2) explains about the coronal stop: *t/d*- deletion rate based on two dimensions, i.e. the quality of the following segment and the morphological status of the segment subject to deletion.

According to Anttila's (2004) explanation, the following segment effect is determined by the syllable structure; specifically, the popular proposal goes that the re-syllabification of the final coronal consonant with the following onset causes the segment to be retained. Anttila (2004, p. 2) writes that, "This is the case before vowels, e.g. in *lost.Anna* ~ *los.tAnna*, but not before /l/, e.g. *lost.Larry* (* *los.tLarry*) because *tl* is not possible onset in English. The resyllabification hypothesis thus predicts that there should be more deletion before /l/ than before /r/ because *tr* is possible onset in English." On the other hand, in the case of the deletion rate in terms of morphological status, one of the explanations is that the coronal stop is less frequently deleted in the regular past tense, e.g. *tossed* because it results in ambiguity between the past and present tenses.

In the second example, Anttila (2004) explains an instance of variable vowel coalescence in Colloquial Helsinki Finnish language. This phonological alternation involves bringing together two consecutive vowels of different syllables as long vowels as follows:

ma'.ke.a ~ ma'.kee 'sweet'

la'.si.-a ~ la'.sii 'glass- PAR (TITIVE)'

Rule: $V_1.V_2 \rightarrow V_1$: where V_1, V_2 are unstressed and V_2 is [+low]

According to Anttila (2004, p. 4), the variable vowel coalescence is influenced by the following phonological and morphological conditions:

- a. Coalescence is favored in mid-low sequences (/ea/, /oa/ öä/) and disfavored in high-low sequences (/ia/, /ua/, /yä/) (Paunonen, 1995).
- b. Coalescence is favored in derived environments and disfavored in roots (Anttila, 2000).
- c. Coalescence is favored in adjectives and disfavored in nouns (Anttila, 2000).

According to Coetzee and Pater (2011, p. 402), the phonological component within generative linguistics is assumed to have the following structure: *lexicon* → *early phonology* → *late phonology* → *phonetic implementation*. They prefer to use theory-neutral terms of early and late phonology instead of both theory-specific terms such as lexical and post-lexical phonology and the traditional labels of morphophonology and phonology. In this framework, syntax interacts with morphemes in such a way that the lexical combinations shape the morphological forms. In doing so, a particular lexical form may undergo some changes through phonological derivation. In this derivational process, the set of changes that are applied at first are called early phonology, whereas those which take place later are known as late phonology (Coetzee and Pater, 2011).

Coetzee and Pater (2011) state that, in rule-based phonology variation is treated by assigning optional rules whose probability is influenced by contextual factors. Labov (1969) proposed an augmentation of the optional rule writing, and his contribution to generative phonological grammar has had exerted positive effect on research tradition in sociolinguistics though it was not given enough attention by the theoretical phonologists in its earlier time of existence. In lexical phonology, for instance, it is assumed that the optionality of rules is applied at post-lexical level only, and this level is characterized by its insensitivity to morphology, exceptionality and being conditioned by cross-word contexts (Coetzee and Pater (2011).

On the other hand, the process taking place at the post-lexical stage is sometimes claimed to be phonetic implementation rather than phonological at all (Coetzee and Pater, 2011). The nasal in a phrase like *green box* is articulated with different degrees between its alveolar closure and labial assimilation; this shows the evidence that the process is sometimes phonetic rather than phonological because the articulation is intermediate instead of being subject to categorical phonological rule. This kind of gradience in articulation is taken as worthy of being examined by phonetically implemented rules rather than falling in the domain of categorical phonology.

Moreover, Coetzee and Pater (2011) explain how variation is conditioned by morphological factors in the way the categorical phonological processes are studied by phonologists. They take the case of *t/d-* deletion, which is most widely studied by variationist sociolinguists. Labov (1989) provides the synthesis of the general claims about this process; in doing so, he identifies many factors that are assumed to account for the rate of *t/d-* deletion in the dialects of English. Coetzee and Pater (2011, p. 406) mentioned some of the factors as follows:

- a. *Stress*: t/d is more likely to delete from an unstressed than a stressed syllable – i.e. more deletion from *safest* than from *resist*.
- b. *Third consonant*: more deletion from three consonant than two consonant clusters – i.e. more deletion from *whisked* than from *picked*.
- c. *Preceding consonant*: The more similar the preceding consonant to t/d, the more likely t/d to delete – i.e. more deletion from *west* than from *left*.
- d. *Morphological status of t/d*: more deletion if t/d is part of a monomorpheme than if it functions as the past tense suffix – i.e. more deletion from *mist* than from *missed*.
- e. *Following segment*: the more sonorous the following segment, the less likely t/d to delete – i.e. less deletion from *best work* than from *best book*.

In general, Coetzee and Pater (2011) argue that all the above mentioned factors are illustrative of the application of non-variable phonological processes. However, a holistic theory of variable and non-variable processes should represent both approaches to the phonological grammar. From the point of view of theoretical classification such as early and late phonology, the fact that t/d-deletion is conditioned by morphological factors is problematic because it is assumed that this process is involved only at late phonological level and it is not attributed to morphological conditioning. Furthermore, Coetzee and Pater (2011) state that the assumption just mentioned has been encountered by a later observation of Guy (1991) that the application of the variable and gradient process of t/d- deletion is conditioned by morphology.

2.3. Dialectology

Earlier to the 19th century, linguists in Europe had been interested in studying ancient languages such as Latin and Greek and standard varieties of modern languages like English, French and German (Millar and Trask, 2015). Most of them had a common view that the non-standard regional forms were wrong realizations of the standard ones; hence, not sufficient enough for investigation. According to Millar and Trask (2015)'s explanation, the emergence of the field of dialect geography gave attention to regional varieties by realizing that they are as worthy of study as standard varieties. Consequently, during the nineteenth century dialectologists had dedicated themselves to study the geographical distribution of linguistic items such as synonymous words like *pail* versus *bucket*, and pronunciation difference in the same word like *farm* with or without the /r/ (Hudson, 1996).

Millar and Trask (2015) point out that Prince L. L. Bonaparte, a French amateur linguist and nephew of Napoleon was one of the pioneer contributors in dialectological studies during the middle of the 19th century. In 1869, he published a dialect map of the Basque language, in which he classified the dialect areas of the language based on his data collection on the regional varieties. Millar and Trask (2015) explain, however, that those primary endeavors of dialect studies lacked methodological sophistication until better methods began to be used after several decades' passage.

Well-organized procedures of dialect studies were introduced by Georg Wenker's survey on lexical variables in almost 50, 000 areas in Germany (Marsden, 2013; Millar and Trask, 2015). For this study, Wenker worked with school teachers by sending them with questionnaires to collect the linguistic data from each locality, and their transcription based on syntactic data contributed to the first *dialect atlases*. Marsden (2013) states that the main limitation with that survey was the distortion in the school teachers' interpretation of forty sentences collected from different regional varieties; however, this postal questionnaire method was employed in several other dialect surveys later on.

With the aim of solving the methodological problems observed in Wenker's approach, Jules Gillieron trained and sent a single person, Edmond, who then moved and interviewed people in 639 localities of France for five years (Millar and Trask, 2015). With a fewer corpus of data, the survey resulted to be highly successful to achieve its reliability, and finally Gillieron published his findings in 1910. His dialect survey method was called "the basis of modern fieldwork, and his co-workers and followers also took their part in the advancement of his design in subsequent studies in the other parts of Europe including Italy (Marsden, 2013, p. 9).

The work of dialect atlases well developed in France and Germany during the late nineteenth century, and it spread rapidly to the rest of Western Europe and America; it was in these latter areas that the huge amount of linguistic atlas works were carried out (Sankoff, 1973). These contributions appeared to be the first evidences for the fact that there are variations and changes in languages (Millar and Trask, 2015). The main objective of such a study was to produce dialect maps which show the geographical boundaries of a single linguistic feature by drawing a line on the maps, which are called *dialect atlases* (Wardhaugh, 2006). Such a boundary making line is

known as an *isogloss*, and it distinguishes a dialect area where a linguistic variable is pronounced one way, from other areas where it is realized other ways, for instance, on one side of the line the word *bath* is pronounced with /ɑ/ and on the other side with /æ/.

Wardhaugh (2006, p. 137-138) presents the dialect map of the Rhenish Fan, and he explains about it as follows:

The Rhenish Fan is one of the best-known sets of isoglosses in Europe, setting off Low German to the north from High German to the south. The set comprises the modern *reflexes* (i.e., results) of the pre-Germanic stop consonants *p, *t, and *k. These have remained stops [p,t,k] in Low German but have become the fricatives [f,s,x] in High German (i.e., Modern Standard German), giving variant forms for ‘make’ [makvn], [maxvn]; ‘that’ [dat], [das]; ‘village’ [dorp], [dorf]; and ‘I’ [ik], [ix]. Across most of Germany these isoglosses run virtually together from just north of Berlin in an east–west direction until they reach the Rhine. At that point they ‘fan’. Each area within the fan has a different incidence of stops and fricatives in these words, e.g., Düsseldorf has [ix], [makvn], [dorp], and [dat], and Trier has [ix], [maxvn], [dorf], and [dat]. The boundaries within the fan coincide with old ecclesiastical and political boundaries. The change of stops to fricatives, called the Second German Consonant Shift, appears to have spread along the Rhine from the south of Germany to the north. Political and ecclesiastical frontiers along the Rhine were important in that spread as were centers like Cologne and Trier. The area covered by the fan itself is sometimes called a *transition area* (in this case, between Low and High German) through which a change is progressing in contrast to either a focal or relic area.

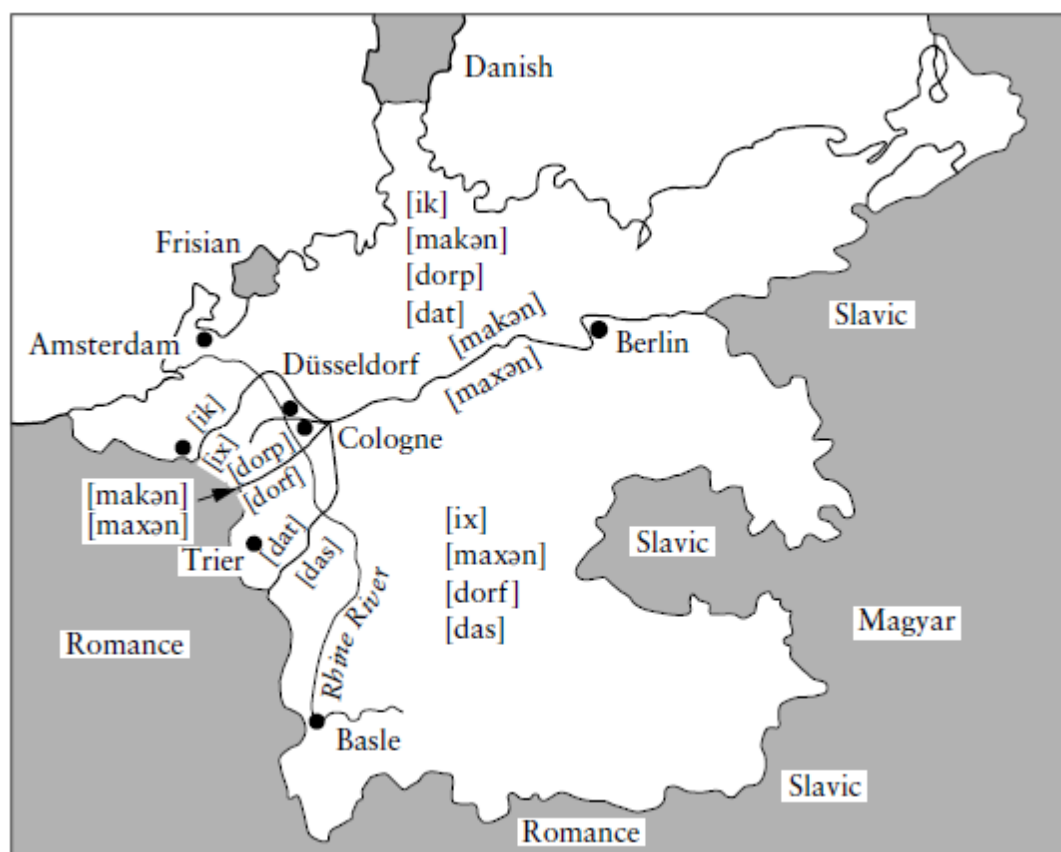


Figure 1.2 The Rhenish Fan adapted from Wardhaugh (2006)

Wardhaugh (2006) explains that dialect boundaries are associated with certain geographical and social factors. There is a particular point, a *focal area*, from where the isoglosses run towards different neighboring places showing different linguistic features. In the above map, for example, the isoglosses start in the east and run to the west direction until they reach Rhine River. Another particular point is the *relic area*, which is characterized by its being exception of changes spreading out from neighboring areas. Wardhaugh (2006, p. 137) states that “Places like London and Boston are obviously focal areas; places like Martha’s Vineyard – it remained *r*-pronouncing in the 1930s and 1940s even as Boston dropped the pronunciation – in New England and Devon in the extreme southwest of England are relic areas.”

2.3.1. The Family Tree Model

There are various models used to explain the relationships between the varieties of languages. One of them is the family tree model, which was developed in the nineteenth century as an instrument in historical linguistics (Hudson, 1996). According to Mkhululi (2018), the linguistic family tree model shows the relatedness of languages and helps us to look into original family of a language, and it is also used to investigate the most closely related languages of the same family. Hudson (1996) also explains that the tree model shows the extent to which the varieties of a language have diverged through time.

(Elias n.d.) states that the tree model was introduced by Schleicher in his 1853 work *Die ersten Spaltungen des indogermanischen Urvolkes*, whose English translation is: *The first divisions of the Indo-European ancestors*. According to Elias's discussion, Schleicher was a trained philologist so that he was motivated to apply his experience of using tree-like representations from philology to linguistics. The method believed to have inspired Schleicher as related to his background of philology is Stemmatics, which involves comparing different existing manuscripts aiming at tracing to the first version; to do so it uses tree based diagrams known as stemmata, which show the descent and transmission of manuscripts.

Francois (2014) explains how to understand the family tree model. He illustrates that if there are five modern languages; named K, L, M, N and O, to be genealogically related they have to fulfill some criteria such as having adequate related elements in phonology, morphology, vocabulary, etc. According to Francois (2014)'s explanation, the concept of genealogically relatedness of the above hypothetically labeled languages implies that they are descendants of a common ancestor which is called a proto language, in this case we can call proto- KLMNO (See Fig 1.2 below).

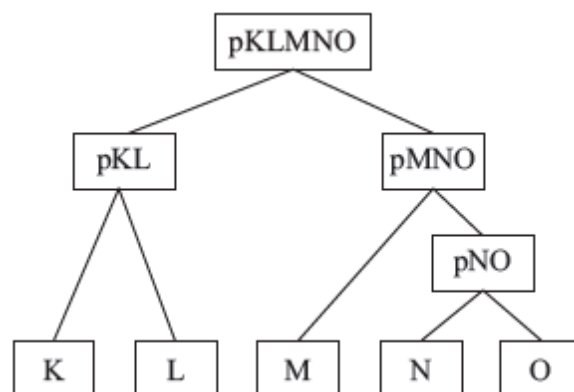


Figure 1.3 Hypothetical Family Tree Diagram adapted from Francois (2014)

Based on the above diagram, Francois (2014) writes that it is possible to make different claims about the internal structure of a language family; for example, K and L form an independent group which is different from another linguistic group that is composed of M, N and O. Moreover, these primary subgroups in the family are also further classified into subgroups. For instance, within the M, N and O group N and O are separated from M thereby forming their own subgroup. The idea M, N and O stand oppositely from other languages tells us that they are descendants of an intermediate proto-language, which here can be called proto-MNO. This intermediate ancestral family was at some time spoken by a single homogenous community after its split from the original proto-language KLMNO

According to Millar and Trask (2015), the tree diagram is used to portray the most closely related languages in a given ancestral family. For instance, in the above tree diagram, Languages N and O are more closely related to each other than to Language M; on the other hand, N and O are less closely related to L than M because M is classified in the same family with N and O but L is not. The tree diagrams like above give insight into the internal structure of a language family (Francois, 2014).

He explains that there is no exact time reference to the internal diversification of the ancestral family, but it is usual to interpret the tree like representations of a language family structure in a chronological sense. A major assumption is that the nodes in a tree are arranged from top to bottom in a time sequence of the split of languages in a family. An alternative thinking maintains that each node in a tree is related to a particular speech community. As a result, a split in a tree can most probably be corresponded to the decomposition of a formerly single community into further different social groups.

Millar and Trask (2015) write that in the process of examining the close relatedness among languages our main target is finding shared innovations, which are changes that occurred only in certain members of the language family. The basic assumption behind the shared innovations is that if some languages do not exhibit the changes, they are probably separated earlier than others sharing the changed features. It is assumed that the languages which share some innovations had probably a single common ancestor sometimes later.

2.3.2. The wave model

The wave model is an alternative method for representing the connections between languages. According to Millar and Trask (2015), it was introduced by Schmidt in 1856, and its basic assumption is that changes in languages start from a specific central area and then spread to the neighboring places just as a wave spreads outwards from the middle of a pool when a stone is dropped in it (Hudson, 1996). The center of the diffusion is a particular point in the set of connected varieties of a language, and then the wave expands towards further points in the network to the extent that a certain innovative item can influence its surrounding areas (Francois, 2014).

Millar and Trask (2015) state that the graphic representation of the wave model is similar to that of a dialect map. In such a diagram, language names are distributed in the appropriate pattern in which a closed curved line is used to encircle the languages that share a specific change feature. The area enclosed by a particular isogloss, the curved line, represents a certain geographical region where the innovation diffuses against idiolects and defines its wave length (Francois, 2014). In this kind of linguistic occurrence, another interesting situation is the intersection of isoglosses, which shows a linguistic continuum where adjacent dialects are characterized by mutual intelligibility.

Francois (2014) offers an example diagram for the wave model in which eight related dialects labeled A to H are presented, and the diagram also contains innovations numbered #1 to #6, whose distributions are arranged in such a way that innovation #1 arises in dialect D and diffuses towards neighboring dialects covering CDE; #2 encompassed AB; #3 spanned over CDEF; #4 over FG; #5 over EF, and #6 over EFGH (Francois, 2014, p. 169).

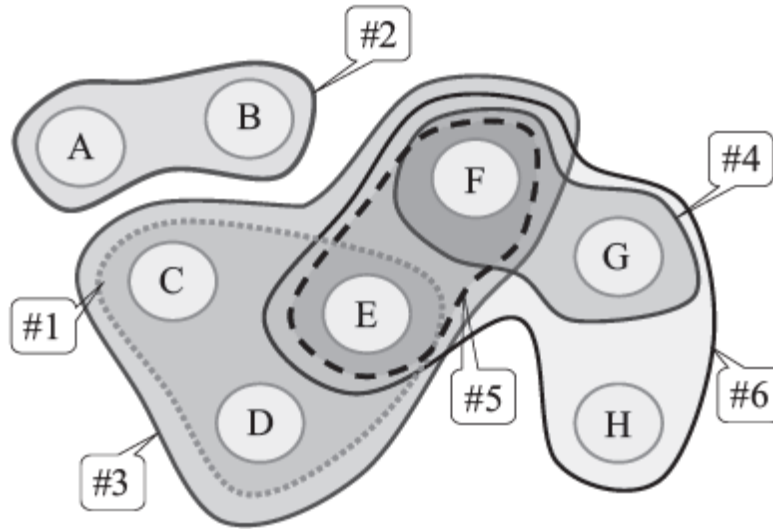


Figure 1.4 The wave model diagram for a dialect continuum adapted from Francois (2014)

In the diagram above, the innovations appearing in the dialects CDE motivate their mutual intelligibility with their surrounding dialects. For instance, innovation #3 encompasses wider dialect areas than innovation #1 further including the EF cluster. Francois (2014) states that such linguistic intelligibility happens because of the lack of a physical boundary between the dialect areas. An additional claim about the above diagram is that an innovation becomes a source of linguistic convergence for the dialects that share it; for example, E and F in #5; the inverse is true for the dialects that do not share it, e.g. E and D in #5 (Francois, 2014).

2.4. Speech Communities

The term speech community is frequently used among sociolinguists to refer to a language based society, and it is also used interchangeably with the term linguistic community (Hudson, 1996). Hudson (1996) provides different definitions of speech community given by different sociolinguists. All the definitions share the idea that a speech community is a group of individuals having a common linguistic behavior, but they differ in issues like: Where are all the speakers found? How many languages do they speak? How do their physical distances look like? Moreover, He claims that one of the definitions gives a comprehensive view which encompasses the rest all definitions. This definition leaves aside the term speech community and instead refers to a group of people having unique linguistic and societal characteristics.

Moreover, Saville- Troike (2003) defines the concept of community from the social science perspective and the term speech community as well. Being derived from the Latin word *communitae* meaning *held in common*, the word community refers to shared knowledge, possessions, or behaviors. Thus, the word speech community has to do with the shared dimension of the ways, in which the members of the community use, evaluate or perceive language. Furthermore, she adds that a speech community is not necessarily composed of linguistically homogeneous group of people, nor it will remain unchanging entity being of the same members as it passes through different times and situations.

In addition, Spolsky (1998, p. 24) defined a speech community as “all the people who speak a single language (like English or French or Amharic) and so share notions of what is same or different in phonology or grammar.” He gives this definition from the perspective of general linguistics, and he explains that it refers to any group of people speaking the same language; nevertheless they live wherever and at any distance. The basic idea of this assumption is that all the members of the group are able to communicate in their speech. Contrarily, the sociolinguists approach a speech community, on the practical ground, as a group of people who have the probability of interacting one another and use not just a single language but a repertoire of language varieties (Spolsky, 1998).

Saville- Troike (2003) writes that linguists generally agree that a speech community cannot be absolutely equated with a group of people that speak the same language. Based on her discussion, there are different situations in which speakers of the same language living in different countries appear to be members of different speech communities at one extreme, and speakers of different languages tend to assume themselves as belonging to the same linguistic community at the other. These and other related issues about a speech community are explained not only from a linguistic point of view but also from the perspective of different historical, political and social factors (Saville- Troike, 2003).

According to Spolsky (1998), in the view of the sociolinguistic approach, there is a complexity of interlocking communication systems within a speech community whose members share knowledge and attitudes about their language use patterns and that of others. As Saville- Troike (2003) points out, in such a complex situation, there exists a nested pattern of different speech communities in which a language plays a vital role in identifying a particular speech community

within larger communities; hence, the members of the smaller community may be members of that of the larger too. For instance, in the United States, the Armenian speakers maintain their native language for home, religious and social functions among their group, and they also speak English; thus, they appear to be the participants of both their Armenian group and the larger communities of the USA (Saville- Troike, 2003)

Theoretically, the geographical location and size of a speech community is hardly contiguous though practically it is defined by the shared dimension of the speakers' behaviors and norms about the use of varieties of language (Spolsky, 1998). For instance, Saville- Troike (2003) states that Armenians in California and Syria can be taken as to participate in the same speech community regardless of their little interaction with one another. Similarly, people who are scattered all over the world can form significant communities of an interaction through the use of the Internet networking. Moreover, still these digital online communications have patterned rules of shared behaviors among their members (Saville-Troike, 2003).

Spolsky (1998) asserts that the idea of sharing norms among the members of a speech community in selecting varieties for use is important. He also explains that the members of the community are aware of the circumstances in which each variety is used even though they might not quite know and use all the varieties in their speech repertoire. In addition, Saville- Troike (2003) writes that each member of the speech community possesses a set of social identities, and these identities are expressed with the appropriate forms of varieties of languages in the appropriate social contexts. Thus, the choice one makes among the given rules and norms of speech at a given time in a given social setting forms the strategy of communication in a speech community.

The varieties of language in the repertoire of a speech community may serve different functions (Spolsky, 1998). It means that some varieties are chosen for writing purposes, whereas others are intended for conversations in daily activities, and still others are used in different religious and ritual settings. Furthermore, Spolsky (1998) points out that the concept of the repertoire of the speech varieties of a community helps in examining variation in a single language. For instance, the study about the Palestinian village, which was divided into the regions of Israel and Jordan with half and half between 1949 and 1967, revealed that the spoken Arabic was diverged into

two quite different varieties of it. Spolsky (1998) also adds that studies of speech communities like New York or London come with results of both regional and social variations.

Finally, Saville- Troike (2003) identified an informal typology of speech communities as “*soft-shelled*” and “*hard-shelled*” based on the characteristic nature of the boundary kept by the language representing the community. She states that a hard-shelled community is characterized by a stronger boundary; that is, there is little interaction between its members and the rest world, so it extremely maintains its language and culture. On the other hand, the soft-shelled speech community is known for its allowance of using worldwide languages within its boundary; thus, interaction between both sides of the boundary is relatively easy.

2.5. Language Varieties

Language is inherently spoken in many different forms. Hudson (1996) argues that if language is a phenomenon which includes all human tongues in the world, these different manifestations of it can be labeled as varieties of language. He defines a variety of language as “a set of linguistic items with similar social distribution” (Hudson, 1996, p. 22), that is, because a particular variety is distinguished from others with the linguistic elements it contains. According to the above definition, the phrase *a variety of language* is understood as a general term encompassing all the other conventional terms such as language, dialect, and idiolect and so on.

Haugen (1966) writes that there are ambiguities in connection with the relation between the varieties labeled as **languages** and **dialects**. He also states that an ordinary person takes the distinction between the two terms as a simple issue, and for him they refer to easily countable entities; however, for the linguist these issues are challenging. Haugen (1966) concludes that the question how many languages and dialects are in the world ends in no answer. According to Hudson (1996), the problem related to the terms *language* and *dialect* springs from two perspectives: first, from defining each term in a general sense which distinguishes it from others; second, from finding criteria for delimiting varieties.

Haugen (1966) traces back to the historical origins of the two terms in order to get a good understanding about their usage. According to his explanation, the word *language* was borrowed from French to English; it was the older one and partially replaced the indigenous words like “tongue” and “speech” earlier in Middle English. On the other hand, the word *dialect* was

learned as a loan from Greek during the Renaissance time. Haugen (1966) states that such a term was very important for the ancient Greek people following that in the classical period of Greece there were different linguistic varieties instead of a single unified norm. Those dialects were named after various Greek regions where the speakers were found; however, they were written varieties of Greek, each of which was used for a particular literary tradition such as history, lyrics, tragedy, etc.

According to Haugen (1966), the usage of the terms *language* and *dialect* has got its origin in the situation that was in classical Greece; the same is true for the ambiguities and confusions of their applications in the present time. He also explains that from the perspective of synchronic description, *language* can refer either to a single linguistic norm, or to a group of related norms; from diachronic perspective, on the other hand, *language* can be understood either as a common language preparing for divergence, or as a common language resulting from linguistic convergence. Hence, a *dialect* is any one of the related norms which together form the general structure *language*. This relation between language and dialect can be explained with the following structural formula (Haugen, 1966, p. 923): "X is a dialect of language Y," or "Y has the dialects X and Z" (never, for example, "Y is a language of dialect X").

In the French linguistic tradition, another third term *patois*, which refers to a spoken language was used whereas the French word *dialecte* was used for a well-established written variety; nevertheless, both *patois* and *dialecte* were used to refer to the regional varieties of the French language (Haugen, 1966). Haugen clarifies that the distinction between these two terms introduces us to a new point of discussion; namely: the social functions of a language. In this regard, *patois* can be considered as a variety of French used for less prestigious functions. Moreover, the term *patois* has never been applied in English for linguistic description, but the word *dialect* remained popular and scientific instead of it. Haugen (1966) states that earlier English writers used the term *dialect* for any particular variety of the language such as 'the lawyer's dialect'. However, its general usage has become for regional or local varieties such as "Lancashire dialect" or "Irish dialect" in the case of the English language.

Hudson (1996) writes that the terms *language* and *dialect* can be distinguished in two distinct ways. The first is the difference in the linguistic size represented by both varieties. Accordingly, a language is larger than a dialect, i.e. if a variety is a language, then it contains more items than

a variety which is a dialect. For instance, it is considered that English is a language which contains all the linguistic elements in its dialects such as ‘Yorkshire English’, ‘Indian English’ and ‘Standard English’ to mention some. The second way of distinguishing the two terms is the degree of prestige they are given by the speech community. That is a language is more prestigious than a dialect. For example, Standard English is a language at all, but the rest varieties, which are not used in formal writing, are dialects. Hudson (1996) emphasizes that a variety is called either language or dialect based on its prestige in the society, and this in turn is characterized by its usage in a formal writing.

Wardhaugh (2006) discusses a wide variety of language and dialect divisions in different countries. He writes that the concepts of power and solidarity played an important role in the language and dialect divisions he explained in his discussions. Power refers to a kind of imbalanced relationship between things in which one holds a better position than the others. Hence, among the varieties of a language, the one which has the greatest power in the community is called language, but the rest are called dialects. In other words, it is the most powerful variety of a language, and this power comes from not the language itself but from the social factors. Standard English can be mentioned as a typical example. Wardhaugh (2006, p. 30-31) defines solidarity, on the other hand, as “a feeling of equality that people have with one another.” Solidarity helps to develop a local dialect and to preserve an endangered language; for instance, the modernization of Hebrew.

2.6. The Sociolinguistic Models and Methods

The assumptions which underlie the theories and methods of the study of language variation were firstly established in the historically preceding linguistic studies (Milroy and Gordon, 2003). Milroy and Gordon (2003) are of the idea that researchers should equip themselves to recognize the relationship between their field of study and its pioneering historical antecedents; this may include making theoretical foundations on which the subsequent practitioners of the area will query more knowledge about their object of investigation. Milroy and Gordon (2003) state that such an instance of reacting to linguistic theory was provided by the early work of William Labov against Chambers (1995)’s principle of *the axiom of categoricity*, the traditional assumption treating the structure of language as free from variation.

According to Honeybone (2011), Chomsky (1965) argues that linguistic theory targets describing the abstract structure of language in the individuals mind, and he maintains that these individuals form completely homogeneous speech community. Consequently, variability in language structure is perceived as irrelevant to the process of theory building and remains ignored. Moreover, Labov (1966)'s work also gives reactions to the methods and assumptions of the contemporary dialectological research (Milroy and Gordon, 2003). These contributions put ongoing influences on the assumptions and approaches of the variationist theory of sociolinguists.

Another issue which is important to note here is that a sociolinguistic study as a field needs empirical observations to work rigorously in relation to its theoretical underpinnings. Guy (2007) write in their chapter about variation and phonological theory that as phonological theory serves in the analysis of variation, the variation data in turn has its own value for the evaluation and construction of phonological theory. The data can play a role of providing empirical examination of theoretical matters, confirmation or denial of the theoretical hypothesis, or contributing new facts for the theory development.

Milroy and Gordon (2003) points out that all sociolinguists are in agreement in their orientation to data; all they believe that linguistic investigation must be based on the analysis of empirical data. This is to mean that sociolinguists favor observation data rather than introspection based one. Thus, the data from the actual language use of speakers, that is their performance, are commonly studied among the practitioners. In addition to this, sociolinguists also collect qualitative responses about individual linguistic behaviors of the speakers. This kind of data approach is shared with related disciplines such as linguistic anthropology and conversation analysis (Milroy and Gordon, 2003).

Variationist sociolinguists, as their peer professionals in adjacent fields, are generally trained as linguists and make use of common tools and methods in the whole field of linguistics (Milroy and Gordon, 2003). As a result, literature in variationist studies involves utilization of concepts from syntactic and phonological theories in order to make description of some linguistic phenomena. However, in spite of the similarity in employing the analytical method and tools, the variationist tradition differ from that of the contemporary theoretical linguistics in that the

variationists follow different orientations to data and they bring distinct approaches to linguistic variation.

Bailey and Tillery (2004) writes that in the first decade in the age of quantitative sociolinguistics, the major methodological concerns were dealing with the solution for the observer's paradox, the selection of representative samples and developing analytical approaches to language variation. Bailey and Tillery (2004) also adds that in the latter two decades, however, the focus made on the methodological issues did not continue, and that situation brought negative impacts on the discipline. According to his explanation, the major goal of sociolinguistics is to achieve generalizability of behavior from the findings to the larger population. The fact of generalizability involves the reliability and intersubjectivity of the study results; however, these two important issues are sometimes problematic in quantitative sociolinguistics.

Moreover, Bailey and Tillery (2004) points out that some researchers have found results containing different data from observation of the same thing; these differences in findings resulted from methodological distinctions among the researchers. To explain this, the differences in interviews, the sampling processes and analytical methods account for the resulting difference in evidence. What Bailey and Tillery (2004) adds is that generalizability of results is intensively determined by the methods used to achieve it; hence, without help of evaluative studies of the influence of methodological issues on the findings, reliability and intersubjectivity are hardly achieved, which in turn ends in failure to generalize our results.

Milroy and Gordon (2003) states that the fundamental difference between theoretical linguistics and variationist sociolinguistics is marked by their respective approaches to language variation. An essential principle given by Weinreich, Labov and Herzog (1998) says that, "A language system that did not display variability would not only be imaginary but also dysfunctional, since structured variability is the essential property of language that fulfills important social functions and permits orderly linguistic change" (Milroy and Gordon, 2003, p. 4). These principles are considered axiomatic even among contemporary sociolinguists. In the theory of structural linguistics, linguistic structure is assumed as categorical, but for the sociolinguists the linguistic variable is a structural unit which can be equated to such linguistic units as phoneme and noun phrase linguistic theory.

Hazen (2017) writes that this application of the linguistic variable in contrast to the theoretical tools used in other traditional linguistic fields creates the ground for the variationists to deal with the heterogeneity in language. The study of language variation and change involves the examination of the interaction between linguistic and nonlinguistic factors. Therefore, the variationist sociolinguists are expected to improve the description and analysis of the resulting linguistic variation.

Cornips and Gregersen (2016) point out that theoretical linguists who follow the Chomskyan tradition have been concerned with variation between closely related languages, within the same language community and individual speaker, so they cannot deny the empirical evidences offered by the variationist sociolinguists. However, Cornips and Gregersen (2016) argue that the connection between the two fields in search for variability has not led them to integration, and this situation offers an invitation for definition of sociolinguistics beyond variationism accounting for integration both internally with pure linguistic disciplines and externally with macro-linguistic fields such as psycholinguistics, anthropological linguistics, etc. In general, Milroy and Gordon (2003) suggest that the fundamental distinctions between theoretical linguistics and variationist sociolinguistics need to be acknowledged, but neither exaggerating the impenetrability between the boundaries of the two nor extremely separating these two linguistic traditions is unessential.

2.7. Aaraph Phonology

2.7.1. The Consonant and Vowel Inventories of Aaraph

In his study of the Phonology of Aaraph, Rosok (2016) states that two earlier researchers Hayward (1990) and Melkeneh (2013) discussed the phonological aspects of Aaraph in their studies of the language. Regarding the consonant inventory, both Rosok (2016) and Hayward (1990) identified 26 consonant phonemes, but Melkeneh (2013) found 31 consonants. The phonemes which were identified only by Melkeneh (2013) include /t'/, /k'/, /χ/ and /ʁ/. The present researcher identified that one of the four additional phonemes of Melkeneh's (2013) inventory is found in the Gayil dialect of Aaraph. This phoneme is the voiceless velar ejective stop /k'/. Thus, the present researcher maintains that /k'/ is an additional phoneme to the Rosok's

(2016) consonant inventory of 26 phonemes given in *Table 1.1* below. Therefore, Aaraph has a total of 27 consonant phonemes.

Table 1.1 Consonant Inventory of Aaraph Adapted from Rosok (2016)

Place of articulation → Manner of articulation ↓		Labial	Lingual				Glottal
			Coronal		Dorsal		
			Alveolar	Post-alveolar	Velar	Uvular	
Stop	Pulmonic	p b	t d		k g	q	ʔ
	Glottalic	pʼ	dʼ				
Affricate	Pulmonic		ts	tʃ			
	Glottalic		tsʼ	tʃʷ			
Fricative		f	s z	ʃ ʒ			ħ
Nasal		m	n				
Trill			r				
Approximant		ʋ	l	j			

Regarding the vowel inventory of the language, Hayward (1990) and Rosok (2016) have again the same claim that Aaraph has five basic vowel phonemes: /i/, /e/, /a/, /u/ and /o/, and these have their own long vowel versions respectively as follows: /ii/, /ee/, /aa/, /uu/ and /oo/. On the other hand, Melkeneh (2013, as cited in Rosok, 2016) states that the language contains nine vowels: (/i, e, a, ɘ, ɔ, u, o, ə, i/), of which the seven vowels have the following long counterparts: (/ii, ee, aa, ɘɘ, ɔɔ, uu, oo/). However, the present study confirms Hayward's (1990) and Rosok's (2016)

identification of vowels, i.e., the occurrence of the five basic vowel phonemes with their long counterparts.

Table 1.2 The Vowel Inventory of Aaraph Adapted from Rosok (2016)

Backness → Height ↓	Front	Back
High	i	u
Mid	e	o
Low	a	

Each of the above short vowels has a long counterpart; however, Hayward (1990) and Rosok (2016), argue that both short and long vowels have distinctive functions, but they do not contrast to each other in word-final position. That means only a pair of short vowels shows a contrast word-finally, but a pair of a short and long vowel does not distinguish meaning at the word position just mentioned. Therefore, both Hayward (1990) and Rosok (2016) maintain that the short vowels are found in the vowel inventory of the language, whereas the long vowels are merely double occurrences of these short vowels.

2.7.2. Phonotactics

In Aaraph, all phonemes can occur in all positions of syllables; namely onset, nucleus and coda; among them the nucleus is only occupied by vowels. Hayward (1990) states that the canonical form of sequences of sound in Aaraph appears as: (C) V (V/C) (C) (C), which permits the sequence of either double vowels and a single consonant or a single vowel and double consonants, but it does not allow doubling of both vowels and consonants subsequently, i.e. the possible syllable structure would be either (C) VV (C) or (C) VCC (C).

Rosok (2016) writes that the possible syllable structure in Aaraph is (C) V (V) (C) (C); the brackets are used to show the optionality of the consonant phonemes in the syllable structure, but the vowel phoneme must necessarily occupy the nucleus part of the syllable; so it is written without parenthesis. The present researcher claims that Rosok's (2016) syllable structure form

seems more acceptable than the one which Hayward (1990) identified because the present researcher found that a sequence of only two consonants seems to occur in the coda as follows: /*gand*/ = ‘to freeze’; /*mang*/ = ‘to hunt’; /*hanq*/ = ‘to push’. Hayward’s (1990) statement of the possibility of three or four consonant sequences in the coda appears to be empirically unobservable in the present work. That is because when three or four consonants occur in sequence, only the first two are phonologically combined, whereas the rest ones are most probably resulted from morphological processes.

Hayward (1990) writes that in the sequence of three consonants in the syllable-final position, the last consonant is /s/ or /ʃ/. This implies that the third person singular and past tense suffix -se or -ʃe is attached to a root verb so that a complex coda in the preceding syllable becomes three consonants with /s/ or /ʃ/ of the bound morpheme. The detail of the syllable structure of the language is explained in the works of both Hayward (1990) and Rosok (2016). However, here my intention is just to show the possible sound sequences in Aaraph.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Research design

The mixed research design was used in this study. This research approach involves both qualitative and quantitative methods of data collection and analysis. The basic assumption of this approach is that the combination of the two methods helps to answer the research questions in a better way (Creswell, 2014). As the present study is about language variation in the case of phonology and morphology, the researcher collected the linguistic data from the speakers of the two dialects under study, and he analyzed them both in the qualitative and quantitative methods.

3.2. The Target Population

The linguistic landscape of Aaraph is very wide, and it is divided into four districts. As mentioned in section 1.1.2, either 9 or 10 dialects are spoken in the entire population of Aari. However, the target population of this study comprises the speakers living in the areas where the Gayil and Sida dialects are spoken. The Gayil dialect speakers live in a particular administrative district, namely North Aari, whose number of population is 67,798; on the other hand, the speakers of the Sida dialect along with the rest dialects speakers live in the South Aari district, whose total number of population is 212,389 (CSA, 2007).

The researcher selected these two dialects among the others for two reasons. Firstly, the Gayil dialect is less intelligible to the most of other dialects; for instance, citing Ford (1985), Tsuge (2006) states that except Gayil the rest dialects share 85% of their vocabulary, but Gayil has only 67.5%~79.5% shared vocabulary with others. On the other hand, the Sida dialect is more intelligible to the most of the rest dialects. For instance, Fekede (2018) writes that his lexical comparison among the Sida and other dialects based on the 275 lexical items shows that Sida is highly shared with Baaka (94.9%) and Wuba (84.3%), but is less shared with Gayil (50.5%). Thus, investigating the variations between the two gives us a clear picture of the major dialectal differences in Aaraph. Secondly, it is difficult to study the differences among all dialects of the language with the time and budget available.

3.3. The Sampling Techniques and Sample Size

According to Creswell (2012), qualitative research, whose intention is not generalizing to a population, makes a deep exploration of a central phenomenon. As a result, for the better understanding of the phenomenon, the researcher in the qualitative approach selects individuals and sites for the study purposefully or intentionally. The main goal of sampling in the qualitative research is to select participants who have rich data about the phenomenon being studied; to this end, some kind of purposive sampling should be used (Zoltan, 2007). Accordingly, the purposive sampling method was used to select the informants for this study. The sample size consisted of 10 people of whom the 5 were selected from the speakers of the Gayil dialect, whereas the rest 5 consisted of the Sida dialect speakers.

3.4. Data Collection Instruments

Kothari (2004) states that to decide which method of data collection is used for our study, we have to bear in mind the primary and secondary types of data. In this study, primary data were gathered by using Elicitation and Audio-recording methods. In addition, secondary data were also used from a linguistic document of the vocabulary list in the Gayil dialect by Tsuge (2006). The researcher used the lexical items from the secondary source as complementary to the primary data collected in this study.

3.4.1. Elicitation

Elicitation is used as a major data gathering tool in this study. Vaux and Cooper (2003) suggest that for researchers interested in grammatical structures such as phonology, morphology and syntax, elicitation helps to get the basic lexical items, phrase structures and basic sentences from the dialects under investigation. Accordingly, the elicitation of the basic vocabulary was based on the Swadesh wordlist containing 206 lexical items as listed in Vaux and Cooper's (2003, p. 44-45) 'Introduction to Linguistic Field Methods'. In addition, the researcher also prepared 133 sentences purposively in order to elicit different morpheme structures from the various grammatical contexts of the constituent words. These various lexical and syntactic data were aimed to examine the phonological, morphological and lexical variations between the two dialects under investigation.

3.4.2. Audio-recording

Bowern (2008) states that recording is an important data gathering tool for linguistic fieldworkers as it is useful for checking the data transcription when necessary. With the same objective the present researcher employed an audio-recording as an additional data collection instrument in this study. The researcher used the sound recorder of his cellphone. The recorded audio files were stored in the Hard Drive of the researcher's personal computer, and headphones were used in order to listen to the audio files when there was a need of checking the consistency of the transcription and the audio data.

3.5. Data Collection Procedures

For the elicitation of the intended linguistic data, the Swadesh wordlist and the prepared sentences were translated into the Amharic language, which is widely spoken as a second language in both dialect areas. During the elicitation sessions, the lexical and syntactic items were read for the informants in Amharic by the fieldwork assistant. Accordingly, the researcher asked the informants of both Sida and Gayil dialects for the Aaraph translations of those basic words and sentences. Then, the researcher transcribed the word and sentence meanings given by the informants in his notebooks. In addition, all their responses were recorded and stored as audio-files in the researcher's computer device. Both the recorded and written data were carefully reserved for the data analysis. The data collection was firstly done in the Gayil dialect area and getting important experiences such as good approach to the informants, skills of the data transcription and organizing the data set properly, the researcher accomplished the data collection of the Sida dialect in a smooth manner.

3.6. Methods of data analysis

The qualitative and quantitative data analysis methods were used in this study. For the qualitative analysis, the primary data of the informants were transcribed using the International Phonetic Alphabet (IPA) symbols. Then, examining the sound and morpheme structures in both dialects, the researcher manually identified the phonemes and morphemes which show variation between the two dialects. Accordingly, the researcher described the phonological and morphological variations between the Sida and Gayil dialects in different grammatical contexts.

For the quantitative analysis, the researcher used the language software WORDSURV, which was developed by Wimbish (1989) for lexo-phonostatistical analysis of the similarities and differences between a pair of language varieties. The word list was put in the computer program, and the software automatically analyzed and showed the analysis results. As a result, the percentage of the lexical similarity between the two dialects studied, the number of phoneme correspondences in cognate words and the ratio of corresponding phonemes and their degrees of differences were presented in different tables.

3.7. Ethical Consideration

Social research necessarily involves ethical issues as it considers the social lives of people (Zoltan, 2007). According to him, more emphasis is given to ethical matters in qualitative study since it is often interested in private issues of informants. As a result, the present researcher considered the ethical issues such as personal privacy, authenticity, and credibility of the research report. In addition the following ethical considerations were made in a particular focus:

- The purpose of the investigation was clearly explained to the research participants;
- The permission of the informants was requested before engaging them in interview;
- As the same linguistic community member, the researcher showed big respect to the variety the participants use;
- The researcher respected the culture, traditions and living standards of the people in the study area; and
- The authentic rules of citing the ideas, documents and materials of other researchers were properly obeyed in the writing of this thesis.

CHAPTER FOUR

DATA ANALYSIS

4.1. Phonological Variations

Obvious phonological differences are found between the Sida and Gayil dialects of Aaraph. Cser (2014) writes that in a broader sense sound change can be classified into three types: conditioned, unconditioned and sporadic changes. According to him, conditioned (context-dependent) changes are sound alternations which occur in specific phonological environments, but unconditioned (context-free) changes take place in all parts of words regardless of their phonological context; the sporadic change refers to an unsystematic change of sounds which occur in a few words only.

In this study, the researcher found that the phonological variations between the dialects under investigation are unconditioned changes of sounds; specifically substitution of consonant and vowel phonemes. Some sporadic changes are also observed in the language; for instance: /kɛ:fi/ → /ka:fi/ = ‘wing’; /fɛʃˈim/ → /tɛtsˈim/ = ‘spit’; /lmse/ → /mlse/ = ‘he/she/it swam’; in these pairs of words the first one shows the Gayil dialect whereas the second one represents the Sida dialect; however, there are no phonological changes conditioned by specific grammatical environments because the variation between the two dialects is not a result of contextually motivated alternations of sounds.

4.1.1. Consonant Substitutions

The notable phonological variation between the Sida and Gayil dialects of Aaraph is the substitution of consonant sounds. Accordingly, the consonant sounds: /s/, /z/, /tʃ/, /tʃˈ/ and /q/ in some words of the Sida dialect are changed to /ʃ/, /z/, /tʃ/, /tʃˈ/ and /kˈ/, respectively in lexically equivalent words of the Gayil dialect. Any two consonants which substitute each other occur at the same positions of the equivalent words.

4.1.1.1. Substitution of /s/ by /ʃ/

The voiceless alveolar fricative /s/ in some words of the Sida dialect is changed to the voiceless post-alveolar fricative /ʃ/ in the lexically equivalent words of the Gayil dialect and vice versa. The change between these two sounds takes place in all positions of a word.

Example 1: Pairs of words from both dialects with their English meanings.

Sida dialect		Gayil Dialect	Gloss
a. /sɔːq/	/s/ → /ʃ/	/ʃɔːkʰ/	‘salt’ (n)
b. /susa/	/s/ → /ʃ/	/ʃuʃa/	‘relative’ (n)
c. /ʊʃ/	/ʃ/ → /s/	/ʊs/	‘to cook’ (v)
d. /ʃaːn/	/ʃ/ → /s/	/saːn/	‘urine’ (n)

In example 1(a), the two words show dialectal variations in their initial and final consonants, i.e. /sɔːq/ → /ʃɔːkʰ/, meaning ‘salt’. The explanation for the sound change in the last consonants of the pair of words in this example is given in section 4.1.1.5 below. In example 1(b), /s/ appears at both initial and medial positions of the Sida dialect word, and correspondingly it is substituted by /ʃ/ in the equivalent word of the Gayil dialect as follows: /susa/ → /ʃuʃa/, meaning ‘relative’. In the latter examples, /s/ characterizes the Gayil word, whereas /ʃ/ shows the Sida one as follows: /ʊʃ/ → /ʊs/, meaning ‘to cook’ in example 1(c) and /ʃaːn/ → /saːn/, meaning ‘urine’ in example 1(d). In these two latter examples, the variation takes place word-finally and word-initially, respectively.

4.1.1.2. Substitution of /z/ by /ʒ/

The second instance of consonant substitution involves the change of the voiced alveolar fricative /z/ in some words of the Sida dialect to the voiced post-alveolar fricative /ʒ/ in the lexically equivalent words of the Gayil dialect and vice versa. The change between these two sounds occurs in all positions of a word as in the examples below.

Example 2: Pairs of words from both dialects with their English meanings.

Sida		Gayil	Gloss
a. /benzi/	/z/ → /ʒ/	/benʒi/	‘penis’ (n)

b.	/gɒbze/	/z/ → /ʒ/	/gɒbʒe/	‘he/she/it jumped’
c.	/ʒɒga/	/ʒ/ → /z/	/zɒga/	‘wind’ (n)
d.	/qaʒ/	/ʒ/ → /z/	/k’az/	‘to cool down’ (n)

The first and second pairs of words in examples 2 (a) and (b) above show the substitution of /z/ by /ʒ/ at word-medial positions, i.e. /benzɪ/ → /benʒɪ/, meaning ‘penis’ and /gɒbze/ → /gɒbʒe/, meaning ‘he/she/it jumped’, respectively. In these words, /z/ is the feature of the Sida dialect as opposed to /ʒ/ in Gayil. The word-initial position holds the change between /z/ and /ʒ/ in the case of example 2 (c), whereas example 2 (d) exhibits word-initial and final variations as follows: /ʒɒga/ → /zɒga/, meaning ‘wind’ and /qaʒ/ → /k’az/, meaning ‘to cool down’, respectively. In these last two cases, /z/ characterizes the Gayil dialect unlike the previous ones. In conclusion, the analysis of the variation between /z/ and /ʒ/ shows that they occur in all positions of a word.

4.1.1.3. Substitution of /ts/ by /tʃ/

Another pair of consonant sounds which substitute each other consists of the voiceless alveolar affricate /ts/ and the voiceless post-alveolar affricate /tʃ/. Regarding their phonemic status, /ts/ is found in the Sida dialect only but not in the Gayil dialect, whereas /tʃ/ is found in both Sida and Gayil dialects. For instance, the following Sida words contain /tʃ/: /wɒtʃa/ = ‘dry’, /hantʃer/ = ‘to come down’ and /geʃa/ = ‘hill’. Therefore, /ts/ never appears as the feature of the Gayil words, but it characterizes only the equivalent words of the Sida dialect. The occurrence of the difference between these two sounds is described in the explanations of the following examples.

Example 3: Pairs of words from both dialects with their English meanings.

	Sida		Gayil	Gloss
a.	/katsa/	/ts/ → /tʃ/	/katʃa/	‘worm’ (n)
b.	/atsɪ/	/ts/ → /tʃ/	/atʃɪ/	‘tooth’ (n)
c.	/ɪts/	/ts/ → /tʃ/	/ɪtʃ/	‘to eat’ (v)

In each pair of the words in the example above, /ts/ in the Sida word acts against /tʃ/ in the equivalent Gayil word. In examples 3 (a) and (b), the sound substitution occurs at word-medial position: /katsa/ → /katʃa/, meaning ‘worm’ and /atsɪ/ → /atʃɪ/, meaning ‘tooth’ respectively. Example 3 (c) illustrates the word-final variation between /ts/ and /tʃ/ as follows: /ɪts/ → /ɪtʃ/.

meaning ‘to eat’. According to the above description, /tʰ/ and /tʃ/ substitute each other at word-medial and final positions only because they do not occur word-initially in both dialects.

4.1.1.4. Substitution of /tʰ/ by /tʃ/

The voiceless alveolar ejective affricate /tʰ/ in some words of the Sida dialect is changed to the voiceless post-alveolar ejective affricate /tʃ/ in the lexically equivalent words of the Gayil dialect. /tʰ/ rarely occurs in the Gayil dialect; for example, only one word is found with this consonant in Gayil: /dʒ:tʰma/, but it is frequent in the Sida one, whereas /tʃ/ appears frequently in both dialects. For instance, the following Sida words contain /tʃ/: /tʃʰafi/ = ‘wet, /tʃʰu:p/ = ‘to squeeze’ and /tʃʰu:tʃʰa/ = ‘ear’.

Example 4: Pairs of words from both dialects with their English meanings.

Sida		Gayil	Gloss
a. /tʰʒ:di/	/tʰ/ → /tʃ/	/tʃʒ:di/	‘short’ (adj)
b. /tʰʒ:tʰ/	/tʰ/ → /tʃ/	/tʃʒ:tʃ/	‘to be full’ (v)
c. /ra:tʰi/	/tʰ/ → /tʃ/	/ra:tʃi/	‘milk’ (n)
d. /atʰ tʰe/	/tʰ/ → /tʃ/	/atʃ tʃe/	‘he/she/it bore a child’

In examples 4 (a) and (b), the change of consonant occurs word-initially and finally: /tʰʒ:di/ → /tʃʒ:di/, meaning ‘short’ and /tʰʒ:tʰ/ → /tʃʒ:tʃ/, meaning ‘to be full’ respectively. The word-medial variation is described in examples 4 (c) and (d) as follows: /ra:tʰi/ → /ra:tʃi/, meaning ‘milk’ and /atʰ tʰe/ → /atʃ tʃe/, meaning ‘he/she/it bore a child’ respectively. In general, /tʰ/ and /tʃ/ substitute each other in all positions of lexically equivalent words of the Sida and Gayil dialects.

4.1.1.5. Substitution of /q/ by /kʰ/

The voiceless uvular stop /q/ in some words of the Sida dialect is changed to the voiceless velar ejective stop /kʰ/ in the lexically equivalent words of the Gayil dialect. /q/ does not occur in the Gayil dialect and neither does /kʰ/ in the Sida. Therefore, /q/ only appears in the words of the Sida dialect as so does /kʰ/ in the Gayil dialect words. The following example illustrates the occurrence of change between these two consonants.

Example 5: Pairs of words from both dialects with their English meanings.

Sida		Gayil	Gloss
a. /qɒlɪ/	/q/ → /k'/	/k'ɒlɪ/	'sheep' (n)
b. /qasa/	/q/ → /k'/	/k'asa/	'louse' (n)
c. /lɜ:q/	/q/ → /k'/	/lɜ:k'/	'to play' (v)
d. /mɔqa/	/q/ → /k'/	/mɔk'a/	'egg' (n)

The nouns 'sheep' and 'louse' in the examples 5 (a) and (b) above show variation between /q/ and /k'/ in their word-initial positions as follows: /qɒlɪ/ → /k'ɒlɪ/ and /qasa/ → /k'asa/ respectively. An instance of word-final substitution is found in example 5 (c): /lɜ:q/ → /lɜ:k'/, meaning 'to play'. In example 5 (d), the two sounds substitute each other at the word-medial position as follows: /mɔqa/ → /mɔk'a/, meaning 'egg'. Regarding the variation between Sida and Gayil dialects, word-final substitution of consonants occurs only in infinitive verbs such as the one mentioned in example 5 (c).

4.1.2. Vowel Substitutions

The investigation of the vowel sound variations between the Sida and Gayil dialects revealed that there is an instance of substituting /i/ by /a/. The short close front vowel /i/ in some words of the Sida dialect is changed to the short open front vowel /a/ in the lexically equivalent words of the Gayil dialect. Those equivalent words which show change between /i/ and /a/ are only some adjectives of the two dialects. The following set of examples illustrates this phenomenon.

Example 6: Pairs of words from both dialects with their English meanings.

Sida		Gayil	Gloss
a. /tɒkmi/	/i/ → /a/	/tɒkma/	'narrow' (adj)
b. /dɜ:ts'mɪ/	/i/ → /a/	/dɜ:ts'ma/	'heavy' (adj)
c. /fɒqmi/	/i/ → /a/	/fɒqma/	'dirty' (adj)
d. /qarmi/	/i/ → /a/	/k'arma/	'sharp' (adj)

The pattern of substitution between /i/ and /a/ is simply recognizable, i.e. it takes place only word-finally. This can be seen in the description of the words in examples 6 (a - d) as follows:

/tɒkmu/ → /tɒkma/, meaning ‘narrow’; /dɜːts’mu/ → /dɜːts’mɑ/, meaning ‘heavy’; /ʃɒqmu/ → /ʃɒk’mɑ/, meaning ‘dirty’ and /qarmu/ → /k’arma/, meaning ‘sharp’ respectively. In each pair of words, the first one is in the Sida dialect whereas the second is in the Gayil dialect. To sum up, this sole instance of vowel substitution occurs in final positions of adjectives only.

In general, the above analyses of the phonological variations have shown that there is unconditioned change of sounds between the Sida and Gayil dialects. This change is specifically the substitution of consonant sounds. Accordingly, it is described as follows: /s/ ↔ /ʃ/, /z/ ↔ /ʒ/, /ts/ → /tʃ/, /ts’/ → /tʃ’/, /q/ → /k’/ and /ɪ/ → /a/. This means that the first sound is substituted by the second in the same position; for instance: /s/ by /ʃ/, where /s/ appears in the Sida dialect and /ʃ/ characterizes the Gayil one. These all phonological variations result from the above six pairs of corresponding phonemes which occur at the same word positions. The first five pairs comprise consonant sounds whereas the last pair contains vowel phonemes.

The above data analysis shows that the phonological variations between the Sida and Gayil dialects have the following specific characteristics. All of the above pairs of the consonant sounds except /q/ and /k’/ have the same features of phonetic change. In these four pairs, the sound is changed from the alveolar place of articulation to the post-alveolar area; this means that the tongue tip touches the alveolar ridge when the first consonants of the pairs are articulated, i.e. /s/, /z/, /ts/ and /ts’/. On the other hand, the tongue tip goes one step back to the palatal area while producing the second consonants in the pairs, i.e. /ʃ/, /ʒ/, /tʃ/ and /tʃ’/ but both of the consonants in all the four pairs have the same voicing and manner of articulation. So, these variations are caused only by the change in the place of articulation.

In the case of /q/ and /k’/, the uvular place of articulation of /q/ is changed to velar one for the production of /k’/ because the back of the tongue moves one step forward from uvula area to the velar region. Like the others, these two are also the same in voice and manner of articulation. The unique feature of the variation between these two consonants is that each of them is produced with a different airstream mechanism, i.e. /q/ is pulmonic but /k’/ is ejective sound. The two vowel phonemes /ɪ/ and /a/ differ only in height, i.e., when /a/ is produced, the tongue is lowered but /ɪ/ is articulated with tongue is raised to the roof of the mouth. However, both sounds are the same in length, backness and rounding.

The phonological variations between the Sida and Gayil dialects have the following some specific features. First, all the sound changes are contextually unconditioned, i.e., the variation can occur in any phonological environment; in other words, it is unpredictable. Second, except /k'/ and /tʰ/, all the varying sounds can appear in both dialects; however, /k'/ and /tʰ/ occur only in Gayil and Sida dialects respectively. Thus, the sound change is predictable for the two sounds, i.e., in lexically equivalent words of the two dialects if /k'/ and /tʰ/ appear in the Gayil dialect, they are changed to /q/ and /t/ respectively in the Sida dialect. Finally, these phonological variations only take place in cognate words or similar vocabulary items because the non-cognate lexical items of the two dialects may probably be quite different in their phonemic segments.

4.2. Morphological Variations

A variety of morphological variations are found between the Sida and Gayil dialects. The most common morphological process in Aaraph is suffixation; so this study identified differences in the forms of suffixes inflected in the dialects under investigation. These include changes in tense markers, accusative forms, person markers and different types of pronouns. Each instance of morphological difference is explained in the following sections.

4.2.1. Change in 3rd Person Singular and Past Tense Suffix: *-se* → *-fe*

In Aaraph, the suffix */-se/* or */-fe/* is added to an infinitive verb to mark the third person singular and past tense. Regarding the dialectal variation of the Sida and Gayil areas, there is opposition between the two dialects with regard to the form of the suffix which they inflect in their respective words, i.e. either */-se/* or */-fe/*. In some cases, if the words of the Sida dialect contain the suffix form */-se/*, then, the equivalent words of the Gayil dialect contain the suffix form */-fe/* and vice versa. In other words, a morpheme substitution occurs between the two dialects.

Example 7: Pairs of words from both dialects with their English meanings.

Sida		Gayil	Gloss
a. /gaʔ-se/	<i>-se</i> → <i>-fe</i>	/gaʔ-fe/	'he/she/it bit'
b. /ɔ:k-se/	<i>-se</i> → <i>-fe</i>	/ɔ:k-fe/	'he/she/it changed'
c. /hanʃer-fe/	<i>-fe</i> → <i>-se</i>	/hanʃer-se/	'he/she/it came down'

d. /ʔʷu:pʻ-fe/ -fe → -se /ʔʷu:pʻ-se/ ‘he/she/it squeezed’

In the example above, each word in the pairs is composed of two morphemes, i.e. the root verb and the suffix /-se/ or /-fe/. Accordingly, in example 7 (a): /gaʔ-se/ → /gaʔ-fe/, the suffix /-se/ in the Sida dialect word is changed to /-fe/ in the equivalent word of the Gayil dialect. With the addition of the suffix /-se/ or /-fe/, the meaning of the root verb /gaʔ/, ‘to bite’ becomes ‘he/she/it bit’. In example 7 (b): /ɔ:k-se/ → /ɔ:k-fe/; they have the same root word /ɔ:k/, meaning ‘to change’, which is changed to ‘he/she/it changed’ with the bound morpheme.

In contrast to examples 7 (a) and (b) above, /-se/ appears as the feature of the Gayil words in the rest two cases. Accordingly, in example 7 (c): /hanʃer-fe/ → /hanʃer-se/, with the root verb /hanʃer/, meaning ‘to come down’, the suffixed word means ‘he/she/it came down’. Similarly, in example 7 (d): /ʔʷu:pʻ-fe/ → /ʔʷu:pʻ-se/, meaning ‘he/she/it squeezed’; the root verb /ʔʷu:pʻ/ means ‘to squeeze’. Generally, the analysis of the change of the morpheme /-se/ by /-fe/ shows that in some words /-se/ appears as the feature of the Sida dialect, whereas /-fe/ characterizes the equivalent words of the Gayil dialect and vice versa. Furthermore, the suffix /-se/ or /-fe/ functions as the third person singular pronoun and past tense marker simultaneously; for instance, /ɪm/ = ‘to give’; /ɪm + -se/ = ‘he/she/it gave’. The third person singular masculine and feminine pronouns in Aaraph are: /nɔ:/ and /na:/ in Sida and /nɒ/ and /na/ in Gayil, meaning ‘he’ and ‘she’, respectively

4.2.2. Change in the Accusative Suffix: -am → -im

The Sida dialect attaches the morpheme /-am/ to mark the accusative case of nouns and pronouns. The suffix /-am/ is changed to /-im/ in the Gayil dialect. Hayward (1990) states that in Aaraph nominal inflection, case is marked only if the noun is definite unless it remains in its base form. The present data below show the same phenomenon.

Example 8: Sentences with accusative noun form in both dialects:

(a)	Sida dialect:	/pɒlɪs	ʒ:d-s-m- am	gɪʔ-se/
		police	man-3SGM-Def.-ACC	hit-PST
	Gayil Dialect:	/pɒlɪs	ʒ:d-s-m- im	gɒpʻ-se/

police man-3SGM-Def.-ACC hit-PST

‘A police hit the man’

In the above example, the noun in objective case contains four (4) morphemes one (1) of which is a free morpheme and the rest three (3) are bound morphemes as follows: /*ɜ:d-s-m-am*/, where /*ɜ:d*/, ‘man’ = root, /*-s*/ = third person singular masculine marker, /*-m*/ = definiteness marker and /*-am*/ = accusative marker. Therefore, /*ɜ:d-s-m-am*/ or /*ɜ:d-s-m-im*/ is singulative definite accusative noun form. During the formation of the above word, some phonological processes take place; for instance, the last consonant /*d*/ of the root word and the third person singular masculine marker /*s*/ are combined and changed to a geminated /*tʃtʃ*/ in Sida, and the same process results in the geminated consonant /*ʃʃ*/ in Gayil; these two consonants always oppose to each other between the two dialects. Thus, it is phonetically realized as [*ɜ:tʃtʃm-am*] and [*ɜ:ʃʃm-im*] in Sida and Gayil dialects, respectively. Regarding the morpheme variation, the accusative suffix /*-am*/ of the Sida dialect is changed to /*-im*/ in the Gayil dialect. There is also a lexical variation in the verb of Sida and Gayil sentences; i.e., /*ɡɪɔ*/ and /*ɡop*/, meaning ‘hit’, respectively.

(b)	Sida:	<i>/jɪntʃ-s-ma</i>	<i>nvqa-n-am</i>	<i>wɔtʃʃ-se/</i>
		boy-3SGM-Def.	water-Def.-ACC	drink-PST
	Gayil:	<i>/jɪntʃʃ-s-ma</i>	<i>nvk'a-n-im</i>	<i>wɔtʃʃ'e/</i>
		boy-3SGM-Def.	water-Def.-ACC	drink-PST

‘The boy drank the water’

The noun in the objective case in example 8 (b) above is composed of 3 morphemes: /*nvqa-n-am*/ in Sida and /*nvk'a-n-im*/ in Gayil. The first morpheme /*nvqa*/, meaning ‘water’ is the root word; the second morpheme /*-n*/ marks definiteness, and the accusative suffix /*-am*/ or /*-im*/ is attached to the preceding definiteness marker. A phonological variation is found in the root words of the two dialects; i.e., /*q*/ → /*k'*/. In addition, the last vowel /*a*/ of the root word is changed to /*e*/ because when the following consonant /*n*/ is produced the front part of the oral cavity is narrowed at the alveolar ridge; this narrowing process changes the production of the

preceding vowel /a/ from the low-tongue-position to the mid-tongue-position of /e/. Hence, the whole word is phonetically realized as [nɒqen**am**] in Sida and [nɒk'en**im**] in Gayil. Moreover, the third segment of the root word shows variation in the two dialects; i.e., /q/ and /k'/ respectively. Hence, this example also shows how the accusative marker is changed between the two dialects.

(c) **Sida:** /da:ɡim jɪnta a:nɪ-**am** tɛf-se/

dagim his finger-ACC cut-PST

Gayil: /da:ɡim jɪnta a:nɪ-**im** tɛf-se/

dagim his finger-ACC cut-PST

‘Dagim cut his finger’

In example 8 (c) above, the noun /a:nɪ/, meaning ‘hand or finger’, receives the accusative marker as follows: /a:nɪ-**am**/ in Sida and /a:nɪ-**im**/ in Gayil. So, this accusative noun contains two morphemes; i.e., /a:nɪ/ + /-**am**/ or /-**im**/. In the case of both dialects, the vowels at the morpheme boundaries form a vowel sequence; according to the phonology of the language, a sequence of two vowels is not allowed unless it represents a long vowel segment. Therefore, the last vowel of the noun /a:nɪ/- (finger) is omitted, and only the vowel at the beginning of the accusative marker remains after the morphological process. Thus, the phonetic form of the accusative noun is [a:n**am**] in Sida and [a:n**im**] in Gayil.

As the above illustrations show apparently, the accusative marker is inflected in different forms for the two dialects. While the Sida dialect receives /-**am**/, the Gayil dialect uses /-**im**/. In addition, the change between the two forms is regular, so we can identify if which dialect a word is from simply by looking at the accusative suffix of which it is formed. In Aaraph, most of the time, the accusative marker is attached after the definiteness marker though sometimes it is directly added to the root word. Despite the previous exception, a particular noun must be in its definite form in order to receive the accusative marker.

4.2.3. Change in the Converb Forming Suffix: *-sijp* → *-isɒ*

In the Sida dialect of Aaraph, the suffix */-sijp/* is added to a root verb in order to construct the converb form of the verb; it is changed to */-isɒ/* in the Gayil dialect. This form is basic and primarily marks the third person singular subject; the other personal pronoun subjects are marked with different versions of this basic form.

Table 1.3 The converb forming suffix for each personal pronoun is given with an illustrative verb */its/*, meaning ‘to eat’ as follows:

Pronoun	Sida dialect	Gayil dialect	Gloss
1 st Singular	<i>its’-sito</i>	<i>ich-isito</i>	‘Having eaten I...’
1 st Plural	<i>its’-soto</i>	<i>ich-isoto</i>	‘Having eaten we...’
2 nd Singular	<i>its’-sayo</i>	<i>ich-isayo</i>	‘Having eaten you...’
2 nd Plural	<i>its’-seto</i>	<i>ich-iseto</i>	‘Having eaten you...’
3 rd Singular	<i>its’-siyo</i>	<i>ich-iso</i>	‘Having eaten he/she/it...’
3 rd Plural	<i>its’-seko</i>	<i>ich-iseko</i>	‘Having eaten they...’

Example 9: Sentences with the above converb in both dialects:

(a) **Sida Dialect:** */nɔː waː its-sijp wɒʃmɪ- eja-r kaj-e/*

he meat eat-CON drinking-house-to go-PST

Gayil Dialect: */nɒ waha ɪʃ-isɒ wɒʃmɪ- eha-r aʃ-se/*

he meat eat-CON drinking-house-to go-PST

‘Having eaten meat, he went to grocery’

In the above example, the converb form of */its/* meaning ‘to eat’ is */itsijp/* in Sida dialect and */ɪʃisɒ/* in Gayil. Phonological difference is found in the last segment of the root verb in the case of both dialects. In the Sida word */its-sijp/*, the root verb ends in the alveolar affricate */ts/*, and the converb forming suffix */-sijp/* begins with the alveolar fricative */s/*; i.e., */its+-sijp/*; in this affixation process, the */s/* undergoes complete regressive assimilation to be identical with */ts/* and

the latter is geminated in the phonetic realization as follows: [ʈʂʂijɐ]. On the other hand, in the Gayil word /ɪʃ-ɪɐ/, the last phoneme of the verb stem is /ʃ/, which is followed by the first segment /ɪ/ of the suffix /-ɪɐ/, i.e. /ɪʃ+-ɪɐ/; in this case, no morphophonemic change happens so that the phonetic output of the word appears as [ɪʃɪɐ].

The above example shows the converb forming suffix for the third person singular pronoun subject only, i.e. /-sɪjɐ/ in the Sida dialect and /-ɪɐ/ in the Gayil dialect. This is the basic form and it is changed to different forms for the rest personal pronoun subjects; for instance, for first person singular: /-sɪɐ/ → /-ɪsɪɐ/; for first person plural: /-sɔɐ/ → /-ɪsɔɐ/; for second person singular: /-sajɐ/ → /-ɪsajɐ/; for second person plural: /-setɐ/ → /-ɪsetɐ/ and for third person plural: /-setɐ/ → /-ɪsetɐ/. In the case of each pair of suffix forms above, the first one shows the feature of the Sida dialect whereas the second one characterizes the Gayil dialect. Thus, we use these different converb forming suffixes for their respective personal pronoun subjects.

4.2.4. Presence or Absence of Reduplication

There is difference between the Sida and Gayil dialects regarding reduplication of the verb root in the simple present tense. Accordingly, the Sida dialect has the feature of reduplicating the root verb in the present simple tense; the reduplication may be either partial or complete. Contrastingly, the Gayil dialect lacks this morphological process.

Example 10: The following pairs of Sentences show the feature both dialects:

- (a) **Sida:** /ɜ:d ad-ad-er-de/
 human bear-bear-PASS-PRS
- Gayil:** /ɜ:d ad-er-de/
 human bear-PASS-PRS
- ‘Human is born’

Two sentences with the same meaning are given in the present simple tense for both dialects in the example above. /ɜ:d ad-ad-er-de/ in Sida and /ɜ:d ad-er-de/ in Gayil; the difference is seen between the present simple tense verb forms of the two dialects, i.e. in the Sida dialect word /ad-ad-er-de/, the root verb /ad/, meaning ‘to bear’ is reduplicated; the first bound morpheme /-er/ is

passivizer and the last suffix */-de/* is present tense marker. In the case of the equivalent Gayil dialect word */ad-er-de/*, there is no reduplication of the root verb.

- (b) **Sida:** */jɪntsɪ ga-gap'de/*
 child grow-grow-PRS
- Gayil:** */jɪntʃɪ gap'de/*
 child grow-PRS
- ‘A child grows’

In this example, the verb */gap'/*, meaning ‘grow’ is used in the sentences in its simple present tense verb form, i.e. it receives the tense inflection */-de/* forming the inflected word */gap'de/*. The morphological variation occurs in the base form of the verb, i.e. in the Sida dialect it is reduplicated as follows: */ga-gap'de/*; the root verb */gap'/* is monosyllabic, and only the onset and nucleus part of the syllable is reduplicated, that is, */ga/*, which precedes the original root element */gap'/* during the reduplication process. On the other hand, in the case of the Gayil dialect the process does not take place at all, so the root verb always remains as it is, i.e. */gap'de/*. Generally, this variation happens only in the case of present simple tense.

4.2.5. Change of Tense Inflections in Wh-Questions

Some tense inflections show differences between the Sida and Gayil dialects in the case of questions with wh-words such as who, whom, what, when and where. These tense inflections include the present tense copula marker and the present and past simple tense suffixes.

4.2.5.1. Change of Copula in Wh-Questions: *-ee* → *-re*

In Aaraph, the present tense copula verb is marked by the suffix */-ee/* to the last word of the sentence containing it. When the suffix is used in wh-questions, it appears in the form */-ee/* in the Sida dialect, but it is changed to */-re/* in the Gayil dialect. This change occurs only in the kind of questions mentioned here; otherwise the suffix remains the same in the case of both dialects.

Example 11: Wh-questions with copula marker in both dialects:

(a) **Sida:** /ketta a:kɪs hɑj-ee/

their grandfather who-COP

Gayil: /ketta a:kɪs hɑj-re/

their grandfather who-COP

‘Who is their grandfather?’

In this example, the sentences in both dialects are the same in everything except the copula marker. In Aaraph, if the copula functions as a main verb in the wh-questions, the question word is found at the end of the sentence and the copula marker is suffixed to it. Accordingly, the suffix /-ee/ is added to the sentence-final word /hɑj/, meaning ‘who?’ in both dialects as the above example shows. The regional variation is found in the form of the copula marking suffix, i.e. in the Sida dialect, /-ee/ is attached to /hɑj/ forming /hɑj-ee/; in the case of the Gayil dialect, on the other hand, /-re/ is added to the question word /hɑj/ resulting in /hɑj-re/, which means ‘who is’ in both dialects.

(b) **Sida:** /hara rej-ee/

what it-COP

Gayil: /hara rɪj-re/

what it-COP

‘What is it?’

In this case, the question word /hara/ is used in the sentence, but it is not placed at last position of the sentence; that is because when the present tense copula marker /-ee/ is used as a main verb in the wh-question with the word /hara/, meaning ‘what’, another word /rej/, meaning ‘thing’ comes after that question word. The word /rej/ semantically represents the preceding word /hara/ itself. That means the compound of the two words: /hara rej/, semantically has only the meaning of the first word, i.e. ‘what’. So, the copula marker /-ee/ is underlyingly suffixed to the word /rej/ but not to the question word /hara/, which does not immediately precede the copula suffix. Thus,

in the Sida dialect the suffixation of the copula marker */-ee/* gives */rejee/*, whereas in the Gayil dialect the copula marker is changed to */-re/*, which is attached to the word */rij/* forming */rijre/*. There is also a phonological variation between the two dialects in the case of the words */rej/* and */rij/*, meaning ‘thing’; i.e., */e/* → */ɪ/*. Finally, the whole question appears as: */ħara rejee/* in the Sida dialect and */ħara rijre/* in the Gayil dialect, meaning ‘What is it?’

(c) **Sida:** /*ħab* *rɪ-ee*/

where it-**Cop**

Gayil: /*ħab* *rɪ-re*/

where it-**Cop**

‘Where is it?’

In this example, the question word /*ħabri*/, meaning ‘where’ is used. In this case also, the word /*rij*/, meaning ‘thing’ is compounded with the other word /*ħab*/, which contains the basic meaning. It is worthy to note here that the last phoneme of the word /*rij*/ is deleted in the process of compounding. In this semantic context, /*rij*/ means ‘it’, which shows something indefinite, so the combined form of the two words, i.e. /*ħab-ri*/ simultaneously contains the meaning ‘where’ and the indefinite subject ‘it’ as: ‘where-it/the thing’, but in the actual realization, /*ħabri*/ denotes only the meaning ‘where’.

As in the previous example, in the Sida dialect, the copula suffix /-ee/ is attached to the part of the compound word /rɪ/ as follows: /*hiabrie*/, meaning ‘where is it’. In the same way, in the Gayil dialect, the copula marker /-re/ is suffixed to the preceding complex stem /*hiabrɪ*/ to construct the whole question /*hiabrɪre*/, with the same meaning to the equivalent sentence of the other dialect. Therefore the morphological variation is found in the present tense copula marker of the two dialects.

(d) **Sida:** /*ħanta indepsina ħabına-ee*/

your brother which-COP

Gayil: /*jefta ifmena ħabına-re*/

your brother which-COP

‘Which is your brother?’

The fourth question word involving difference between the present tense copula marker of the Sida and Gayil dialects is /*ħabına*/, meaning ‘which’. As illustrated in the above example, in the Sida dialect, the copula marker /-ee/ is suffixed to the word /*ħabına*/, which immediately precedes it. During the affixation process, the vowel phoneme /a/ in the final position of the root word is deleted when the copula suffix /-ee/ is added to it because in Aaraph the sequence of two different vowels is not allowed. After suffixation, the word results as /*ħabınee*/, meaning ‘which is’.

In the Gayil dialect, on the other hand, the copula suffix appears as /-re/, and similarly it is directly attached to the question word /*ħabına*/ forming /*ħabınere*/ . In this case, the morphological process causes vowel harmony between the ending segments of the root and the suffix, i.e. /a/ and /e/ respectively so that the former low front vowel /a/ is raised to the mid position in order to assimilate the latter mid front vowel /e/. In the above example, lexical variations are also exhibited between the words in the two dialects. For instance, the words /*ħanta*/, meaning ‘your’ and /*ındepsına*/, meaning ‘brother’ of the Sida dialect are changed to /*jefta*/ and /*ıfmena*/ respectively in the Gayil dialect.

(e) Sida: /*kəna qplına ħajt-ee*/

this sheep whose-COP

Gayil: /*kəna k’plına ħajte-re*/

this sheep whose-COP

‘Whose sheep is it?’

In this last example, the question word /*ħajt*/, meaning ‘whose’ receives the copula suffix. Accordingly, in the Sida dialect the suffix form /-ee/ is added to /*ħajt*/ to form /*ħajtee*/, meaning ‘whose is’, whereas it is changed to /-re/ resulting in /*ħajtere*/ after being inflected to the question word in the Gayil dialect. Vowel epenthesis occurs in the affixation of the morpheme /-re/ to the root word /*ħajt*/, i.e. the mid front vowel /e/ is inserted between the final consonant /t/

of the root and the initial consonant /r/ of the suffix. That is for the ease of the articulation of the word. Thus, in this way the copula marking suffix exhibits change in both dialects when it is used in wh-question of the word /*ħajt*/, meaning, ‘whose’.

In general, the difference in the present tense copula verb marker of the Sida and Gayil dialects takes place in the wh-questions of the language. Accordingly, five different question words are used to form the wh-questions. These are /*ħaj*/, ‘who’; /*ħara*/, ‘what’; /*ħabri*/, ‘where’; /*ħabma*/, ‘which’; and /*ħajt*/, ‘whose’. The copula verb marker appears at the end of the question being suffixed to the above question words; it is /-ee/ in the Gayil dialect, whereas it is changed to /-re/ in the Gayil dialect case. This variation of the present tense copula marker between the Sida and Gayil dialects of Aaraph systematically occurs in the wh-questions of the language.

4.2.5.2. Change of Past Tense Suffix in Wh-Questions: -e/-se → -aare/-saare

The second tense inflection showing variation in the two dialects under discussion in the case of the wh-questions is the past tense suffix of Aaraph. The morpheme appears as /-e/ or /-se/ in the Sida dialect and as /-aare/ or /-saare/ in the Gayil dialect. This morpheme change occurs in questions with the words: /*ħaj*/, ‘who’; /*ħara*/, ‘what’; and /*ħajt*/, ‘whose’.

Example 12: Wh-questions in the past tense in both dialects:

(a) **Sida:** /*ħaj* *ħa:d-e*/

who come-**PST**

Gayil: /*ħaj* *ħa:d-aare*/

who come-**PST**

‘Who did come?’

In the above example, the question word /*ħaj*/, meaning ‘who’ is used in the sentence. The tense is in the past and the verb /*ħa:d*/, meaning ‘to come’ is used in the predicate part. The past tense suffix is attached to that root verb; in the Sida dialect, /-e/ is inflected to /*ħa:d*/ to form /*ħa:de*/, meaning ‘he/she/it came’. In the Gayil dialect, on the other hand, the suffix is changed to a quite

different form */-aare/*, which is added to */ħa:d/* forming */ħa:daare/*. So, this morphological difference seems to be highly distinguishable because the phonetic difference between the past tense marking morphemes of the two dialects is very high.

(b) **Sida:** */ħara-a gaj-se/*

what-2SG say-**PST**

Gayil: */ħara-jes gej-saare/*

what-2SG say-**PST**

‘What did you say?’

This example illustrates how the past tense morpheme is inflected to the verb */gaj/*, meaning ‘to say’ in a question with the word */ħara/*, meaning ‘what’. In the Sida dialect, the suffix */-se/* is added to the root verb as: */gajse/*, which is changed to */gejsaare/* in the Gayil dialect with different form of the past tense morpheme */-saare/*, which is attached to the base */gej/*.

(c) **Sida:** */ħajt na:mi-k ʒ:l-se/*

whose name-3SGM call-**PST**

Gayil: */ħajt la:mi-k ʒ:l-saare/*

whose name-3SGM call-**PST**

‘Whose name did he call?’

In the above example, the same instance is found in a question sentence with the interrogative word */ħajt/*, meaning ‘whose’. The root verb */ʒ:l/*, meaning ‘to call’ receives the past tense suffix */-se/* in the Sida dialect and */-saare/* in the Gayil dialect. So, the morphological change in the two dialects regarding the past tense suffix in the context of questions with interrogative words is analyzed in the above examples.

4.2.5.3. Change of the Present Tense Suffix in WH-Questions: *-de* → *-da*

The other morpheme change in question sentences involves the present tense suffix */-de/*. The suffix does not show variation in other sentence constructions, but in interrogative sentences with question words this morpheme appears in two different forms: */-de/* in the Sida dialect and */-da/* in the Gayil dialect; the difference is explained in the following examples.

Example 13: Wh-questions in the present tense in both dialects:

(a) **Sida:** */ħar-ek pɪkj-de/*
 what-3PL work-**PRS**

Gayil: */ħar-ek pɪkj-da/*
 what-3PL work-**PRS**

 ‘What do they work?’

In this example, the present tense suffix */-de/* is added to the root verb */pɪkj/*, meaning ‘to work’ in an interrogative sentence starting with the question word */ħara/*, meaning ‘what’. This describes the Sida dialect feature as follows: */pɪkj-de/*, which shows the action happening in the present tense. In the same question sentence, the present tense morpheme is changed to */-da/* for the Gayil dialect as follows: */pɪkj-da/*.

(b) **Sida:** */ħajm-a es-de/*
 whom-2SG know-**PRS**

Gayil: */ħajm-es es-da/*
 whom-2SG know-**PRS**

 ‘Whom do you know?’

In example (b) above, the interrogative pronoun */ħajm/*, meaning ‘whom’ functions as the object of the sentence by appearing at the beginning of the question. In the first dialect case, the verb root */es/*, meaning ‘to know’ takes the present tense marker */-de/*, which becomes */-da/* in the Gayil dialect as follows: */esde/* and */esda/* respectively. This morphological variation specifically

characterizes the present tense verb in question forms with interrogative words such as /*hɑj*/, ‘who’; /*hara*/, ‘what’; /*habri*/, ‘where’; and /*hajt*/, ‘when’.

4.2.6. Change in Pronouns

Different types of pronouns show change in the case of the Sida and Gayil dialects. These include personal, adjective, objective, possessive and reflexive pronouns.

4.2.6.1. Difference in Personal Pronouns

The second person singular pronoun *you* and the third person singular pronouns *he* and *she* differ in the two dialects, but the rest pronouns *I*, *we*, *you (PL)* and *they* remain the same in both cases as follows:

Sida		Gayil	Gloss
a. / <i>ha:na</i> /	→	/jena/	‘you’ (SG)
b. / <i>nɔ:</i> /	→	/nɐ/	‘he’
c. / <i>na:</i> /	→	/na/	‘she’
d. / <i>ɪta</i> /	=	/ɪta/	‘I’
e. / <i>wɔta</i> /	=	/wɔta/	‘we’
f. / <i>jeta</i> /	=	/jeta/	‘you’ (PL)
g. / <i>keta</i> /	=	/keta/	‘they’

Example 14: Sentences with personal pronouns in both dialects.

(a) **Sida:** /*ha:na wa: ɪs-t-aje*/
 you meat see-PERF-2SG

Gayil: /*jena waha ɪf-t-aje*/
 you meat eat-PERF-2SG
 ‘You ate meat’

(b) **Sida:** /*nɔ: wɔ:m ʃed-te*/
 he us see-PERF

Gayil: /nɒ wɔ:m ʃed-te/
 he us see-PERF
 ‘He saw us’

(c) **Sida:** /na: dɑ:m-te/
 she wake up-PERF

Gayil: /na a:m-te/
 she wake up-PERF
 ‘She wake up’

In examples 14 (a - c) above, the different personal pronoun forms in the Sida and Gayil dialects are used as subjects in their respective sentences. These are /*hɑ:na/* and /*jena/*, ‘you’ (2SG); /*nɔ:/* and /*nɒ/*, ‘he’ and /*na:/* and /*na/* ‘she’ (3SG) respectively. Accordingly, the above example shows that /*hɑ:na/* and /*jena/* differ in their first two sounds; i.e., /*h/* → /*j/* and /*ɑ:/* → /*e/*; /*nɔ:/* and /*nɒ/* differ in their last sound; i.e., /*ɔ:/* → /*ɒ/*; /*na:/* and /*na/* also differ in their last sound; i.e., /*ɑ:/* → /*a/*. The above variation in personal pronouns has its own systematic pattern; i.e., the Sida dialect contains a long vowel whereas the Gayil dialect has a short vowel, and only in the case of the second person singular, there is change in a consonant; that is the voiced glottal fricative /*h/* of the Sida word is changed to the voiced palatal approximant /*j/* in the Gayil word.

4.2.6.2. Difference in Object Pronouns

The second person singular objective pronoun *you* and the third person singular and plural objective pronouns *him*, *her* and *them* show differences in the dialects under study. However, the first person pronouns *I* and *we* are the same in both dialects; i.e., ‘*i:m*’ and ‘*wɔ:m*’ respectively.

Sida		Gayil	Gloss
a. / <i>hɑ:m/</i>	→	/ <i>jɛʃim/</i>	‘you’ (SG)
b. / <i>ki:m/</i>	→	/ <i>kitim/</i>	‘him’
c. / <i>kɔ:m/</i>	→	/ <i>kɒtim/</i>	‘her’
d. / <i>kɜ:m/</i>	→	/ <i>ketim/</i>	‘them’

Example 15: Sentences with objective pronouns in both dialects.

- (a) **Sida:** /ɪta *ɦa:m* *ʃed-t-ɪt-e/*
 I you (2SG) see-PERF-1SG-PST

Gayil: /ɪta *jeɦɪm* *ʃed-t-ɪt-e/*
 I you (2SG) see-PERF-1SG-PST

‘I saw you’

- (b) **Sida:** /wɒta *ki:m* *ʃed-t-ɒt-e/*
 we him see-PERF-1PL-PST

Gayil: /wɒta *kɪtem* *ʃed-t-ɒt-e/*
 we him see-PERF-1PL-PST

‘we saw him’

- (c) **Sida:** /aksɪ *kɔ:m* *gaʔse/*
 dog her bite-PST

Gayil: /aksɪ *kɒtɪm* *gaʔse/*
 dog her bite-PST

‘Dog bit her’

- (d) **Sida:** /aksɪ *kɜ:m* *gaʔse/*
 dog them bite-PST

Gayil: /aksɪ *ketɪm* *gaʔse/*
 dog them bite-PST

‘Dog bit them’

The example 15 (a - d) illustrates the variation in some object pronouns of the Sida and Gayil dialects. That is in the second person singular pronoun, /*ħa:m*/ and /*jɛfɪm*/, ‘you’; in the third person singular masculine /*ki:m*/ and /*kɪtm*/, ‘him’; in the third person singular feminine /*kɔ:m*/ and /*kɔtm*/, ‘her’ and in the third person plural /*kɜ:m*/ and /*ketm*/, ‘them’ in both dialects respectively. In the Sida dialect, the pronouns are formed by adding the accusative suffix /-m/ to the personal pronouns as follows: /*ħa*/ + /-m/ = /*ħa:m*/, /*ki*/ + /-m/ = /*ki:m*/, /*kɔ*/ + /-m/ = /*kɔ:m*/ and /*kɜ*/ + /-m/ = /*kɜ:m*/ . In these morpheme structures, the personal pronouns /*ħa*/, /*ki*/, /*kɔ*/ and /*kɜ*/ are semantically related to /*ħa:na*/, ‘you’; /*nɔ:/*, ‘he’; /*na:/*, ‘she’ and /*keta*/, ‘they’ referring to the same persons.

On the other hand, in the Gayil dialect, the pronouns are formed by adding the suffix /-ɪm/ to the possessive adjectives as follows: /*jɛft*/ + /-ɪm/ = /*jɛfɪm*/, /*kɪt*/ + /ɪm/ = /*kɪtm*/, /*kɔt*/ + /-ɪm/ = /*kɔtm*/ and /*ket*/ + /-ɪm/ = /*ketm*/ . In these pronouns, the possessive adjectives are formed by attaching the possessive marker /-ta/ to the personal pronouns, and the object pronouns are formed by inflecting the accusative suffix /-ɪm/ to the preceding possessive marker. In the suffixation process, /a/ is deleted from the possessive marker /-ta/. Thus, the difference between the object pronouns of the Gayil and Sida dialects is characterized by that the former contains /t/ in its words but the latter does not. Moreover, in Sida the pronouns end in the accusative suffix /-m/ whereas in Gayil the suffix appears as /-ɪm/.

4.2.6.3. Change in Pronouns in Indirect Object Case: -n → -m

In addition to the variation in object pronouns discussed above, another difference also takes place in their structure when they function in the indirect object case. That is in the Sida dialect the final segment /m/ of the direct object pronoun is changed to /n/; for instance, /*i:m*/ (me) → /*i:n*/ (me), but in the Gayil dialect the pronoun remains the same both in the direct and indirect object cases as in: /*i:m*/ (DO) = /*i:m*/ (IO). This feature appears in all object pronouns as described in the example below.

Sida		Gayil	Gloss
a. / <i>i:n</i> /	→	/ <i>i:m</i> /	‘me’
b. / <i>wɔ:n</i> /	→	/ <i>wɔ:m</i> /	‘us’
c. / <i>ħa:n</i> /	→	/ <i>jɛfɪm</i> /	‘you’ (SG)

- | | | | | |
|----|--------|---|--------|------------|
| d. | /jɜ:n/ | → | /jɜ:m/ | ‘you’ (PL) |
| e. | /ki:n/ | → | /kɪtm/ | ‘him’ |
| f. | /kɔ:n/ | → | /kɒtm/ | ‘her’ |
| g. | /kɜ:n/ | → | /ketm/ | ‘them’ |

Example 16: Sentences with indirect object pronouns in both dialects.

(a) **Sida** /hant na:mɪ i:n kɜ:z-ka/

your name me tell-Imp

Gayil: /jeft la:mɪ i:m kɜ:z-ka/

your name me tell-Imp

‘Tell me your name’

(b) **Sida:** /harere ha:n ga:-kɪ-ite/

anything you say-PSTNG-1SG

Gayil: /harere jeftm gej-kɪ-te/

anything you say-PSTNg-1SG

‘I didn’t say anything to you’

(c) **Sida:** /ɪta kɜ:n bɪrɪ ɪm-d-ite/

I them money give-PRS-1SG

Gayil: /ɪta ketm bɪrɪ ɔm-d-ite/

I them money give-PRS-1SG

‘I give them money’

The above examples illustrate how object pronouns show difference in the two dialects when they are used as indirect objects in sentences. Accordingly, in example (a) the direct object of the verb /kɜ:z/, meaning ‘tell’ is /na:mɪ (la:mɪ)/, meaning ‘name’; the pronoun form in the indirect

object case is /i:**n**/ in Sida and /i:**m**/ in Gayil, meaning ‘me’. In example (b), the verb /ga: (gej)/, meaning ‘say’ receives the direct object /*harere*/, meaning ‘anything’ and the indirect object pronoun /*ha:n*/ in Sida and /*jeim*/ in Gayil, meaning ‘you’ (SG). In the last example (c), the verb is /*m* (om), meaning ‘to give’; the direct object is /*birɪ*/, meaning ‘money’; the indirect object pronoun is /*kɜ:n*/ in Sida and /*ketɪm*/ in Gayil, meaning ‘them’. Thus, obvious difference is found in the object pronoun forms of the two dialects in the indirect object case.

4.2.6.4. Difference in Possessive Adjectives

Only the second person singular possessive adjective exhibits variation between the Sida and Gayil dialects, i.e. /*hanta*/ → /*jefta*/, meaning ‘your’.

Example 17: Sentences with possessive adjectives in both dialects.

Sida:	/ <i>han-ta</i>	<i>indepsi-s-ma</i>	<i>habɪn-ee</i>
	you-Gen.	brother-3SGM-Def.	which-COP
Gayil:	/ <i>jef-ta</i>	<i>ɪme-na</i>	<i>habɪn-ere</i>
	you-Gen.	brother-Def.	which-COP
	‘Which is your brother’		

This example shows the difference in the possessive adjective forms of the two dialects under investigation. In this pronoun type, the variation takes place only in the second person singular, i.e. /*hanta*/ in the Sida dialect and /*jefta*/ in the Gayil one. The difference basically occurs in their subjective forms: /*haana*/ and /*jena*/, meaning ‘you’ (SG) respectively. The possessive adjective forms of these two personal pronouns are formed by adding the general genitive suffix /-ta/ of Aaraph. As a result, the suffixation of the genitive morpheme to the second person singular pronouns of the Sida and Gayil dialects gives us their respective possessive adjectives as follows: /*haana* + -ta/ = /*hanta*/ and /*jena* + -ta/ = /*jefta*/ respectively.

4.2.6.5. Difference in Possessive Pronouns

All possessive pronouns have different forms in the Sida and Gayil dialects. The major difference between the two is that in Sida the pronouns end in */-na/*, whereas in Gayil they terminate in */-nda/* as it is shown in the following example.

Sida		Gayil	Gloss
a. /ɪstena/	→	/ɪstenda/	‘mine’
b. /wɒntena/	→	/wɒntenda/	‘ours’
c. /fiantena/	→	/jeftenda/	‘yours’ (SG)
d. /jentina/	→	/jentina/	‘yours’ (PL)
e. /kɪtena/	→	/kɪtenda/	‘his’
f. /kɒtena/	→	/kɒtenda/	‘hers’
g. /ketena/	→	/ketenda/	‘theirs’

Example 18: Sentences with possessive pronoun in both dialects.

- (a) **Sida:** /ɪstena laqmi-ee/
 mine good-COP
- Gayil:** /ɪstenda urma-ee/
 mine good-COP
- ‘Mine is good’

The above example shows the difference in the first person singular possessive pronoun of the Sida and Gayil dialects, that is */ɪstena/* in the former and */ɪstenda/* in the latter, meaning ‘mine’. We can replace the possessive form of the first person singular pronoun in the above sentences by the other possessive pronoun forms of the two dialects as follows:

- (b) **Sida:** /ketena laqmi-ee/
 theirs good-COP

Gayil: /ketenda urma-ee/
 theirs good-COP
 ‘Theirs is good’

4.2.6.6. Difference in Accusative Forms of Reflexive Pronouns

All reflexive pronouns receive different accusative markers in the Sida and Gayil dialects. This variation is described as follows:

Sida		Gayil	Gloss
a. /imatam/	→	/ɪst maten/	‘myself’
b. /wɔmatam/	→	/wɔnt maten/	‘ourselves’
c. /hamatam/	→	/jeft matenɪm/	‘yourself’
d. /jematam/	→	/jent matent/	‘yourselves’
e. /jimatam/	→	/jɪnt matenɪm/	‘himself’
f. /jimatam /	→	/ jɪnt matenɪm /	‘herself’
g. /jimatam /	→	/ jɪnt matɪnt /	‘themselves’

Example 19: Sentences with reflexive pronouns in both dialects.

(a) **Sida:** /imatam ɔss-t-ite/
 myself prepare-PERF-1SG
 Gayil: /ɪst maten gɪgs-t-ite/
 myself prepare-PERF-1SG
 ‘I prepared myself’

(b) **Sida:** /jematatm ma:t-kete/
 yourselves be-Imp
 Gayil: /jent matent ma:tkete/

yourselves be-Imp

‘Be yourselves’

(c) **Sida:** /jɪmatam naʃ-de-ke/

themselves love-PRS-3PL

Gayil: /jɪnt matɪnt sɔːlm-de-ke/

themselves love-PRS-3PL

‘They love themselves’

In the above examples (a – c), the difference in the reflexive pronouns is described, i.e. when they are used as the object of the verb in the sentence. The pronouns have different forms in the two dialects under discussion; for instance, in example (a): /ɪmatam/ → /ɪst maten/ = ‘myself’; in example (b): /jematatm/ → /jɛnt matɛnt/ = ‘yourselves’ and in example (c): /jɪmatam/ → /jɪnt matɪnt/ = ‘themselves’ in the Sida and Gayil dialects respectively. The variation is found between the morphological structures of the words of the two dialects.

On the one hand, the Sida dialect pronouns are formed from the first syllable of the personal pronouns such as /ɪ-/ , ‘I’; /wɒ-/ , ‘we’; /fiɑ-/ , ‘you’ (SG); /je-/ , ‘you’ (PL) and /ji-/ , ‘they’; the reflexive meaning bearing root morpheme /-mata-/ , meaning ‘self’ and the accusative suffix /-m/. On the other hand, the Gayil dialect pronouns are formed from the possessive adjectives such as /ɪst/ , ‘my’; /wont/ , ‘our’; /jɛft/ , ‘your’ (SG); /jɛnt/ , ‘your’ (PL) and /jɪnt/ , ‘their’; the reflexive meaning bearing root morpheme /-mata-/ , meaning ‘self’; the definiteness marker /-n/ and the accusative suffix /-ɪm/ or /-t/ in some cases.

In conclusion, there are several morphological variations between the Sida and Gayil dialects of Aaraph. Mainly the difference is in the suffixation of the two dialects; this includes tense inflections, case markers and pronoun types. The first instance of variation in tense inflection is the difference between the past tense markers of the two dialects. The past tense marker is /-se/ or /-fɛ/, and if it appears as /-se/ in the Sida dialect, it is changed to /-fɛ/ in the Gayil dialect and vice versa. That means the two suffix forms substitute each other between the two dialects in the case of some lexically equivalent words.

The second morphological difference is the change between the accusative suffixes of the two dialects; i.e., in Sida the suffix */-am/* is attached to the root word whereas it is changed to */-im/* in Gayil. This variation in the accusative marker is regular and systematic between the dialects under investigation. The third morphological variation involves the difference between the converb forming suffixes of the Sida and Gayil dialects. While in the former the suffix form is */-sijp/*, in the latter it is */-isp/*. These converb forming suffix forms are basic and agree with the third person singular pronoun, and they are changed to various suffix forms which agree with the rest personal pronouns as follows: */-sitp/* → */-isitp/* = 1SG; */-sɔtp/* → */-isɔtp/* = 1PL; */-sajp/* → */-isajp/* = 2SG; */-setp/* → */-isetp/* = 2PL and */-setp/* → */-isetp/* = 3PL. In the above converb forming suffixes, the forms at the left sides of the arrows are the features of the Sida dialect whereas the forms at the right sides of the arrows characterize the Gayil variety.

In addition, differences are also exhibited between the copula forming suffixes, the present simple tense suffixes and the past simple tense suffixes of the two dialects. These three instances of morphological variations take place only in wh-questions of the language. In wh-questions, the Sida dialect receives the copula marking suffix */-ee/*, the present simple tense suffix */-de/* and the past simple tense suffix */-e/* or */-se/*; these all are changed to */-re/*, */-da/*, */-aare/* or */-saare/* respectively in the Gayil dialect. These differences are also regular in the grammatical context mentioned above. Another morphological variation is the presence or absence of reduplication of the root verb in the case of the present simple tense. Accordingly, Sida has the feature of root reduplication whereas Gayil does not. Finally, pronoun variation is found between the two dialects, so all types of pronouns: personal, adjective, objective, possessive and reflexive pronouns show differences between the Sida and Gayil dialects.

To sum up, most of the morphological variations discussed above are found in the suffixation process of the language. This suffixation involves tense inflections, accusative suffixes and person markers, and the variations in these different suffixes take place in various grammatical contexts such as questions and tense forms. Moreover, each morphological difference is a regular change of morphemes between the two dialects.

4.3. Quantitative Analysis of the Lexical and Phonological Variations

The quantitative method of analysis was used to assess the degree of lexical similarities and differences between the Sida and Gayil dialects of Aaraph. The method was also used to analyze quantitatively the phonological variations between the two dialects under investigation. The analysis was based on the Swadesh wordlist of 206 items from various semantic categories such as natural phenomena, plants, animals, body parts, numbers and colors. It was carried out with the computer software WORDSURV, which was developed by Wimbish (1989) for lexo-phonostatistical analysis based on corresponding sounds and shared vocabulary of a pair of languages.

Table 1.4 Analysis results showing the cognate data of the two varieties (Tally)

Variety	Sida Variety	Gayil Variety
Sida Variety	206	162
Gayil Variety	162	206

The above table shows Tally, which is calculated based on the number of entries for which the varieties have cognate data. There are 162 Sida-to-Gayil cognates; we can read this number horizontally along the rows or vertically in the columns. Each intersection of each variety to itself appears diagonal; that is the shaded part of the table.

Table 1.5 Analysis results showing the total number of entries in both varieties

Variety	Sida Variety	Gayil Variety
Sida Variety	206	206
Gayil Variety	206	206

Table 1.5 illustrates the total of cognate and non-cognate data of the two varieties. There are a total of 206 entries for both varieties in the comparison.

Table 1.6 Analysis results showing the ratio of cognates to total words as percentages

Variety	Sida Variety	Gayil Variety
Sida Variety	100%	79%
Gayil Variety	79%	100%

The above table shows the percentage that is calculated as *Tally* is divided by *Total* times 100. Thus, the ratio of 162 cognates per 206 glosses is 79%. On the diagonal of the table, the row and column represent the same variety. In this shaded diagonal set of cells, *Tally* equals *Total*, so the *Percent* is 100%. Regarding the interpretation of the word list analysis results, SIL's 'Language assessment criteria' (Bergman 1990:2) recommended as follows:

When the word-list analysis results indicate a lexical similarity between two speech forms of less than about 70% (at the upper confidence limit of the calculation), this generally indicates that these are different languages. ... If the similarity is more than 70%, dialect intelligibility testing is needed to determine how well people can understand the other speech form.

Given the above criteria of determining the relatedness of two language varieties, the lexical similarity of 79% between the Sida and Gayil dialects of Aaraph indicates that these two varieties have close linguistic relationship between them.

Table 1.7 Phonostatistical analysis results for Total Degrees of Difference

Variety	Sida Variety	Gayil Variety
Sida Variety	20	226
Gayil Variety	226	13

Table 1.7 above provides the summation of all the degree of difference values for all phoneme correspondences in all the cognate words between the two varieties. Accordingly, Sida and Gayil have 226 Total Degree of Differences. In the shaded diagonal cells of the table above each variety intersect to itself; for instance, Sida-to-Sida shows 20 degree of differences whereas

Gayil-to-Gayil shows 13 (List of all corresponding phonemes with their Degrees of Difference is given in APPENDIX D).

Table 1.8 Phonostatistical analysis results for phoneme correspondences

Variety	Sida Variety	Gayil Variety
Sida Variety	1058	772
Gayil Variety	772	1140

The above table shows the number of corresponding phonemes in all the cognate words between the two varieties. Hence, Sida and Gayil have 772 phoneme correspondences. The shaded part of the table indicates the frequency of the corresponding phonemes in the individual varieties. This means that Sida-to-Sida shows 1058 correspondences and Gayil-to-Gayil shows 1140 (List of all cognate words in comparison is given in APPENDIX E).

Table 1.9 Phonostatistical analysis results for the ratio of degree of differences to correspondences as percentages

Variety	Sida Variety	Gayil Variety
Sida Variety	2	29
Gayil Variety	29	1

Table 1.9 above displays the total degrees of difference per correspondence. This is calculated as 100 times the *degrees of difference* values divided by the *correspondences* value. Thus, Sida-to-Gayil shows the ratio value of 29, which resulted from 226 total degrees of difference (*Table 1.7*) for 772 correspondences (*Table 1.8*), i.e. $(226/772) \times 100 = 29\%$; Sida-to-Sida shows 2, which resulted from 20 total degrees of difference (*Table 1.7*) for 1058 correspondences (*Table 1.8*), i.e. $(20/1058) \times 100 = 2\%$; Gayil-to-Gayil shows 1, which resulted from 13 total degrees of difference (*Table 1.7*) for 1140 correspondences (*Table 1.8*), i.e. $(13/1140) \times 100 = 1\%$.

The WORDSURV computer analysis manual suggests that the above percentage is the indicator by which the pair of varieties may be compared to assess their relative phonetic divergence. Unlike cognate percentages, the lower the ratio the closer the similarity between the two

varieties. Therefore, the 29% ratio of degrees of difference to phoneme correspondences between the Sida and Gayil dialects is an additional evidence for the close relationship between the two varieties of the language.

In general, the above quantitative analysis was done in order to examine the lexical and phonological variations between the Sida and Gayil dialects of Aaraph. The analysis was accomplished by using the language software WORDSURV, which was developed by Wimbish (1989). The software compared and analyzed 206 glosses from both varieties, and it identified 162 cognate words and 772 phoneme correspondences in these cognates. Based on the SIL's 'Language assessment criteria' (Bergman 1990:2) and the software guidelines, the analysis results were interpreted as follows; the ratio of cognates per total glosses is 79%, which indicates the two dialects are closely related. In addition, the average of total degrees of difference per phoneme correspondences is 29%, and this lower ratio is another indicator for the close similarity between the two varieties.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Summary

Based on the analysis of the data collected, the following summary of the results is given. Accordingly, the findings of the phonological variations indicate that the differences between the Sida and Gayil dialects are unconditioned sound changes, that is, the difference is not motivated by a specific grammatical environment rather it takes place in all sound contexts. The most remarkable phonological variation is a result of consonant substitutions. This is summarized in the following paragraphs.

The consonant sounds: /s/, /z/, /ts/, /tʰsʰ/ and /q/ in some words of the Sida dialect are changed to /ʃ/, /ʒ/, /tʃ/, /tʃʰ/ and /kʰ/ respectively in lexically equivalent words of the Gayil dialect. Firstly, /s/ of the Sida word is substituted by /ʃ/ in the equivalent Gayil word and vice versa as follows: /sɔːq/ → /ʃɔːk/, meaning ‘salt’ and /ʃaːn/ → /saːn/, meaning ‘urine’ respectively. This change occurs in all word positions including word-medially and finally; for instance, /susa/ → /ʃufa/, meaning ‘relative’ and /ʊʃ/ → /ʊs/, meaning ‘to cook’.

Secondly, /z/ of the Sida word is substituted by /ʒ/ in the equivalent Gayil word and vice versa as follows: /benzi/ → /benʒi/, meaning ‘penis’ and /ʒɪga/ → /zɪga/, meaning ‘wind’. The difference happens in all word positions; the preceding one is an example of word-initial variation. Look at word-medial and final instances as follows: /gɪbzɛ/ → /gɪbʒɛ/, meaning ‘he/she/it jumped’ and /qaz/ → /kʰaz/, meaning ‘to cool down’ respectively. Thirdly, /ts/ of the Sida word is substituted by /tʃ/ in the equivalent Gayil word. Unlike the above cases, in this substitution the former sound is only found in the Sida dialect but the latter sound appears in both dialects. Moreover, the difference between the two does not take place word-initially but only word-medially and finally as follows: /katsa/ → /katʃa/, meaning ‘worm’ and /ɪts/ → /ɪtʃ/, meaning ‘to eat’ respectively.

Fourthly, /tʰsʰ/ of the Sida word is substituted by /tʃʰ/ in the equivalent Gayil word. They occur in all word positions; for instance: /tʰsʰɜːdɪ/ → /tʃʰɜːdɪ/, meaning ‘short’; /raːtʰsʰɪ/ → /raːtʃʰɪ/, meaning ‘milk’ and /tʰsʰɔːtʰsʰ/ → /tʃʰɔːtʃʰ/, meaning ‘to be full’. Fifthly, /q/ of the Sida word is substituted by

/k'/ in the equivalent Gayil word. These two sounds always oppose each other as typical features of their respective dialects. Their occurrence in all word positions can be described as follows: /qasa/ → /k'asa/, meaning 'louse'; /mɒqa/ → /mɒk'a/, meaning 'egg' and /lɜːq/ → /lɜːk'/, meaning 'to play' respectively.

The present study identified that the voiceless velar ejective stop /k'/ is a distinctive phoneme in the Gayil dialect but it is not found in the Sida dialect. /k'/ of the former dialect is opposed to the voiceless uvular stop /q/ of the latter dialect. It was not included in the phoneme inventory of Aaraph by former researchers except Melkeneh (2013). But I claim that it must be the element of the consonant inventory of Aaraph. Finally, there is one instance of vowel variation and this is the substitution of the front high vowel /ɪ/ of the Sida word by the front low vowel /a/ in the equivalent Gayil word. This occurs in only word-final positions of some adjectives; for instance, /tɒkmi/ → /tɒkma/, meaning 'narrow'; /dɜːts'mɪ/ → /dɜːts'ma/, meaning 'heavy' and /pɒqmi/ → /pɒqma/, meaning 'dirty'.

In the case of morphological variations, the findings reveal that the differences in morphological aspects include changes in person and tense inflections, case markers, verb forms and various pronoun types. One of these differences in the tense inflections of the Sida and Gayil dialects is the change of the third person singular and past tense marker /-se/ to /-ʒe/ from Sida to Gayil and vice versa; for instance: /gaʔ-se/ → /gaʔ-ʒe/, meaning 'he/she/it bit' and /ɸ'u:p'-ʒe/ → /ɸ'u:p'-se/, meaning 'he/she/it squeezed' respectively. The morpheme is attached to a root verb to show the third person singular pronoun and past tense simultaneously.

The second instance of change in tense inflection is exhibited in questions with interrogative words such as who, what, when, where and where. These tense inflections include the copula marker, the present simple tense suffix and the past simple tense suffix. Accordingly, the present tense copula marker /-ee/ of the Sida dialect is changed to /-re/ in the Gayil dialect; for instance, /hara rejeel/ → /hara rijre/, meaning 'What is it'. The present simple tense suffix /-de/ is changed to /-da/ as follows: /harek pɪkf-de/ → /harek pɪkf-da/, meaning 'what do they work'. The past simple tense marker /-e/ or /-se/ is changed to /-aare/ or /-saare/; for instance, /hɑj hɑːd-e/ → /hɑj hɑːd-aare/, meaning 'who did come' and /haraa gajse/ → /hara jes gejsaare/, meaning 'what did you say'.

Another morphological variation is seen in the accusative marker of the dialects. In the Sida dialect the objective case is marked with */-am/*, which is changed to */-im/* in the Gayil dialect; for instance: */3:dsin-am/* → */3:dsin-im/*, where */3:dsin/* = ‘the man’ and */-am/* or */-im/* = accusative marker. In addition to this, the converb is formed by different suffixes in both dialects. While Sida inflects */-sijp/* to a root verb, Gayil adds */-isɒ/* as follows: */its-sijp/* → */ɪf-isɒ/*, where */its/* or */ɪf/* = ‘to eat’ and */-sijp/* or */-isɒ/* = converb maker; */itssijp/* or */ɪfɪsɒ/* = ‘having eaten he/she/it...’ The above converb forming suffixes of both dialects agree with the third person singular pronoun only; the rest personal pronouns receive different suffix forms as follows: */-sɪtɒ/* → */-ɪsɪtɒ/* = 1SG; */-sɒtɒ/* → */-ɪsɒtɒ/* = 1PL; */-sajp/* → */-ɪsajp/* = 2SG; */-setɒ/* → */-ɪsetɒ/* = 2PL and */-setɒ/* → */-ɪsetɒ/* = 3PL.

Furthermore, the presence or absence of reduplication of a verb root characterizes the morphological differences between the two dialects. Accordingly, Sida reduplicate the verb root in the present simple tense whereas Gayil does not; for instance: */3:d ad-aderde/* → */3:d aderde/* = ‘human is born’. The last instance of morphological variation takes place in pronoun forms. This includes personal, adjective, objective, possessive and reflexive pronouns. One example is given for each pronoun type as follows: */fia:na/* → */jena/* = ‘you’ (SG); */fianta/* → */jefta/* = ‘your’ (SG); */ki:m/* → */kɪtm/* = ‘him’; */kɔtena/* → */kɔtenda/* = ‘hers’ and */imatam/* → */ɪst maten/* = ‘myself’ respectively.

The quantitative analysis result shows that the two dialects have 162 cognate words and 772 phoneme correspondences in these cognates. According to the SIL’s ‘Language assessment criteria’ (Bergman 1990:2) and WORDSUR’s guidelines, the interpretation of the results is given as follows: the ratio of cognates per total glosses is 79%, which indicates the two dialects are closely related. In addition, the average of total degrees of difference per phoneme correspondences is 29%, and this lower ratio is another indicator for the close similarity between the two varieties.

5.2. Conclusions

From the findings of the research, the following conclusions have been drawn:

- The research has shown that the phonological variations between the Sida and Gayil dialects is not a result of context-dependent phonological processes rather it is a type of unconditioned substitutions of sounds in all phonological environments. Unconditioned sound changes occur regardless of the phonological contexts of the sounds (Cser, 2014).
- The morphological variations are also regular changes in suffixes of both dialects. These suffixes include different tense inflections, verb forms, and person and case markers.
- The study identified that the Sida and Gayil dialects share 79% of the 206 basic vocabulary items of the language; this indicates that the two dialects are closely related. In addition, the ratio of the total degree of phonetic differences per corresponding phonemes shows a value of 29%, and this lower ratio is another indicator for the close relationship between the two varieties.
- The phonological variation mainly results from the consonant changes between the two dialects. Five consonant sounds are changed to other five consonants in the cognate words of the two dialects. These consonants are: /s/ ↔ /ʃ/, /z/ ↔ /ʒ/, /tʰ/ → /tʃ/, /tʰʰ/ → /tʃʰ/ and /q/ → /kʰ/, but there is only one vowel change; i.e., /ɪ/ → /a/.
- The most consonant changes between the Sida and Gayil dialects have a particular phonetic feature; the sounds which substitute each other differ only in their place of articulation; i.e., the alveolar sounds are changed to the post-alveolar ones, but each pair of the changing consonants have the same voice and manner of articulation.
- The research findings also show that the voiceless velar ejective stop /kʰ/ is found as a distinctive phoneme in the Gayil dialect, and it is changed to the voiceless uvular stop /q/ in the Sida dialect. That means /kʰ/ is not found in Sida and /q/ is not found in Gayil; rather they substitute each other between the two dialects. However, the current consonant inventory of Aaraph does not contain /kʰ/ as a consonant phoneme, but the present researcher claims that it must be included in the phoneme inventory of the language.

5.3. Recommendations

The present investigation of the phonological and morphological variations between the Sida and Gayil dialects tried to describe the major differences aimed to explore in the study. However, this research endeavor has made clear that a wide range of dialectal studies in Aaraph are needed in order to discover the exact overall structure of the language. Therefore, the present researcher recommends further studies in phonological, morphological, lexical, syntactic and grammatical variations. In addition, there is inconsistency among the previous scholars regarding the total number of dialects in the language. Thus, additional investigations are required for the identification of the exact number of varieties in Aaraph.

Besides, the current phoneme inventory of the language should contain the features of all varieties. For instance, the voiceless velar ejective stop /k'/ of the Gayil dialect was not included in the phoneme inventories provided by most of the previous researchers. Therefore, the various phonetic features of the regional dialects should be incorporated in the phoneme inventory of the language in future studies. Furthermore, because of time and financial insufficiency, the researcher has not conducted the mutual intelligibility test between the two dialects under investigation. Thus, the issue is recommended for future researchers.

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APPENDIX: A

Basic Word List of the Gayil and Sida Dialects

The list of basic vocabulary items of both dialects is given below. These words are based on the 206 items of the Swadesh wordlist. The words in the first column are from the Gayil dialect whereas the ones in the second column are from the Sida dialect. The word class of each vocabulary is described in abbreviations, and the English glosses are given at the end of each list. Moreover, the words are written in the phonetic transcription, which uses the International Phonetic Alphabet (IPA).

Gayil	Sida	Category	Gloss
<i>baka, bakana</i>	<i>esma, daqqa</i>	<i>adj</i>	big
<i>gaːz, k'alɪ</i>	<i>gaːzɪ, rɔːtɪ</i>	<i>adj</i>	long
<i>faːkmɪ, dalɡ</i>	<i>ɡɪdɪɪ</i>	<i>adj</i>	wide
<i>dʊdɪma, andɪr</i>	<i>bɔndek</i>	<i>adj</i>	tick
<i>dʒːts'mɪ, dʒːts'ma</i>	<i>dʒːts'mɪ</i>	<i>adj</i>	heavy
<i>mera, mersa</i>	<i>mera</i>	<i>adj</i>	small
<i>ʃʹɜːdɪ</i>	<i>ts'ɜːdɪ</i>	<i>adj</i>	short
<i>dɪp'p'ɪs, ɪp'p'ɪs, tɔkma</i>	<i>tɔkmɪ</i>	<i>adj</i>	narrow
<i>faːʒɪ</i>	<i>faːʒɪ</i>	<i>adj</i>	thin
<i>ʃɔːlsak'ɪnda, vjʃʹʃ'ak'ɪnda</i>	<i>vjdɪɪ, vjdɪma</i>	<i>adj</i>	warm
<i>ɡand, zaːz</i>	<i>zaːz, zaːzɪ</i>	<i>adj</i>	cold
<i>ʃʹɔːʃʹɪ</i>	<i>ts'ɔːts'ɪ</i>	<i>adj</i>	full
<i>kɪlla</i>	<i>kɪlla</i>	<i>adj</i>	new
<i>ɡɜːfa</i>	<i>ɡɜːfa</i>	<i>adj</i>	old

<i>orma</i>	<i>laqmı</i>	<i>adj</i>	good
<i>dak'lı</i>	<i>daqlı</i>	<i>adj</i>	bad
<i>ƣ'afı</i>	<i>ƣ'afı</i>	<i>adj</i>	rotten
batta, ʃək'ma	<i>ʃəqmı</i>	<i>adj</i>	dirty
<i>jala:l</i>	<i>özma</i>	<i>adj</i>	straight
<i>kırkırı</i>	<i>ƣıra</i>	<i>adj</i>	round
<i>k'arma</i>	<i>qarmı</i>	<i>adj</i>	sharp
<i>aƣa mu:m</i>	<i>qarajında</i>	<i>adj</i>	dull
<i>lank'ma</i>	<i>lanqmı</i>	<i>adj</i>	smooth
<i>ƣ'afı</i>	<i>ƣ'afı, lımƣ'ma</i>	<i>adj</i>	wet
<i>wɒƣa</i>	<i>wɒƣa</i>	<i>adj</i>	dry
<i>dɔ:ƣen ma:ƣak'ında</i>	<i>dɔ:ƣenimda</i>	<i>adj</i>	correct
<i>k'innƣı</i>	<i>ɒtsa</i>	<i>adj</i>	near
<i>gɒttı</i>	<i>pega</i>	<i>adj</i>	far
<i>mızı</i>	<i>mızı</i>	<i>adj</i>	right
<i>bıta</i>	<i>bıta</i>	<i>adj</i>	left
<i>k'ɒlma, meha</i>	<i>qɒlma</i>	<i>N</i>	animal
<i>mɒla</i>	<i>tɒjla</i>	<i>N</i>	fish
<i>aftı</i>	<i>aftı</i>	<i>N</i>	bird
<i>aksı, aksen</i>	<i>aksı</i>	<i>N</i>	dog
<i>k'asa</i>	<i>qasa</i>	<i>N</i>	louse

<i>gonɪ</i>	<i>gonɪ</i>	<i>N</i>	snake
<i>kaʃa</i>	<i>katsa, dɔmʒɪra</i>	<i>N</i>	worm
<i>gɔʃta, gamma</i>	<i>gɔʃta</i>	<i>N</i>	skin
<i>waha</i>	<i>waː</i>	<i>N</i>	meat
<i>mak'ɪs</i>	<i>zɔmʒɪ, maqɪs</i>	<i>N</i>	blood
<i>lefɪ</i>	<i>lefɪ</i>	<i>N</i>	bone
<i>mɔːr</i>	<i>dɔrfɪ</i>	<i>N</i>	fat
<i>mɔk'a</i>	<i>mɔqa</i>	<i>N</i>	egg
<i>baːlɪ</i>	<i>qɔʃma</i>	<i>N</i>	horn
<i>gɔːlɪ</i>	<i>gɔːlɪ</i>	<i>N</i>	tail
<i>siːla, baːlla</i>	<i>siːla</i>	<i>N</i>	feather
<i>mata</i>	<i>mata</i>	<i>N</i>	hair
<i>wɔmʃa, k'ada</i>	<i>mata</i>	<i>N</i>	head
<i>k'aːmɪ</i>	<i>qaːmɪ, ʃ'uːʃ'a</i>	<i>N</i>	ear
<i>aːfɪ</i>	<i>aːfɪ</i>	<i>N</i>	eye
<i>nɔkɪ</i>	<i>nɔkɪ</i>	<i>N</i>	nose
<i>aʃa</i>	<i>aʃa</i>	<i>N</i>	mouth
<i>aʃɪ</i>	<i>aʃɪ</i>	<i>N</i>	tooth
<i>adɪm</i>	<i>adɪm</i>	<i>N</i>	tongue
<i>gɔʃa</i>	<i>ʃɔqma, gɔʃa</i>	<i>N</i>	finger nail
<i>duːtɪ</i>	<i>duːtɪ</i>	<i>N</i>	foot

<i>zɔːlɪ</i>	<i>zɔlqɪ, zɔːlɪ</i>	<i>N</i>	leg
<i>bok'a</i>	<i>bɔqa</i>	<i>N</i>	knee
<i>aːnɪ</i>	<i>aːnɪ</i>	<i>N</i>	hand
<i>kɛːfɪ</i>	<i>kaːfɪ</i>	<i>N</i>	wing
<i>nɔrtɪ</i>	<i>nɔrtɪ</i>	<i>N</i>	belly
<i>nɔrtɪ waːr</i>	<i>nɔrtɪ waːrɪmda</i>	<i>N</i>	guts
<i>baːrɪ</i>	<i>qada, baːrɪ</i>	<i>N</i>	neck
<i>bazda</i>	<i>buːd, bazda</i>	<i>N</i>	back
<i>amɪ, amma</i>	<i>amɪ</i>	<i>N</i>	breast
<i>buːda</i>	<i>buːda</i>	<i>N</i>	heart
<i>tɔrɪ</i>	<i>tɔrɪ</i>	<i>N</i>	liver
<i>wɔɣʔ</i>	<i>wɔɣʔ</i>	<i>V</i>	drink
<i>ɪʃʃe</i>	<i>ɪʃʃe</i>	<i>V</i>	eat
<i>gaʔʃe</i>	<i>gaʔʃe</i>	<i>V</i>	bite
<i>fɛʃʔɪmse</i>	<i>tɛʃʔɪmse</i>	<i>V</i>	spit
<i>ʃʔaɣʃe</i>	<i>ʃʔaɣʃe</i>	<i>V</i>	vomit
<i>zɔgze</i>	<i>zɔgze</i>	<i>V</i>	blow
<i>okɪnse</i>	<i>okɪnse</i>	<i>V</i>	breathe
<i>ʃɪɪʃʔʃe</i>	<i>ʃɪɪʃʔʃe</i>	<i>V</i>	laugh
<i>dɔk'se</i>	<i>dɔqse</i>	<i>V</i>	live
<i>deʔse</i>	<i>deʔse</i>	<i>V</i>	die

zejmı, zejsa	zejmı	adj	red
ʃ'vle ʃ'vl, ʃ'a:lla	qalʔa kamdında	adj	green
farʃ'en kamdında	ʃɜ:ra kamdında	adj	yellow
ʃ'a:mıf	ts'a:mı	adj	white
ʃ'almı, ʃ'alsa	ʃ'almı	adj	black
jekka	jekka	prep.	with
kɜ:	kɜ:	conj.	and
matʃʃe	matʃse	conj.	if
harekanta	harekane ga:rse	conj.	because
ha:k'a	ha:qa	N	tree
k'vʃa	qvʃa	N	forest
gʊfa	gʊfa	N	stick
a:fi	a:fi	N	fruit
maʃa	maʃa	N	seed
k'a:mı, k'alʔa	qalp'a	N	leaf
ʃ'a:ʃı	ʃ'a:ʃı	N	root
ɔ:frı, k'u:ra	gʊfta	N	bark
bʊna	bʊna	N	flower
di:ra	di:ra	N	grass
gandʒe	gandʒe	V	freeze
haj	haj	N	sun

<i>arfen</i>	<i>arfen</i>	<i>N</i>	moon
<i>manka:r, bɜ:z</i>	<i>manka</i>	<i>N</i>	star
<i>lɔk'a</i>	<i>nɔqa</i>	<i>N</i>	water
<i>dɔ:bi</i>	<i>dɔ:bi</i>	<i>N</i>	rain
<i>zal nɔk'</i>	<i>bɔ:da nɔq</i>	<i>N</i>	river
<i>tamb</i>	<i>nɔqa kɜ:rɪmta</i>	<i>N</i>	lake
<i>ts'ɜ:rɪm lɔk'</i>	<i>ts'ɜ:rɪ</i>	<i>N</i>	sea
<i>fɔ:k'</i>	<i>sɔ:q</i>	<i>N</i>	salt
<i>sejnɪ</i>	<i>sejnɪ</i>	<i>N</i>	stone
<i>fɑ:mɪ</i>	<i>fɑ:mɪ</i>	<i>N</i>	sand
<i>bu:lɪ</i>	<i>bu:lɪ</i>	<i>N</i>	dust
<i>pɪf'a</i>	<i>pef'a</i>	<i>N</i>	earth
<i>ɪrga</i>	<i>li:lɪa</i>	<i>N</i>	cloud
<i>u:ppa</i>	<i>bergɪ li:l</i>	<i>N</i>	fog
<i>f'ɪla/f'ɪlar</i>	<i>rɪkka</i>	<i>N</i>	sky
<i>zɔga</i>	<i>zɔga</i>	<i>N</i>	wind
<i>azi</i>	<i>azi</i>	<i>N</i>	snow
<i>f'oɔba</i>	<i>f'oɔba</i>	<i>N</i>	smoke
<i>nɔha</i>	<i>nɔha</i>	<i>N</i>	fire
<i>bɪndɪ</i>	<i>bɪndɪ</i>	<i>N</i>	ashes
<i>magra</i>	<i>nɔha at</i>	<i>N</i>	burn

<i>gɔːgɪ</i>	<i>gɔːgɪ, gerda</i>	<i>N</i>	road
<i>bala</i>	<i>bala</i>	<i>N</i>	mountain
<i>maːna</i>	<i>maːna</i>	<i>N</i>	woman
<i>angna</i>	<i>angna</i>	<i>N</i>	man
<i>ʒːd</i>	<i>ʒːd</i>	<i>N</i>	human
<i>jɪŋfɪ</i>	<i>jɪŋsɪ</i>	<i>N</i>	child
<i>kʒːnnɛn</i>	<i>maː</i>	<i>N</i>	wife
<i>kɪʔɪs</i>	<i>kɪʔɪ</i>	<i>N</i>	husband
<i>ɪndenna</i>	<i>ɪndɪ</i>	<i>N</i>	mother
<i>baːbenna</i>	<i>baːbɪ</i>	<i>N</i>	father
<i>laːmɪ</i>	<i>naːmɪ</i>	<i>N</i>	name
<i>jiːgze</i>	<i>lʒːqse</i>	<i>V</i>	sing
<i>lʒːk'se</i>	<i>lʒːqse</i>	<i>V</i>	play
<i>piːʃɪfe</i>	<i>ʒːtʂe</i>	<i>V</i>	swell
<i>dejse</i>	<i>dejse</i>	<i>V</i>	kill
<i>daːmse</i>	<i>daːmse</i>	<i>V</i>	fight
<i>mangze</i>	<i>mangze</i>	<i>V</i>	hunt
<i>gop'se</i>	<i>gɪʔse</i>	<i>V</i>	hit
<i>teʃʃe</i>	<i>katʂe</i>	<i>V</i>	cut
<i>zalse, ɦaʔse</i>	<i>ɦaʔse</i>	<i>V</i>	split
<i>ɪkse</i>	<i>ɪkse</i>	<i>V</i>	stab

<i>k'ɒʃʃ'e</i>	<i>qɒts'ts'e</i>	V	scratch
<i>kɒjse</i>	<i>kɒjse</i>	V	dig
<i>zen</i>	<i>zen</i>	prep.	at
<i>wa:r, gɪdɪjar</i>	<i>wa:r, gɪdɪr</i>	prep.	in
<i>za:gze</i>	<i>ʒa:gze</i>	V	sew
<i>pajdʒe</i>	<i>pajdʒe</i>	V	count
<i>lɪmse</i>	<i>mɪlse</i>	V	swim
<i>pɛ:ʃʃe</i>	<i>pɛ:tsʃe</i>	V	fly
<i>mɒkse</i>	<i>mɒkse</i>	V	walk
<i>ɦa:de</i>	<i>ɦa:de</i>	V	come
<i>gekinse, zatʃʃ'e</i>	<i>zalgze</i>	V	lie
<i>dɒk'se</i>	<i>dɒqse</i>	V	sit
<i>a:mse</i>	<i>dɑ:mse</i>	V	stand
<i>ma:ʃʃe</i>	<i>ma:te</i>	V	turn
<i>wa:ʃʃe</i>	<i>bokelse, wa:ʃʃe</i>	V	fall
<i>wu:rwu:re gejsə</i>	<i>a:fɪzen ma:rse</i>	V	float
<i>wɒlʔmse</i>	<i>lɪlmse</i>	V	flow
<i>sedʒdʒe</i>	<i>ʃedʒdʒe</i>	V	see
<i>eserse</i>	<i>eserse</i>	V	hear
<i>esse, este</i>	<i>esse</i>	V	know
<i>gek'erse</i>	<i>p'ɒqʃe</i>	V	think

<i>wɒʃʃife</i>	<i>wɒʃʃife</i>	<i>V</i>	smell
<i>p'aʃʃe</i>	<i>p'aʃʃe</i>	<i>V</i>	fear
<i>ra:ʃʃe</i>	<i>ra:ʃʃe</i>	<i>V</i>	sleep
<i>gejse</i>	<i>gajse</i>	<i>V</i>	say
<i>ita</i>	<i>ita</i>	<i>pron</i>	I
<i>jena</i>	<i>ɦa:na</i>	<i>pron</i>	you (singular)
<i>nɒ</i>	<i>nɔ:</i>	<i>pron</i>	he
<i>na</i>	<i>na:</i>	<i>pron</i>	she
<i>wɒta</i>	<i>wɒta</i>	<i>pron</i>	we
<i>jeta</i>	<i>jeta</i>	<i>pron</i>	you (plural)
<i>keta</i>	<i>keta</i>	<i>pron</i>	they
<i>kɒna</i>	<i>kɒna</i>	<i>pron</i>	this
<i>ɐ kɒna, kɔ:na</i>	<i>kɒnese</i>	<i>pron</i>	that
<i>kɔ:r</i>	<i>ku:r</i>	<i>adv</i>	here
<i>ɐ</i>	<i>ku:rese, ku:r ɐ</i>	<i>adv</i>	there
<i>ɦaj</i>	<i>ɦaj</i>	<i>pron</i>	who
<i>ɦara:, ɦa:ra</i>	<i>ɦara</i>	<i>pron</i>	what
<i>ɦabɪr</i>	<i>ɦabɪr</i>	<i>pron</i>	where
<i>ɦanta, ɦanter</i>	<i>ɦajnta</i>	<i>pron</i>	when
<i>ɦasm, ɦasi:</i>	<i>ɦasm</i>	<i>pron</i>	how
<i>waʔa</i>	<i>a:j</i>	<i>adv</i>	not

<i>mɔdda</i>	<i>mɔda</i>	<i>quant.</i>	all
<i>bedɪ</i>	<i>bedɪ</i>	<i>quant.</i>	many
<i>mera</i>	<i>mera</i>	<i>quant.</i>	some
<i>tɔmɪ</i>	<i>tɔmɪ</i>	<i>quant.</i>	few
<i>ab</i>	<i>ab</i>	<i>quant.</i>	other
<i>walk'a</i>	<i>wɔllaq</i>	<i>quant.</i>	one
<i>k'asten</i>	<i>qasten</i>	<i>quant.</i>	two
<i>makken</i>	<i>makken</i>	<i>quant.</i>	three
<i>ɔjdɪ</i>	<i>ɔjdɪ</i>	<i>quant.</i>	four
<i>dɔnk'</i>	<i>dɔnq</i>	<i>quant.</i>	five
<i>sɔjtɪ</i>	<i>sɔjtɪ</i>	<i>N</i>	night
<i>hɔjeka</i>	<i>rɔ:r</i>	<i>N</i>	day
<i>rɔ:r</i>	<i>rɔ:r</i>	<i>N</i>	midday
<i>sɪla</i>	<i>bɔn</i>	<i>N</i>	year
<i>zɑ:nɪ</i>	<i>dɑ:kɪ, zɑ:nɪ</i>	<i>N</i>	rope
<i>ɪmse</i>	<i>ɪmse</i>	<i>V</i>	give
<i>jedʒe</i>	<i>jedʒe</i>	<i>V</i>	hold
<i>ʃ'u:p'se</i>	<i>ʃ'u:p'ʃe</i>	<i>V</i>	squeeze
<i>ʒu:ɖʒe, garʔse</i>	<i>dɪqse</i>	<i>V</i>	rub
<i>ʃɪʔʃe</i>	<i>ʃɪʔʃe</i>	<i>V</i>	wash
<i>hɑ:ʃ'ʃ'e, ʃʊʃʃe</i>	<i>hɑ:ʃ'ʃ'e, ʃʊʃʃe</i>	<i>V</i>	wipe

<i>baſſe, gʋſſe</i>	<i>baſſe, gʋſſe</i>	V	pull
<i>hank'se</i>	<i>sogze, hanqse</i>	V	push
<i>ak'se</i>	<i>ɜaqtɪ nɟɬɬe</i>	V	throw
<i>zɔkse</i>	<i>dakse, zɔkse</i>	V	tie

APPENDIX: B

Miscellaneous Words Collected from a Secondary Data Source

The following various lexical items were taken from Tsuge's (2006) 'On the Galila Dialect of the Aari Language'. This work provides a list of 417 different words, phrases and some illustrative sentences in the Gayil Dialect. The present researcher used 7 words from Tsuge's (2006) work as secondary data in this study. These secondary data on the Gayil dialect were used in order to show the sound variation between these words and their equivalents of the Sida dialect.

Gayil Word	Category	Gloss
<i>fʊ/a</i>	<i>N</i>	relative
<i>ʊsse</i>	<i>V</i>	cook
<i>sa:n</i>	<i>N</i>	urine
<i>benʒɪ</i>	<i>N</i>	penis
<i>k'azi</i>	<i>adj</i>	cold
<i>ra:ʃ'ɪ</i>	<i>N</i>	milk
<i>aʃ'ʃ'e</i>	<i>V</i>	bear (a child)

APPENDIX: C

Syntactic Data Elicited from Both Dialects

In order to investigate the morphological variations between the Sida and Gayil dialects of Aaraph, the researcher purposively prepared the following 133 English sentences. These sentences help to examine the morphological difference between the two dialects from various grammatical contexts such as questions, passives, subject-verb agreement, imperatives, and verb forms and so on. Accordingly, the English glosses of the data are given in number order; under each gloss, the data in letter ‘a’ represent the Gayil dialect and letter ‘b’ shows the data of the Sida dialect.

1. ‘the man came’
 - a. *ε:ʃina ha:de*
 - b. *ε:tsina ha:de*
2. ‘the people went’
 - a. *ε:dina/ε:dinkes ajseke*
 - b. *ε:dina kajeke*
3. ‘that man is a farmer’
 - a. *ε:ʃina kɔ:na wɔ:niba:be*
 - b. *ε:tsina kɔna n wɔ:nsigetsda:be*
4. ‘human’s behavior is various’
 - a. *ε:dta pɪʒa haki hakije*
 - b. *ε:dta pɪʒrɪ gala gale*
5. ‘a police hit the man’
 - a. *pɒlis ε:ʃinim gɒp’sɛ*
 - b. *pɒlis ε:tsinam gɪʔse*
6. ‘alcohol drinking hurts human’
 - a. *wɒʃ’mɪ ε:dɪm gɒdaʔdɛ*
 - b. *wɒʃ’mɪ ε:dam gɒdaʔdɛ*
7. ‘the man was jailed’
 - a. *ε:ʃina zɒkerse*
 - b. *ε:tsina dakerse*

8. 'the water is not pure'
 - a. *nɔk'ena ʔ'i:lɪ kaje*
 - b. *nɔqena ʔ'i:lɪ dakije*
9. 'the boy drank the water'
 - a. *jɪɲʃina nɔk'enɪm wɔʔʃ'e*
 - b. *jɪɲʃina nɔqenam wɔʔʃ'e*
10. 'the girl poured the water'
 - a. *jɪɲʃenɪna nɔk'enɪm wɔlɪʔse*
 - b. *jɪɲʃenɪna nɔk'enɪm wɔlɪʔse*
11. 'whose sheep are these'
 - a. *kɛ:na k'ɔlɪna ʃajtere*
 - b. *kɛ:na qɔlɪna ʃajteke*
12. 'bekele slaughtered the lamb'
 - a. *bek'ele aɲɲnenɪm matʃe*
 - b. *beqeke aɲɲesɪnam tetʃe*
13. 'the sheep gave birth to twins'
 - a. *k'ɔlenɪna mɛntɪ aʔʃ'e*
 - b. *qɔlenɪna mɪntɪ ats'e*
14. 'my job is teaching'
 - a. *ɪsta pɪkʃina esije*
 - b. *ɪsta pɪkʃena esije*
15. 'where is your country'
 - a. *jeʃta pɪʔʃ'a ʃabɪre*
 - b. *ʃanta pɛʔʃ'a ʃabɪre*
16. 'his son is a physician'
 - a. *kɪta jɪɲʃina akɪme*
 - b. *kɪta jɪɲʃina akɪme*
17. 'our town is Arfaro'
 - a. *wɔnta katmena arfa:re*
 - b. *wɔnta katmena arfa:re*
18. 'where is your church'

- a. *jenta wese eha habire*
 - b. *jenta miks ej habire*
19. 'who is their grandfather'
- a. *keta a:kis hajre*
 - b. *keta a:kis haje*
20. 'you saw me'
- a. *i:m fetaje*
 - b. *i:m fetaje*
21. 'I saw you'
- a. *je/im fetite*
 - b. *ha:m fetite*
22. 'we saw him'
- a. *kitem fetote*
 - b. *ki:m fetote*
23. 'he saw us'
- a. *wɔ:m fete*
 - b. *wɔ:m fete*
24. 'they saw you'
- a. *je:m feteke*
 - b. *je:m feteke*
25. 'you saw them'
- a. *ketim shetete*
 - b. *ke:m shetete*
26. 'I prepared myself'
- a. *ist maten gıgstite*
 - b. *ımatam ɔstite*
27. 'calm down yourself'
- a. *jeft matenım ganfıska*
 - b. *hamatam za:sıska*
28. 'he takes care of himself'
- a. *jınt matenım kar/de*

- b. *jimatam kabde*
- 29. 'we changed ourselves'
 - a. *wɔnt maten ɔ:ktɔte*
 - b. *wɔmatam ɔ:ktɔte*
- 30. 'be yourselves'
 - a. *jent matent ma:tkete*
 - b. *jematatm ma:tkete*
- 31. 'they love themselves'
 - a. *jɪnt matɪnt sɔ:lɪmdeke*
 - b. *jimatam naʃdeke*
- 32. 'who is he'
 - a. *hɪajre*
 - b. *haje*
- 33. 'whom do you know'
 - a. *hɪajmes esda*
 - b. *hɪajma esde*
- 34. you know nobody
 - a. *hɪajmere esajaje*
 - b. *hɪajmesere esajaje*
- 35. 'what is it'
 - a. *hɪarerɪre*
 - b. *hɪare*
- 36. 'what did you say'
 - a. *hɪares gejsare*
 - b. *hɪara: gajse*
- 37. 'I said nothing to you'
 - a. *hɪarere jɛʃɪm geʃekɪte*
 - b. *hɪarere hɪa:n ga:qɪte*
- 38. 'when shall it be'
 - a. *hɪantɪs*
 - b. *hɪajnte*

39. when will she come
- a. *hantes ha:da*
 - b. *hajtɔk ha:de*
40. 'she never comes'
- a. *hantere ha:daje*
 - b. *hantesere ha:daje*
41. 'where is it'
- a. *habrɪre*
 - b. *habɪre*
42. 'where is he'
- a. *habɪr dɔk'da*
 - b. *habɪrɪk dɔqde*
43. 'he is not anywhere'
- a. *habrere kaje*
 - b. *habrere dakije*
44. 'why'
- a. *hareta*
 - b. *hareta*
45. 'why did he go'
- a. *haret ajsare*
 - b. *haretɪk kaje*
46. 'he didn't go for anything'
- a. *harekantere ajkije*
 - b. *harekanere kajkije*
47. 'how is it'
- a. *hasɪre*
 - b. *hasɪne*
48. 'how did he hear'
- a. *hasɪk esersa*
 - b. *hasɪmɪk eserse*
49. 'he heard in any way'

- a. *ħasmure jĵis eserse*
 - b. *ħasmere jeʔjsiʝo eserse*
50. 'I eat meat'
- a. *ita waha itsdite*
 - b. *ita wa: iʃdite*
51. 'you ate meat'
- a. *jena waha istaje*
 - b. *ħa:na wa: itstaje*
52. 'he had eaten meat'
- a. *nɔ waha iʃiʃ ħa:k'e*
 - b. *nɔ:wa: itsta ħa:qe*
53. 'we are eating meat'
- a. *wɔta waha iʃɔ dɔk'dɔte*
 - b. *wɔta waha iʃɔ dɔqdɔte*
54. 'they ate meat'
- a. *keta waha iʃeke*
 - b. *keta wa: itseke*
55. 'you were eating meat'
- a. *jeta waha iʃɔ ħa:qete*
 - b. *jeta waha itsɔ ħa:qete*
56. 'tomorrow meat will be eaten'
- a. *ʃena:k waha iʃerde*
 - b. *ʃena:k wa: its'erde*
57. 'I didn't drink water'
- a. *ita nɔk'a wɔʃ'ak'kite*
 - b. *ita nɔqa wɔʃ'ak'kite*
58. 'you don't drink water'
- a. *jena nɔk'a wɔʃ'ejaje*
 - b. *ħa:na nɔqa wɔʃ'ajaje*
59. 'she is not drinking water'
- a. *na nɔk'a wɔʃ'ɔ dɔk'aje*

- b. *na: nɔk'a wɔfʼv dakije*
60. 'we hadn't drunk water'
- a. *wɔta nɔk'a wɔfʼak'kɪ ɦa:qɔte*
- b. *wɔta nɔqa wɔfʼak'kɪ ɦa:qɔte*
61. 'you didn't drink water'
- a. *jeta nɔqa wɔfʼak'kete*
- b. *jeta nɔqa wɔfʼaqkete*
62. 'they were not drinking water'
- a. *keta nɔk'a wɔfʼɔ dɔk'kɪnk ɦa:qeke*
- b. *keta nɔqa wɔfʼɔ daki ɦa:qeke*
63. 'the water was not drunk'
- a. *nɔk'en wɔfʼmak'kije*
- b. *nɔk'en wɔfʼraqkije*
64. 'let me sleep'
- a. *i:ʃtite*
- b. *ɪ ra:tane*
65. 'let her sleep'
- a. *na i:ʃa*
- b. *kɔ ra:tane*
66. 'let us sleep'
- a. *wɔta i:ʃfɛrɛre*
- b. *wɔ ra:tane*
67. 'let them sleep'
- a. *keta i:ʃa*
- b. *ke ra:tane*
68. 'sleep'
- a. *i:ʃka*
- b. *ra:tka*
69. 'sleep' (plural)
- a. *i:ʃkete*
- b. *ra:tkete*

70. 'will I wake up'
- a. *ita a:mditv*
 - b. *ita dā:mditv*
71. 'shall you wake up'
- a. *jena a:mta*
 - b. *ha:na dā:mta*
72. 'had he wake up'
- a. *nv a:mtik ha:k'v*
 - b. *nv a:mtik ha:qv*
73. 'had she wake up'
- a. *na a:mtvk ha:k'v*
 - b. *na: dā:mtvk ha:qv*
74. 'are we waking up'
- a. *wpta a:mv dvk'dvtr*
 - b. *wpta dā:mv dvqdvtr*
75. 'were you waking up'
- a. *jeta a:mv dvk'dent hak'v*
 - b. *jeta dā:mv dvqde haaqv*
76. 'did they wake up'
- a. *keta a:mtekv*
 - b. *keta dā:mtekv*
77. 'don't let him come'
- a. *hij ha:da*
 - b. *hay kɪ ha:dane*
78. 'don't let us come'
- a. *wpta ha:draj*
 - b. *hay wv ha:dane*
79. 'don't let them come'
- a. *keta hij ha:da*
 - b. *hay ke ha:dane*
80. 'don't let me come'

- a. *ita hay ha:da*
 - b. *hay ɿ ha:dane*
81. ‘don’t come’ (plural)
- a. *haj ha:dete*
 - b. *haj ha:dkete*
82. ‘don’t come’ (singular)
- a. *haj ha:de*
 - b. *haj ha:dka*
83. ‘will I not plough my farmland’
- a. *ha:mmst wɔ:najɿv*
 - b. *ha:mɿ ɪst wɔ:najɿv*
84. ‘did you not plough your farmland’
- a. *ha:mɪ jefta wɔ:nak’kajv*
 - b. *ha:mɪ hantam wɔ:nak’kajv*
85. ‘did she not plough her farmland’
- a. *ha:mɿ jint na wɔnak’kijv*
 - b. *ha:mɿ jintam na wɔnaqkijv*
86. ‘are we ploughing our farmland’
- a. *ha:mɪ wɔnta wɔ:nv dɔk’dɔtv*
 - b. *ha:mɪ wɔntam wɔ:nv dɔqdɔtv*
87. ‘were you ploughing your farmland’
- a. *ha:mɪ jenta wɔnv dɔk’det ha:k’v*
 - b. *ha:mɪ jentam wɔnv dɔqde ha:qv*
88. ‘did they plough their farmland’
- a. *ha:mɪ jɪnta wɔ:ntekv*
 - b. *ha:mɪ jɪntam wɔ:ntekv*
89. ‘sara is eating a ripe mango’
- a. *sara zejsak’inda ma:ngv ɪfv dɔk’dɛ*
 - b. *sara manga fʃʷɪkɪ ɪtsv dɔk’dɛ*
90. ‘the children cut the mango with a knife’

- a. *jɪŋfɪna mænɛnɪm masek tɛfɛke*
 - b. *jɪntsɪma mænɛnam bɪlek tɛfɛke*
91. ‘dagim cut his fingers while cutting the mango’
- a. *da:gɪm mænɛnɪm tɛfɔdɪɲ*
 - b. *da:gɪm mænɛnɪm tɛfɔdɪɲ*
92. ‘Ruth ate the mango in the bus’
- a. *ru:t mænɛnɪm maknɛnt wa:r ɪfɛ*
 - b. *ru:t mænɛnam maknɛnt wa:r ɪtse*
93. ‘Bereket ate the mango in the morning’
- a. *bereket mænɛnɪm zama ɪfɛ*
 - b. *bereket mænɛnam zama ɪtse*
94. ‘I don't go to school’
- a. *ɪta tɪmɪrt ɛ:r aɟajɪte*
 - b. *ɪta tɪmɪrt ɛ:r kaɟajɪte*
95. ‘we will not go to Jinka tomorrow’
- a. *fɛna:k dʒɪnka aɟajote*
 - b. *fɛna:k dʒɪnka kaɟajote*
96. ‘I did not go to school yesterday’
- a. *na:k tɪmɪrt ɛ:r aɟak'kɪte*
 - b. *ni: tɪmɪrt ɛ:r kaɟaɟikɪte*
97. ‘the child did not hit his sister’
- a. *jɪŋfɪna jɪnt mɪfɪnɛnɪm ɡɔp'kɪje*
 - b. *jɪntsɪma jɪnt ɪna:nam ɡɪɲkɪje*
98. ‘because they did not study they failed in the exam’
- a. *jɪt'anaɲkɪn ɔ:la:r p'ɛts'ɪnk wa:fɛke*
 - b. *jɪt'anaɲqa:ket zɛna:nk da:msaɟɪnda p'ɛts'ɪnk wa:fɛke*
99. ‘neither my mother came nor my sister’
- a. *ɪsta ɪndenɛrɛ mɪɲnɛnɛrɛ fɪa:dak'keke*
 - b. *ɪsta ɪndenɛrɛ ɪnanɛrɛ fɪa:daɟkeke*
100. ‘the old elephant did not die’
- a. *dɔndɛrsak'ɪnda dɔŋɡɛrɪma dɛɲak'kɪje*

- b. *dɒŋger galtesɪna deʔaɣkije*
101. 'come in'
- a. *ardka*
- b. *ardka*
102. 'don't come in'
- a. *hɑj arde*
- b. *hɑj ardka*
103. 'please sit down'
- a. *wa:detɛ dɒk'kete*
- b. *wa:detɛ dɒqkete*
104. 'sit down'
- a. *dɒk'ka*
- b. *dɒqka*
105. 'if you don't give me the sweets, I will cry'
- a. *lɔ:k'mɪnɪm i:mes ɔmak'ki ma:tʃɛ ɛ:fɛ:fdɪte*
- b. *lɔ:k'mɪnam i:na ɪmkɪ ma:tse ɛ:fɛ:fdɪte*
106. 'if you will hit me, I will cry'
- a. *i:mes ɡɒp'ɡɒp'dɛ ma:tʃɛ ɛ:fɛ:fdɪte*
- b. *i:ma ɡɪʔɡɪʔdɛ ma:tse ɛ:fɛ:fdɪte*
107. 'Mesfin and Selam went to watch a movie'
- a. *mesfɪnke selamk fɪlm fɛdɪnkanta ajteke*
- b. *mesfɪnke selamk fɪlmi fɛdsta kajteke*
108. 'children ate and drank cold water'
- a. *ʃɪmfɪna ɪfɪsekɒ ɡand nɒk'a wɒʃ'eke*
- b. *ʃɪmfɪna ɪtsekɒ nɒk'a za:zmɪ wɒʃ'eke*
109. 'Rahel is beautiful but ill natured'
- a. *rahel lak'me ana na dak'lije*
- b. *rahel ɔzmɪje daɪnkere na dak'lije*
110. 'what is your name'
- a. *na:mɪ jeʃta hɑjra*
- b. *na:mɪ hant hɑje*

111. 'where do you live'
 a. *ħabires dɒk'da*
 b. *ħabires dɒk'da*
112. 'how are you'
 a. *jena ħasire*
 b. *ħasmaje*
113. 'when are you going home'
 a. *ɛ:r ħanteres ajda*
 b. *ɛ:r ħajnta kajd*
114. 'why are you going to Gelila'
 a. *gelila ħaretas ajda*
 b. *gelila ħaresta kajde*
115. 'who is this'
 a. *ħajra kɒna*
 b. *ħaje kɒna*
116. 'have you eaten lunch'
 a. *ħajek gala ɪfta*
 b. *rɔ:r qɒrs itsta*
117. 'shall I come tomorrow'
 a. *ʃena:k ħa:ditɒ*
 b. *ʃena:k ħa:ditɒ*
118. 'which one is your brother'
 a. *jeʃta ɪʃmena ħabɪnere*
 b. *ħanta mdepsɪna ħabɪnee*
119. the boy who had fever died yesterday
 a. *zena bɒrk'dɪm jɪnfɪna na:k deʔse*
 b. *zena jɪnt vjʔʃda:b jɪntsɪna ni: deʔse*
120. 'call the boy who broke the glass'
 a. *na:k ħa:k' engera:k bɒrʃ'ɪk'en dɪksɪm jɪnʃɪnɪm ɛ:lka*
 b. *ni:t ɒs bɒrʃ'ɪk'en ajsa:b jɪntsnam ɛ:lka*
121. 'throw away the broken branch'

- a. *k'omɸ'imsak'inda erɪmɪm ala ojtka*
 b. *a:nɪ k'omts'mɪnam ʒaqtɪ ojtka*
122. 'the hung cup fell down'
 a. *rɔ:kɛrsak'inda k'ɔ:bɪma wa:ɸe*
 b. *qɔ:bɪma rɔ:kertena wa:ɸe*
123. 'mom fed the baby'
 a. *ɪmɪ u:lenɪm gala ɪɸɪɸe*
 b. *ɪmɪja jɪntsɪnam ɪtsmɪ ɪtsɪɸe*
124. 'meseret made the child get up'
 a. *meseret jɪnɸɪnɪm a:msɪse*
 b. *meseret jɪnɸɪnɪm dɑ:msɪse*
125. 'father got the trees cut by laborers'
 a. *abɪ ɦa:k'enkesɪm paksɪse*
 b. *abɪja ɦa:qenam paksɪse*
126. 'the trees were cut'
 a. *ɦa:k'enkes pakɪmseke*
 b. *ɦa:qena pakɪmseke*
127. 'the bottle was broke'
 a. *dɔlɪzena dɪkse*
 b. *t'ermɔsɪna aɟse*
128. 'a girl was raped last night'
 a. *na:k sɔɟtɪ walk'a ma:na jɪnɸɪ daperɪmse*
 b. *nɪ: sɔɟtɪ ma:na jɪntsɪ wulaqenda daperɪmse*
129. 'the food will not be eaten fast by the child'
 a. *galena u:lenda sa:na ɪɸɪmaje*
 b. *ɪtsmɪna jɪntsɪnda sa:na ɪtsmaje*
130. 'river water is cleaner than lake water'
 a. *tamb nɔk'ezenank zal nɔk'a ɸ'i:lɪje*
 b. *kɛ:rɪmta nɔqezenank bɔ:da nɔqa ɸ'i:lɪje*
131. 'the Saalla river is the cleanest'
 a. *mɔda nɔk'enzenank sa:la nɔqena ɔrmene*

- b. *moda nɔqenzenank sa:la nɔqena laqmɪne*
132. 'Arfaro's whethear is dry but gayl is wet'
- a. *arfaro pɪʃ'ena vjdɪme kɛ:zarɪnk ma:ʃe gajl gande*
- b. *arfaro pɪʃ'ena vjdɪme gajl dajɪnk za:zmɪ*
133. 'my cloth is whiter than yours'
- a. *ɪsta ablena jɛstɛnzenank sɪɣɪ ʃ'aamɪse*
- b. *ɪsta ablena ʃantɛnzenank ga:ts'ɪ ts'a:mɪje*

APPENDIX: D

Corresponding Phonemes in the Cognate Words of the Sida and Gayil Dialects

The following table provides all phoneme correspondences in the cognate words of the Sida and Gayil dialects. The first two columns show the pair of corresponding phonemes; i.e., *Phoneme 1* and *Phoneme 2*, which represent the Sida and Gayil dialects respectively. The third column indicates the number of correspondences between the two phonemes; the fourth column displays the strength value for the phoneme correspondences. The fifth column shows the degrees of difference between *Phoneme 1* and *Phoneme 2*; i.e., the specified value of the phonetic differences between the two corresponding phonemes. The last column gives an example of a cognate word containing the two corresponding phonemes.

Phon...	Phon...	Occurr...	Stre...	Degrees of..	Example...
g	g	16	0.89		0 long
/	d	1	-1		1 stand
z	z	10	0.56		0 cold
q	i	1	-1		5 leg
		1	-1		0 this
a	g	1	-1		0 because
ɜ	ɜ	3	0.17		0 short
ʔ	p	1	-1		2 leaf
	q	1	-1		1 one
h	j	1	-1		3 you (SG)
j	j	14	0.78		0 laugh
l	m	1	-1		3 straight
ʻ	a	1	-1		5 leaf
.	ɛ	1	-1		0 because
.	r	2	-0.5		0 because
/	u	1	-1		1 there
w	w	9	0.5		0 dry
o	o	25	1		0 narrow
b	b	16	0.89		0 left
ɑ	a	1	-1		1 vomit
.	ɑ	1	-1		0 because

Phon...	Phon...	Occurr...	Stre...	Degrees of..	Example...
j	n	1	-1	4	when
/	k	1	-1	1	there
i	i	2	-0.5	0	feather
ε	ɪ	4	0.22	0	dog
m	m	36	1	0	heavy
ε	ɜ	4	0.22	0	heavy
j	r	1	-1	3	in
r	r	22	1	0	small
l	k	1	-1	3	one
ɑ	z	1	-1	0	straight
.	ɪ	5	0.28	0	long
ɑ	ɜ	1	-1	0	wing
/	h	1	-1	1	meat
u	ʊ	1	-1	0	stick
t	f	1	-1	0	spit
u	u	4	0.22	0	foot
ɔ	ɔ	6	0.33	0	full
ts	ts	1	-1	0	heavy
ɑ	m	1	-1	0	correct
ʊ	ʊ	10	0.56	0	snake
ɔ	ɒ	4	0.22	0	correct

Phon...	Phon...	Occurr...	Stre...	Degrees of..	Example...
s	ɪ	1	-1	5	husband
.	'	2	-0.5	0	correct
/	'	22	1	1	bad
ə	ə	83	1	0	small
k	k	22	1	0	narrow
j	ʊ	1	-1	5	straight
ʔ	ʔ	5	0.28	0	bite
f	f	10	0.56	0	wet
.	l	2	-0.5	0	straight
/	ʃ	1	-1	1	white
.	d	2	-0.5	0	correct
/	d	1	-1	1	all
p	p	5	0.28	0	earth
ts	tʃ	16	0.89	1	short
tʃ	tʃ	13	0.72	0	wet
.	.	13	0.72	0	long
.	.	2	-0.5	1	breast
ɔ	u	1	-1	0	here
t	t	18	1	0	narrow
q	k	21	1	5	bad
l	l	17	0.94	0	new

Phon...	Phon...	Occurr...	Stre...	Degrees of..	Example...
z	ʒ	4	0.22	0	long
ε	t	1	-1	0	because
ʒ	ʒ	1	-1	0	thin
s	f	2	-0.5	5	salt
h	h	1	-1	0	fire
ɑ	ε	1	-1	0	you (SG)
ə	t	1	-1	0	when
.	s	1	-1	0	because
/	s	1	-1	1	small
m	ɪ	2	-0.5	0	correct
ə	ɑ	6	0.33	0	straight
ɑ	ɑ	27	1	0	long
ɪ	ɪ	62	1	0	short
ə	ɒ	1	-1	0	one
ɪ	i	1	-1	0	how
.	ə	7	0.39	0	correct
/	ə	1	-1	1	meat
	ə	1	-1	1	leaf
/	/	1	-1	0	small
'	'	23	1	0	heavy
.	m	4	0.22	0	long

Phon...	Phon...	Occurr...	Stre...	Degrees of..	Example...
n	n	31	1	0	correct
ə	ɪ	6	0.33	0	heavy
l	n	2	-0.5	1	water
s	s	13	0.72	0	dog
l	ɪ	2	-0.5	0	tooth
ɒ	ɒ	1	-1	0	scratch
.	n	7	0.39	0	correct
h	h	13	0.72	0	because
/	j	1	-1	1	vomit
ɛ	ɛ	25	1	0	small
tʃ	d	1	-1	4	correct
ʃ	ʃ	11	0.61	0	thin
.	ɒ	1	-1	0	sea
.	k	2	-0.5	0	correct
s	m	2	-0.5	5	red
/	r	2	-0.5	1	star
t	n	1	-1	2	when
d	d	28	1	0	heavy

APPENDIX: E

All Cognate Words Containing the Corressponding Phonemes

The following table summarizes the cognate words between the Sida and Gayil dialects and their average correspondence strength. Accordingly, the first column contains the English entries; the second and third columns show the Sida and Gayil words respectively. The fourth column indicates the average correspondence strength between the two cognate words, and the last column shows the sum of the degrees of difference between the corresponding phonemes of the cognates.

Name	Sida Variety	Gayil Variety	Str...	Degrees..
long	gəʒmɪ	gəz...	0.23	0
heavy	dəʒts'mɪ	dəʒts'mə	0.59	0
small	mɛr/ə	mɛr/ə	0.53	0
small	mɛr/ə	mɛrsə	0.53	1
short	ts'ədɪ	tʃ'ədɪ	0.91	1
narrow	tokmɪ	tokmɪ	0.86	0
thin	ʃəʒɪ	ʃəʒɪ	0.89	0
cold	zəʒmɪ	zəʒ..	0.13	0
full	ts'əʒts'ɪ	tʃ'əʒtʃ'ɪ	0.93	2
new	kɪllə	kɪllə	0.91	0
old	gəʒ/ə	gɛʒ/ə	0.89	0
bad	dəʒq/ɪ	dəʒk'ɪ	0.6	6

Name	Sida Variety	Gayil Variety	Str...	Degrees..
dirty	ʃoq/mɪ	ʃok'ma	0.59	6
straight	ʊzma	ʃolol	-0.14	8
sharp	q/armaɪ	k'arma	0.61	6
wet	tʃ'afɪ	tʃ'afɪ	0.88	0
dry	wotʃa	wotʃa	0.75	0
correct	dofɛ'nɪmda.....	dofɛ'nɪmotʃak'ɪ'nɪda	0.14	4
right	mɪzɪ	mɪzɪ	0.89	0
left	bɪtə	bɪtə	0.89	0
animal	q/olma	k'olma	0.6	6
bird	aftɪ	aftɪ	0.89	0
dog	aksɪ	aksɪ	0.82	0

Name	Sida Variety	Gayil Variety	Str...	Degrees..
dog	aksɪ	aksɛⁿ	0.76	0
louse	q/asa	k'asa	0.5	6
snake	ɡɔⁿɪ	ɡɔⁿɪ	0.92	0
worm	katɕa	katʃa	0.89	1
meat	wa//	waha	-0.15	2
blood	mak'ɪs	mak'ɪs	0.88	0
bone	lɛft	lɛft	0.9	0
egg	mɔq/a	mɔk'a	0.53	6
tail	ɡɔɪ	ɡɔɪ	0.9	0
feather	s'illa	s'illa	0.88	0
hair	mata	mata	0.89	0
ear	q/ɔmɪ	k'ɔmɪ	0.53	6

Name	Sida Variety	Gayil Variety	Str...	Degrees..
eye	afɪ	afɪ	0.89	0
nose	nɔkɔ	nɔkɔ	0.92	0
mouth	afa	afa	0.89	0
tooth	atɕɪ	atɕɪ	0.43	1
tongue	adɪm	adɪm	0.89	0
fingernail	ʃɔq/ma	ʃok'ma	0.59	6
foot	duɪ	duɪ	0.89	0
leg	zɔlqɪ	zɔlɪ	0.14	5
leg	zɔlɪ	zɔlɪ	0.87	0
knee	bɔq/a	bok'a	0.53	6
hand	oʔɪ	oʔɪ	0.93	0

Name	Sida Variety	Gayil Variety	Str...	Degrees..
wing	kafi	kafi	0.89	0
belly	ṛorti	ṛorti	0.93	0
guts	ṛortwarimda	ṛortwar....	0.25	0
neck	bari	bari	0.92	0
breast	ami..	ami..	0.82	0
breast	ami..	amma	0.23	1
heart	buda	buda	0.89	0
liver	tori	tori	0.92	0
drink	wotjʔ	wotjʔ	0.78	0
eat	its	ɪʃ	0.19	1
bite	gaʔ	gaʔ	0.69	0

Name	Sida Variety	Gayil Variety	Str...	Degrees..
spit	tɛtsʰim	fɛtʃʰim	0.91	1
vomit	tsʰa/	tʃʰaj	-0.03	3
blow	ʒog	zog	0.89	0
breathe	ʊkʌn	ʊkʌn	0.92	0
laugh	jɪnʃʰ	jɪnʃʰ	0.88	0
live	doq/	dokʰ	0.44	6
die	dɛʔ	dɛʔ	0.69	0
red	zɛjɪɪ	zɛjɪɪ	0.87	0
red	zɛjɪɪ	zɛjsa	0.49	5
white	tsʰamɪ/	tʃʰamɪʃ	0.59	2
black	tʃʰalmɪ	tʃʰalmɪ	0.89	0

Name	Sida Variety	Gayil Variety	Str...	Degrees..
black	tʃʰalmɪ	tʃʰalsə	0.57	5
and	kə	kə	0.89	0
if	motʃʰtsɛ	motʃʰtʃɛ	0.89	2
because	hərekaʰegorse	hərekaʰta.....	0.35	0
tree	həqʰa	həkʰa	0.5	6
forest	qʰotsə	kʰotʃa	0.53	7
stick	gufa	gufa	0.89	0
fruit	oft	oft	0.89	0
seed	maja	maja	0.89	0
leaf	qʰalpʰa	kʰalʰa	0.1	14
root	tʃʰotʃʰɪ	tʃʰotʃʰɪ	0.87	0
flower	boʰa	boʰa	0.92	0

Name	Sida Variety	Gayil Variety	Str...	Degrees..
grass	dɪra	dɪra	0.92	0
freeze	ga ⁿ d	ga ⁿ d	0.92	0
sun	haj	haj	0.8	0
moon	arɛ ⁿ	arɛ ⁿ	0.93	0
star	ma ⁿ ka/	ma ⁿ kar	0.68	1
water	ⁿ oq/a	lok'a	0.26	7
rain	dɔɪ	dɔɪ	0.89	0
sea	ts'ɜɪ.....	tʃ'ɜɪmlɔk'	0.07	1
salt	sɔq/	ʃɔk'	-0.03	11
stone	sɛj ⁿ ɪ	sɛj ⁿ ɪ	0.86	0
sand	ʃamɪ	ʃamɪ	0.89	0
dust	bult	bult	0.9	0

Name	Sida Variety	Gayil Variety	Str...	Degrees..
earth	pɛtʃʰa	pɪtʃʰa	0.88	0
wind	ʒoga	zoga	0.89	0
snow	azi	azi	0.89	0
smoke	tʃʰoba	tʃʰoba	0.88	0
fire	nɔha	nɔha	0.44	0
ash	brʰɔɪ	brʰɔɪ	0.91	0
road	gɔgɪ	gɔgɪ	0.86	0
mountain	bala	bala	0.9	0
woman	mɔʰa	mɔʰa	0.92	0
man	aʰg	aʰg	0.93	0
human	ɛd	ɛd	0.89	0
child	ʃɪʰtɕɪ	ʃɪʰtʃɪ	0.89	1

Name	Sida Variety	Gayil Variety	Str...	Degrees..
husband	kɪʔɪ	kɪʔs	0.26	5
mother	ɪʎɪɪ...	ɪʎɪɪɪɪɪ	0.49	0
father	babɪ...	babɪɪɪɪɪ	0.48	0
name	ɪɪɪɪɪ	ɪɪɪɪɪ	0.54	1
play	ɪɪqɪʔ	ɪɪkɪʔ	0.46	6
kill	dɪɪɪs	dɪɪɪs	0.82	0
fight	dɪɪɪ	dɪɪɪ	0.89	0
hunt	mɪɪɪɪɪ	mɪɪɪɪɪ	0.92	0
split	ɪɪɪʔs	ɪɪɪʔs	0.65	0
stab	ɪk	ɪk	0.89	0
scratch	qɪʔɪɪʔ	kɪʔɪʔʔ	0.18	7

Name	Sida Variety	Gayil Variety	Str...	Degrees..
dig	kaj	kaj	0.85	0
at	zɛ ⁿ	zɛ ⁿ	0.93	0
in	war....	war....	0.75	0
in	gɔɖɔr...	gɔɖɔjɔr	0.07	4
sew	ʒag	zag	0.89	0
count	pajɖ	pajɖ	0.86	0
fly	pɛt	pɛt	0.89	0
walk	mək	mək	0.89	0
come	ɦad	ɦad	0.83	0
sit	dəq/	dəkʰ	0.44	6
stand	dʌm	/am	0.26	1

Name	Sida Variety	Gayil Variety	Str...	Degrees..
turn	mat	mat	0.89	0
fall	watʃ..	watʃ..	0.71	0
see	ʃed	sed	0.26	5
hear	ɛsr	ɛsr	0.87	0
know	ɛs	ɛs	0.81	0
smell	wɔʃʃ	wɔʃʃ	0.79	0
fear	pʰaʃ	pʰaʃ	0.92	0
sleep	rat	rat	0.93	0
I	ita	ita	0.89	0
you (SG)	ɦaŋa	jeŋa	0.44	3
he	ŋɔ	ŋɔ	0.94	0

Name	Sida Variety	Gayil Variety	Str...	Degrees..
she	nə	nə	0.94	0
we	wotə	wotə	0.79	0
you (PL)	jɛtə	jɛtə	0.86	0
they	kɛtə	kɛtə	0.89	0
this	kɒʔə	kɒʔə	0.91	1
here	kʊr	kʊr	0.93	0
there	kʊrɒ	///ɒ	-0.4	3
who	həj	həj	0.8	0
what	hərə	hərə	0.88	0
what	hərə	hərə	0.88	0
where	həbr	həbr	0.88	0
when	həjʔtə	həʔtə	-0.08	6

Name	Sida Variety	Gayil Variety	Str...	Degrees..
how	hasɪ ⁿ	has ⁱ	0.72	0
all	mod/a	modda	0.51	1
many	bedɪ	bedɪ	0.89	0
some	mera	mera	0.92	0
few	tokmɪ	tokmɪ	0.89	0
other	ab	ab	0.89	0
one	woll/aq	walk'a	0.32	5
two	q/aste ⁿ	k'aste ⁿ	0.63	6
three	makke ⁿ	makke ⁿ	0.91	0
four	ojddɪ	ojddɪ	0.87	0
five	do ⁿ q/	do ⁿ k'	0.56	6

Name	Sida Variety	Gayil Variety	Str...	Degrees..
night	sojɪɪ	sojɪɪ	0.83	0
midday	rɔɪ	rɔɪ	0.96	0
rope	zoʔɪ	zoʔɪ	0.92	0
give	ɪm	ɪm	0.89	0
hold	jɛd	jɛd	0.85	0
squeeze	tʃʰupʰ	tʃʰupʰ	0.9	0
wash	ʃɪʔ	ʃɪʔ	0.69	0
wipe	ɦoʈsʰ	ɦoʈʃʰ	0.88	1
pull	bəʃ	bəʃ	0.89	0
pull	ɡoʈʃ	ɡoʈʃ	0.83	0
push	ɦaʈqʰ/	ɦaʈkʰ	0.52	6